Preliminary Ecological Appraisal Report

Ironstones, Mays Hill, Frampton Cotterell, Bristol, BS36 2NS

Client	Mr and Mrs Poole
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Document History

Version	Date Issued	Revision
DRAFT	22/08/2023	Issued to the client.
1	19/03/2024	Updated to include the finalised proposed site plan and details of current planning policy and bat survey requirements.

Disclaimer

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The summary of wildlife legislation provided is for general guidance only and does not in any way provide legal opinion or a definitive statement of the law. For detailed information, the legislation itself should be reviewed and a legal professional consulted.

Smart Ecology cannot be held liable for any information provided by third parties which is referenced within this document.

The evidence in this document is based upon the field survey(s) detailed. Due to the changing nature of ecology the list of species present cannot be considered comprehensive and Smart Ecology cannot guarantee that other protected/notable species and habitats are not present.

The ecology of a site is constantly changing and therefore the information provided in this document is only relevant at the time of survey. **If it has been over 12 months since this survey was undertaken advice should be sought on whether an updated survey is necessary.**

The evidence 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. We confirm that the opinions expressed are our true and professional bona fide opinions.

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Non-Technical Summary

Purpose of Report	Smart Ecology was commissioned by Mr and Mrs Poole to undertake a Preliminary Ecological Appraisal of a site at Ironstones, Mays Hill, Frampton Cotterell, Bristol, BS36 2NS. The purpose of the appraisal was to inform a planning application for the extension of the existing property, which would involve the incorporation of an outbuilding into the dwelling and the relocation of a wall.
Methodology	A desk study, UK Habitat Classification survey, and an assessment for legally protected, notable and invasive non-native species were undertaken.

Ecological Feature	**Potential Impacts without Mitigation** (refer to Section 5)	**Required Surveys & Mitigation** (refer to Sections 6.1 & 6.2)
Hedgerow	Damage to the hedgerow during works.	Protect the hedgerow during works.
Bat (roosts)	If bats roost within the on-site buildings then the proposed works could destroy roost(s) and could kill or injure bats (if present at the time of works).	**Two emergence surveys are required of the buildings (May-September inclusive, at least one of the surveys must be carried out between May and August inclusive) to confirm the presence/likely absence of roosting bats. If bat roost(s) were found to be present then one more additional emergence survey would be required.**
Bats (foraging/ commuting)	Artificial light spill could disturb foraging and commuting bats.	Avoid installing additional external lighting, or mitigate for impacts if external lighting is essential.
Birds	Damage/destruction of active nests if shrubs are removed or obstructive/ destructive works to the buildings take place during the nesting season (which is typically March until the end of August, extended to the end of September for swallows which could nest within the outbuilding).	Removal of shrubs and destructive/obstructive works to the buildings must be undertaken outside of the nesting season, or they must be checked for active nests by an ecologist no more than 48 hours before removal/commencement of works; if active nests were then found to be present then these would have to be left undisturbed until the young had fledged.
[redacted] hedgehogs	Injury/death during site clearance and if animals are trapped in any open excavations or open pipework during construction.	The base of shrubs must be checked for the presence of hedgehogs, and other animals, immediately before the removal of the shrubs starts. Any animals present (other than great crested newts) must be moved outside of the works area. Cover excavations or provide a ramp overnight and cap any open pipework overnight.
Amphibians & reptiles	Injury/death during site clearance and construction.	Implement Reasonable Avoidance Measures (RAMs) during works.

Conclusions	The proposed development would not impact any statutory designated sites or ecologically important or protected habitats. Further surveys are required of the on-site buildings to determine the presence or likely absence of bat roosts. No significant impacts on other protected or notable species are considered likely if the mitigation measures provided in this report are implemented.

Contents

1 Introduction

1.1 Background

1.1.1 Smart Ecology was commissioned by Mr and Mrs Poole to undertake a Preliminary Ecological Appraisal of a site at Ironstones, Mays Hill, Frampton Cotterell, Bristol, BS36 2NS (central national grid reference ST 68407 82191). Refer to Figure 1, Section 9 for a location map, which shows the survey area delimited by a red-line boundary (hereafter referred to as the "site").

1.1.2 The purpose of the appraisal was to inform a planning application to South Gloucestershire Council for the extension of the existing property, which would involve the incorporation of an outbuilding into the dwelling and the relocation of a wall. Refer to Appendix 1 for the proposed site plan.

1.1.3 This report has been prepared by Robert Dunn, director at Smart Ecology and an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with reference to CIEEM's Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017a), Guidelines for Ecological Report Writing (CIEEM, 2017b), and BS42020 Biodiversity – a code of practice for planners and developers (BSI, 2013).

1.2 Site Context

1.2.1 The site is approximately 0.1 ha and is situated in a rural location approximately 1 km to the north-east of Coalpit Heath. The site comprises a dwelling house and outbuilding, hardstanding, amenity grassland, garden beds and shrubs, and an area of long grassland and tall ruderal vegetation. Further residential properties are located to the west and south of the site, a horse-grazed pasture field is located to the east, and arable fields are located to the north. The wider landscape predominantly comprises arable and pasture fields with boundary hedgerows/tree-lines, with scattered small areas of woodland also present.

1.3 Aims

1.3.1 The purpose of the survey and report was to:

- Identify any statutory[1] designated sites on or close to the site.
- Provide an ecological baseline for the site including habitats[2] and the presence of, and potential for, legally protected[3], notable[4], and invasive non-native species.
- Identify any potential impacts on designated sites, habitats, and species.
- Provide details of further required surveys and/or mitigation.
- Provide recommendations for biodiversity enhancements.

[1] Statutory designated sites are those protected by legislation and include Ramsar, Special Protection Areas (SPA), Special Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), and Local Nature Reserves (LNR).
[2] Including priority habitats listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
[3] Legally protected species include species afforded protection by the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended).
[4] Notable species include priority species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, UK red data book species, and Birds of Conservation Concern (BoCC).

2 Legislation and Planning Policy

2.1 Legislation

2.1.1 Certain species and habitats are legally protected in the UK by legislation. The key pieces of legislation are:

- The Conservation of Habitats and Species Regulations 2017 (as amended).
- Wildlife and Countryside Act 1981 (as amended).
- Natural Environment and Rural Communities (NERC) Act 2006.
- Protection of Badgers Act 1992.
- Wild Mammals (Protection) Act 1996.
- The Hedgerows Regulations 1997.
- The Environment Act 2021.

2.1.2 The implications of legislation with regard to species are provided in Table 2-1.

2.1.3 Only a brief summary of wildlife legislation is provided here for general guidance and should not be considered a definitive statement of the law. For detailed information the legislation itself should be consulted.

The Conservation of Habitats and Species Regulations 2017 (as amended)

2.1.4 These Regulations transpose the EU Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law. The Regulations require the designation and protection of European Sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA) and the protection of European Protected Species (EPS).

2.1.5 A EPS mitigation licence is required if works affect EPS (e.g. bats) or their places of rest or breeding sites. EPS licences are issued by Natural England only after the following three tests have been satisfied:

- The proposed works must be for the purpose of preserving public health or safety or other imperative reasons of overriding public interest.
- There is no satisfactory alternative to the proposed works.
- The proposed works will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

2.1.6 It will be necessary to determine whether any European Sites or EPS may be impacted, either directly or indirectly, by the proposed development.

Wildlife and Countryside Act 1981 (as amended)

2.1.7 This Act implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Directive) and the EU Directive 79/409/EEC on the conservation of wild birds (Birds Directive).

2.1.8 The Act provides protection to a range of animal and plant species. It also requires sites with special wildlife or geological interest to be designated nationally as Sites of Special Scientific Interest (SSSI).

2.1.9 It will be necessary to consider whether the proposed development would have any direct or indirect impacts on any SSSI or species listed in relevant schedules of the Act.

Natural Environment and Rural Communities (NERC) Act 2006

2.1.10 Section 40 of this Act places a duty on local planning authorities to "*…consider what action the authority can properly take, consistently with the proper exercise of its functions, to further the general biodiversity objective*." The "general biodiversity objective" is the conservation and enhancement of biodiversity in England. Section 41 of the Act requires the Secretary of State to publish a list of species and habitats of principal importance to biodiversity (priority species and habitats). The local planning authority must 'have regard' to conserving these species and habitats when determining a planning application. The development would need to mitigate for any impacts on priority habitats and species.

2.1.11 The proposed development would need to mitigate for any impacts on priority habitats and species.

Protection of Badgers Act 1992

2.1.12 This Act provides specific protection for badgers and their setts from harm and disturbance.

2.1.13 The proposed development would need to mitigate any impacts on badgers and setts.

Wild Mammals (Protection) Act 1996

2.1.14 This Act makes it an offence to intentionally inflict unnecessary suffering on a wild mammal through mutilation, kicking, beating, nails, impaling, stabbing, burning, stoning, crushing, drowning, dragging, or asphyxiation.

2.1.15 Care would have to be taken during the construction phase of the proposed development to ensure that unnecessary suffering is not inflicted.

The Hedgerows Regulations 1997

2.1.16 These Regulations protect most hedgerows from removal unless permissioned by a local planning authority. They also provide historic and ecological criteria for defining important hedgerows. A local planning authority can only refuse permission to remove a hedgerow under the Hedgerows Regulations 1997 if a hedgerow is assessed to be important.

2.1.17 The proposed development should aim to retain and protect hedgerows and mitigate for impacts.

The Environment Act 2021

2.1.18 This Act sets statutory targets in four priority areas: biodiversity, air quality, water, and waste, and includes a new target to reverse the decline in species abundance by the end of 2030. The Act also makes provisions for a mandatory 10% net gain in biodiversity for all developments covered by the Town and Country Planning Act 1990; this is expected to come into force in November 2023.

Table 2-1: Implications of legislation with regard to species

Legislation	Species	Legal Implications
The Conservation of Habitats and Species Regulations 2017 (as amended)	• Bats • Hazel dormouse • Otter • Great crested newt	It is illegal to: • Deliberately capture, injure or kill these species. • Deliberately disturb[1] these species. • Damage or destroy a breeding site or resting place used by these species.
Wildlife and Countryside Act 1981 (as amended) – sub-sections 9(4) b and c and 9(5) only	• Bats • Hazel dormouse • Otter • Great crested newt	It is illegal to: • Intentionally or recklessly disturb these species while they are occupying a structure or place of shelter or protection. • Intentionally or recklessly obstruct access to a structure or place of shelter or protection.
Wildlife and Countryside Act 1981 (as amended)	• Birds	It is illegal to intentionally: • Kill, injure or take any wild bird. • Take, damage or destroy a wild bird's nest while it is in use or being built. • Take or destroy the eggs of any wild bird. There is additional protection for birds listed on Schedule 1 (S1) of the Act.
Wildlife and Countryside Act 1981 (as amended)	• Water vole	It is illegal to: • Intentionally kill, take, or injure water voles. • Intentionally or recklessly damage or destroy a place of shelter or protection. • Intentionally or recklessly disturb water voles while they are occupying a structure or place of shelter or protection. • Intentionally or recklessly obstruct access to a structure or place of shelter or protection.
Wildlife and Countryside Act 1981 (as amended) – sub-sections 9(1) (partial) and 9(5) only	• Common reptile species	It is illegal to: • Intentionally or recklessly kill or injure common lizard, slow worm, grass snake, and adder.
NERC Act 2006	• Priority species	Local planning authorities must '*have regard*' to conserving priority species. Priority species include several bat and bird species, otter, hazel dormouse, water vole, hedgehog, brown hare, harvest mouse, polecat, common reptile species, great crested newt, and common toad.
Protection of Badgers Act 1992	• Badger	It is illegal to: • Wilfully capture, kill or injure a badger. • Damage, destroy or obstruct access to setts. • Disturb badgers in setts.

[1] Disturbance under the Conservation of Habitats and Species Regulations 2017 (as amended) is defined as impairing the ability of an animal to survive, breed, reproduce, rear or nurture their young, hibernate or migrate, or to significantly affect the local distribution or abundance of the species.

2.2 Planning Policy

National Planning Policy Framework (NPPF) 2023

2.2.1 Paragraph 180 states that planning decisions should protect sites of biodiversity value, minimise biodiversity impacts, and contribute to net biodiversity gains.

2.2.2 Paragraph 186 states that planning permission should be refused if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for.

2.2.3 The NPPF emphasises the need to consider biodiversity at a landscape scale, conserving, restoring and enhancing priority habitats and ecological networks, and protecting priority species. The NPPF also specifies the need to protect designated sites from adverse harm and to protect irreplaceable habitats (e.g. ancient woodland and veteran trees).

2.2.4 The proposed development would need to mitigate for impacts on biodiversity and provide net biodiversity gains where possible.

Local Planning Policy

2.2.5 The presence of EPS, including bats, is a material consideration in the planning process and local planning authorities will refuse planning permission where a EPS licence is unlikely to be granted and a criminal offence relating to an EPS is likely to result from a development.

2.2.6 The South Gloucestershire Local Plan Core Strategy (adopted 2013) and Policies, Sites and Places Plan (adopted 2017) set out policies for development and land use in the district. Refer to Table 2-2 for a summary of policies relevant to ecology and biodiversity at this site. Refer to the original documents for the full wording of these policies.

Table 2-2: Relevant South Gloucestershire Council policies

Policy	Details
Policy CS9 – Managing the environment and heritage	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 PSP3 – Trees and Woodland	Proposals should minimise the loss of existing vegetation that is of ecological importance. Where appropriate proposals should include: • Tree protection. • Replacement and additional tree planting.
Policy PSP19 – Wider Biodiversity	Where appropriate biodiversity gain will be sought from development proposals, this will be proportionate to the size of the scheme.

3 Methodology

3.1 Desk Study

3.1.1 A search was conducted for existing information on:

- Statutory designated sites within 1 km of the site.
- SSSI, SAC, SPA, and Ramsar sites Impact Risk Zones.
- Statutory designated sites for bats within 6 km[1] of the site.
- Mapped priority habitats and ancient woodlands within 100 m of the site.
- Granted EPS mitigation licences within 2 km of the site.
- Habitats within 6 km[2] of the site[2].
- Great crested newts licence returns and pond survey results within 1 km of the site.
- Great Crested Newt Risk Zones
- Mapped waterbodies within 500 m of the site.

3.1.2 The following websites were consulted:

- Multi-Agency Geographic Information Centre (MAGIC)[3].
- Natural England Open Data Geoportal[4].

3.1.3 The search areas are considered sufficient to take into account ecological receptors which could potentially be impacted by the proposed development.

3.1.4 A data search was not obtained from the Local Records Centre as it was considered that this would not provide any significant additional information to inform the assessment.

3.1.5 An Ecological Assessment and Bat Survey Report produced to inform a planning application for a nearby site (Planning Reference P22/04362/LB) was consulted for information on ponds in the local area (Herdwick Ecology, 2022).

3.2 Field Survey

Personnel

3.2.1 The field survey was carried out by Robert Dunn; see Table 3-1 for details of the surveyor's experience and qualifications.

[1] 6 km is the largest known bat Core Sustenance Zone (CSZ) (Collins, 2016).
[2] To inform an assessment of the suitability of habitats for commuting and foraging bats.
[3] https://magic.defra.gov.uk/MagicMap.aspx (accessed July 2023).
[4] https://naturalengland-defra.opendata.arcgis.com (accessed July 2023).

Table 3-1: Surveyor information

Surveyor	Natural England Survey Licences	Qualifications/Experience
Robert Dunn BSc, MSc, ACIEEM	Bats level 1 (2016-23966) Great crested newt level 1 (2016-23661) Hazel dormouse level 1 (2016-26867)	Nine years' experience in ecological consultancy. MSc Environmental Biology: Conservation and Resource Management (University of Swansea - Merit). BSc Biological Sciences with Environmental Resources (University of Warwick – 1st).

Survey Weather Conditions

3.2.2 The survey was undertaken on the 25th of July 2023. See Table 3-2 for details of weather conditions during the survey.

Table 3-2: Survey weather conditions

Variable	Weather Conditions
Cloud cover	70 - 95 %
Temperature	16 - 18°C
Wind	Light breeze (BWS 2)
Precipitation	None

UK Habitat Classification and Species Survey

3.2.3 A walkover of the site was undertaken to map the habitats present. The habitats were mapped and classified using the UK Habitats Classification system with a minimum mapping unit of 25 m^2 (UKHab, 2023). Additionally, any priority habitats within the site were identified and habitats assessed for evidence of, and potential to support, legally protected, notable and invasive non-native species. Any evidence of, and potential for, such species was recorded.

3.2.4 Specifically, the site was surveyed for evidence of, and potential for, the species/groups detailed in Table 3-3:

Table 3-3: Typical habitat requirements and field signs for surveyed species/groups

Species/ Group	Typical Habitat Requirements	Field Signs
Bats	Roost in buildings, trees, other structures, and underground sites. Foraging and commuting habitat include watercourses, waterbodies, hedgerows, tree-lines, scrub, woodland, pasture, and meadows.	Direct sighting, carcasses, droppings, urine, grease marks, feeding remains, squeaking.
Birds	Woodland, trees, scrub, hedgerows, moorland, heathland, wetlands, cavities within buildings, waterbodies, grassland.	Direct sightings, nests, droppings, feathers, eggs.

Species/ Group	Typical Habitat Requirements	Field Signs
[redacted]	[redacted]	[redacted]
Hazel dormouse	Deciduous and mixed woodland (especially coppice managed with a successional stage of vegetation). Also hedgerows, conifer plantations, and dense scrub.	Direct sighting, nests, gnawed nuts.
Otter	Holts in tree cavities, roots, rabbit burrows and bank-side rocks. Rivers, wetland, wet ditches, drains, ponds, lakes, coastal and marshland.	Direct sightings, anal jelly, spraint (dung), footprints, paths/tracks through vegetation, feeding remains, slides into and out of the water, couches (above ground resting places), holt entrances (below ground shelters).
Water vole	Vegetated banks on slow moving watercourses, reed beds, ponds, lakes, marshland, upland.	Direct sightings, latrines, droppings, feeding stations, burrows, feeding remains, lawns, nests, footprints.
Brown hare	Open farmland, grassland, woodland edges. Favours a mosaic of arable (cereal crops), grassland (with long areas for shelter) and hedgerows. Hare forms (resting places) may be in a grass tussock or behind a rock to give some protection. Hayfields provide better habitat than silage grassland as leverets are vulnerable to earlier cutting.	Direct sightings, footprints, droppings, forms, paths (tracks),
Hedgehog	Grassland, heathland, moorland, farmland, woodland, gardens	Direct sightings, footprints, droppings.
Polecat	Woodland, riverbank, marsh and farmland with hedgerows and small woods. Generalist species with wide ranges. Feed on rabbits, small rodents, birds, insects, frogs when gathered to spawn in the spring. Dens often in rabbit burrows in summer and move to farmyards (hay bales, under sheds, rubbish tips) in winter.	Direct sightings, footprints, droppings.
Harvest mouse	Long tussocky grassland, cereals, roadside verges, reedbeds, hedgerows, farmland and around woodland edges. Feed on seeds, berries, insects, cereal grains, also moss, roots and fungi. Nests found in dense vegetation (grasses, rushes, cereals, grassy hedgerows, ditches and brambles).	Direct sighting, nests.

Species/ Group	Typical Habitat Requirements	Field Signs
Amphibians	Waterbodies for breeding. Terrestrial habitat includes most semi-natural environments including rough grassland, marsh, scrub, woodland, hedgerows, brownfield and low-intensity farmland. Tree stumps, mammal burrows, stone piles, log piles, compost heaps for shelter and hibernation.	Direct sightings, eggs attached to vegetation in waterbodies.
Reptiles	Mosaic of habitats with potential for shelter and basking including rough grassland, scattered scrub, hedgerows, heathland, moorland, woodland glades, wetland, gardens and brownfield. Tree stumps, mammal burrows, stone piles, log piles, compost heaps for shelter and hibernation.	Direct sightings, sloughed skin.
Invertebrates	Diverse range of habitats including mature trees, deadwood, flower-rich grassland, tussocky grassland, waterbodies, wetlands, scrub, hedgerows and brownfield sites.	Direct sightings.
Fish	Running and standing water.	Direct sightings.
Plants	Waterbodies, woodland, grassland, hedgerow bases.	Direct sightings.
Invasive non-native species	All habitats.	Direct sightings.

3.2.5 An assessment was made of the likelihood that the protected, notable, and invasive non-native species/groups detailed in Table 3-3 occur on or close to the site with reference to the criteria provided in Table 3-4.

Table 3-4: Criteria for the assessment for the presence of species/groups

Likelihood of Occurrence	Assessment Criteria
Confirmed	Field signs and/or records confirm the presence of species/group.
High	Presence of species concerned not confirmed by field signs or records, but high quality suitable habitat present on site and connected to further suitable habitat AND/OR field signs present indicative of presence of species but presence not definitely proven. Site within known geographic distribution for the species/group.
Moderate	Presence of species concerned not confirmed by field signs or records, but moderate quality suitable habitat present on the site and some connectivity to further moderate or high quality suitable habitat in the wider landscape. Site within known geographic distribution for the species/group.

Likelihood of Occurrence	Assessment Criteria
Low	Presence of species concerned not confirmed by field signs or records. Low quality suitable habitat on the site AND/OR poor connectivity to further suitable habitat in the local landscape. However, possible presence of the species/group cannot be completely discounted. Site within known geographic distribution for the species/group.
Negligible	No field signs and/or records of species. No suitable habitat present on or close to the site. Site not within known geographic distribution for the species/group.

3.2.6 The survey included a preliminary bat roost assessment of on-site buildings and great crested newt habitat suitability index (HSI) assessments of accessible waterbodies within 500 m of the site, as follows:

Preliminary Bat Roost Assessment

Habitat Assessment

3.2.7 Habitats on and in the vicinity of the site were assessed for their suitability for commuting and foraging bats. An assessment of habitat suitability was made with reference to the BCT good practice guidelines (Collins, 2016); see Table 3-5 for the assessment criteria.

Table 3-5: Habitat suitability assessment criteria

Suitability	Description
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Building Survey

3.2.8 The on-site buildings were surveyed for evidence of, and potential for, roosting bats following the methodology outlined in the BCT good practice guidelines (Collins, 2016). A detailed external and internal inspection was undertaken using a high-powered torch (Clulite 1 million candle power) and close focusing (8.5 x 21) binoculars. Possible entry/exit locations for bats, potential roost sites, and the presence or evidence of bats (e.g. carcasses, droppings, urine, grease marks, feeding remains, squeaking etc.) were noted.

3.2.9 An assessment was made of the suitability of the buildings for roosting bats during the bat active period (i.e. March to October) with reference to the BCT good practice guidelines (Collins, 2016); see Table 3-6 for the assessment criteria.

Table 3-6: Bat roost suitability assessment criteria and required surveys

Suitability	Description	Number of Surveys Required[2]
Negligible	Negligible suitability for roosting bats.	None
Low	1 + potential roost sites that may be used by individual bats opportunistically. However, these potential roost sites do not provide suitable conditions[1] or have suitable surrounding habitat to be used on a regular basis or by larger numbers of bats.	One
Moderate	1 + potential roost sites with suitable conditions[1] and surrounding habitat but unlikely to support high conservation status roosts.	Two
High	1 + potential roost sites with good conditions[1] and surrounding habitat, that are obviously suitable for use by large number of bats regularly.	Three
Confirmed bat roost	1 + roost sites.	Two (minimum)

[1] Conditions include size, protection, shelter, temperature, humidity, height above ground, light levels and disturbance levels.
[2] Recommended number of emergence/re-entry surveys required by the BCT good practice guidelines to provide confidence that bats are absent from the building/structure, or to characterise confirmed roosts.

Hibernation Assessment

3.2.10 An assessment of the suitability of the buildings for hibernating bats was undertaken, which considered the following aspects (Middleton, 2019):

- Presence and suitability of potential roost features.
- Temperature and humidity conditions likely to be present during the hibernation period (i.e. November to February).
- The suitability of habitat in the local landscape for bats.
- Presence of known roosts within, or close to, the buildings.

3.2.11 Refer to Table 3-7 for the assessment criteria and suitability.

Table 3-7: Hibernation suitability assessment criteria (adapted from Middleton, 2019)

Suitability	Description
Negligible	Negligible suitability for roosting bats.
Low	Limited number of external features, many features shallow (e.g. less than 10 cm deep). The features would not typically be regarded as providing the protection from weather or favourable temperature and humidity conditions required during the winter period. OR External and/or internal features present which offer full protection from the weather, however the surrounding habitat offers negligible/low suitability for bats. OR No roosts exist in the structure or nearby over the active period.
Moderate	External and/or internal features present which larger numbers of bats could occupy. The features offer full protection from the weather and there is potential for suitable temperature and humidity conditions. The site is well connected to moderate or high suitability habitat.
High	External and/or internal features present which offer a 'classic' hibernation setting (e.g. stable temperature, humid conditions, underground site). The site is well connected to moderate or high suitability habitat.

Habitat Suitability Index (HSI)

3.2.12 Three waterbodies located within 500 m of the site were surveyed and assessed for their potential to support great crested newts using the HSI (Oldham et al., 2000). Refer to Figure 2, Section 9 for a map showing the location of these waterbodies.

3.2.13 The HSI is calculated using measures of ten environmental factors known to impact great crested newts. It is a numerical index between 0 to 1, where 0 indicates unsuitable (poor) habitat and 1 indicates optimum (excellent) habitat. HSI categories are provided in Table 3-8.

Table 3-8: HSI categories

HSI Score	Category
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

3.3 Evaluation of Ecological Features

3.3.1 A valuation of ecological features (designated sites, species, and habitats) was undertaken in accordance with CIEEM guidance (CIEEM, 2022). Valuation is determined using the geographic framework provided in Table 3-9.

3.3.2 The value of an ecological feature is based on a professional ecologist's judgement and takes into consideration various characteristics including any site designations, species records, priority species and habitats, species rarity, the quality of the resources (e.g. habitat diversity, species population size), and location within the landscape context.

3.3.3 Sometimes it is not possible to provide a valuation of ecological features in the absence of data, which would have to be provided by further ecological surveys. Important ecological features, which may pose a constraint to the proposed development, are those with an ecological value which could be impacted by the development. These are the features which may require further survey work and mitigation.

Table 3-9: Framework for assessing the value of ecological features

Geographic Scale	Example of Ecological Feature
International **(most important)**	An internationally designated site e.g. Special Areas of Conservation (SAC), Special Protection Area (SPA), Ramsar sites. Regularly occurring populations of internationally important species.
National	Site of national importance e.g. Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR). Regularly occurring populations of nationally important species.
Regional	Non-statutory site e.g. Local Wildlife Site (LWS), Key Wildlife Site (KWS), Country Wildlife Site (CWS) supporting a regionally significant area of priority habitat or regionally significant population of legally protected/priority species.
County	Non-statutory site e.g. Local Wildlife Site (LWS), Key Wildlife Site (KWS), Country Wildlife Site (CWS), ancient woodland, site supporting priority habitats, priority species, and/or legally protected species of significance for the county.
Local	Habitats which enhance the local habitat resource e.g. old species-rich hedgerow, deciduous woodland, pond, small areas of priority habitat or areas supporting small populations of legally protected/priority species which are not rare within the region, county, or nationally.
Site	Habitats of limited ecological importance e.g. scattered trees, hedgerows, woodland plantations, small areas of non-priority habitats that are of value for wildlife. Species of limited ecological importance.
Negligible **(least important)**	Hardstanding, bare ground, built environment, and other areas with negligible biodiversity value, including for priority and legally protected species.

3.4 Limitations

3.4.1 Bat droppings may not be found during surveys as these often remain in inaccessible locations such as within crevices and cavities. However, it was still possible to note whether there were any suitable features which could be used by roosting bats.

3.4.2 One section of roof space within the house was inaccessible for survey (referred to as Roof Space 2 in this report). This is not considered to be a significant limitation to determining the presence or likely absence of roosting bats in the building provided that the required emergence/re-entry surveys are carried out.

3.4.3 Bird nests are often hidden away in areas that are not viewable. However, it was still possible to identify any visible evidence of old nests and features with potential for use by nesting birds.

3.4.4 No permission was obtained to access Pond 4 (see Figure 2, Section 9 for a map showing the location of ponds) to undertake a HSI to assess its suitability for great crested newts. Additionally, Pond 2 was dry at the time of the survey and Pond 3 was only viewable from a public footpath and so precautionary values for several variables for the HSI assessments of these ponds have been used. These are not considered to be significant limitations as potential impacts on great crested newts can be avoided by implementing Reasonable Avoidance Measures.

4 Baseline Ecological Conditions

4.1 Desk Study

Statutory Designated Sites

4.1.1 There are no statutory designated sites located within 1 km of the site.

SSSI, SAC, SPA, and Ramsar Sites Impact Risk Zones

4.1.2 The site is not situated within an Impact Risk Zone.

Statutory Designated Sites for Bats

4.1.3 There are no statutory designated sites which include bats as a reason for their designation located within 6 km of the site.

Mapped Priority Habitats and Ancient Woodlands

4.1.4 There are no records of priority habitats or ancient woodland records within 100 m of the site.

Granted EPS Mitigation Licences

4.1.5 One EPS mitigation licence has been granted within 2 km of the site, which was for bats; see Table 4-1 for details. This shows that bats are present in the area and that the local landscape has suitability for bats.

Table 4-1: Granted EPS mitigation licences within 1 km

Case Reference	Approximate Distance from Site (km)	Species Affected	Start Date	End Date	Impact Allowed
2020-45145-EPS-MIT/ MIT-1/ MIT-2	1.27	Brown long-eared Common pipistrelle	27/05/2020	30/09/2026	Destruction of a resting place

Great Crested Newt Licence Returns and Pond Survey Results

4.1.6 There are no records of a great crested newt licence return or pond survey result within 1 km of the site.

Great Crested Newt Risk Zones

4.1.7 The site is located within an amber risk zone for great crested newts. Amber zones contain main population centres for great crested newts and comprise important connecting habitat that aids natural dispersal.

Waterbodies

4.1.8 Four waterbodies were identified within 500 m of the site. Refer to Table 4-2 for the distances of these waterbodies from the site, and to Figure 2, Section 9 for a map showing the location of these waterbodies.

Table 4-2: Waterbodies within 500 m

Waterbody	Approximate Distance from Site (m)
1	50
2	130
3	270
4	285

4.2 Field Survey – Habitats

4.2.1 The location and extent of habitats on the site are shown on the UK Habitat Classification Plan; see Figure 3, Section 9.

Buildings – u1b5

House

Outbuilding

4.2.2 A house and outbuilding were present on the site.

Other Developed Land– u1b6

4.2.3 Areas of hardstanding were present on the site, forming a driveway, vehicle parking area, paths, and patio areas.

Hedgerow – h2a

4.2.4 A shrubby garden hedgerow approximately 15 m in length was present along part of the western site boundary. Native species present included European plum, spindle, guelder rose, rowan, and silver birch. Bramble was abundant in places. Non-native sweet mock orange was also present,

Modified Grassland – g4 108 (Frequently Mown)

4.2.5 Areas of short mown amenity grassland were present on the site. Grasses were dominant, and included perennial rye-grass and red fescue. A low abundance of forb species were present, which included dandelion, common ragwort, daisy, ribwort plantain, rough hawkbit, selfheal, cut-leaved crane's-bill, white clover, and black medick.

Modified Grassland – g4 81 (Ruderals) 103 (horse grazed)

4.2.6 Horse grazed pasture was located to the east of the on-site dry stone wall, with abundant ruderals present within the area situated within the site boundary. Grasses were abundant, and included false oat-grass, cock's foot, and perennial rye grass. Common nettle was abundant in places, with spear thistle, daisy, hedge woundwort, cut-leaved crane's-bill, and autumn hawkbit also present.

Urban – u1 827 (Garden)

4.2.7 An area of amenity planting comprising predominantly non-native species was present adjacent to the dry stone wall. Non-native shrub species present included cheesewood sp., shrubby cinquefoil, forsythia, and Wilson's honeysuckle. Non-native forb species present included Bergenia, and montbretia. Native species present included ground elder, common nettle, and common ragwort.

Wall – u1e 114 (Dry Stone Wall)

4.2.8 A dry stone wall was present on the site.

Walls – u1e

4.2.9 Mortared stone walls were present on the site.

4.3 Field Survey – Species

4.3.1 Table 4-3 provides details of an assessment of the suitability of habitats on and close to the site for protected, notable, and invasive non-native species/groups, details of any evidence of these species/groups, and an assessment of the likelihood that these species/groups occur on or close to the site.

Table 4-3: Site suitability for protected and notable species/groups and invasive non-native species

Species/ Group	Habitat Assessment	Evidence	Likelihood of Presence/Occurrence
Bats (foraging and commuting)	On-site grassland, shrubs, hedgerow, and tall ruderals and long sward grassland provided a small extent of lower value foraging habitat. No linear commuting habitat with connectivity to further commuting and foraging habitats was present on the site.	N/A	**LOW** Records of common pipistrelle and brown long-eared roosts within 2 km of the site. Small area of lower value foraging habitat on the site, no linear commuting habitat. Bats may occasionally forage and fly through the site.
Bats (roosting)	On-site buildings were assessed to have moderate suitability for roosting bats (see Appendices 2 and 3 for the results of the preliminary roost assessment survey).	None	**MODERATE** Records of common pipistrelle and brown long-eared roosts within 2 km of the site. On-site buildings were assessed to have moderate suitability for roosting bats.
Birds	Potential for nesting within the outbuilding and there were a small number of sufficiently large gaps/holes in roof tiles on the house which could potentially permit birds access to area between tiles and felt. Small extent of suitable foraging habitat present on the site. Potential for nesting in shrubs and hedgerow.	Four old swallow nests within the outbuilding, not in use at the time of the survey and no signs of use during current season.	**CONFIRMED** Swallows have previously nested within the outbuilding. Suitable foraging and nesting habitat present on the site, likely to be used by common species.
[redacted]	[redacted]	[redacted]	[redacted]

Species/ Group	Habitat Assessment	Evidence	Likelihood of Presence/Occurrence
Hazel dormouse	No suitable habitat on the site.	None	**NEGLIGIBLE.**
Otter	No suitable habitat on the site.	None	**NEGLIGIBLE**
Water vole	No suitable habitat on the site.	None	**NEGLIGIBLE**
Other mammals	Suitable foraging and dispersal habitat on the site for hedgehogs. Potential for refuge by hedgehog at the base of shrubs.	None	**MODERATE** Suitable habitat on and in the vicinity of the site for hedgehogs.
Amphibians	No ponds on the site, and four ponds located within 500 m of the site. Suitable terrestrial foraging and dispersal habitat present on the site, and potential for refuge at the base of hedgerow, shrubs and herbaceous planting and in cavities in the dry stone wall.	None	**MODERATE (common species)** **LOW (great crested newts)** Site is located within an amber risk zone for great crested newts. Closest pond assessed to have below average suitability for great crested newts (Pond 1), and next closest pond was dry at the time of the survey (Pond 2). Small extent of suitable foraging, dispersal, and refuge habitat present on the site.
Reptiles	Long sword grassland/tall ruderal vegetation and base of shrubs and herbaceous vegetation provided a small area of suitable foraging, dispersal and refuge habitat.	None	**LOW** Possible occasional use of on-site habitats is considered possible.
Invertebrates	Site provided low value habitat for invertebrates.	None	**LOW** On-site habitats likely to be used by common species only
Fish	No suitable habitat on the site.	None	**NEGLIGIBLE**
Plants	On-site habitats provided negligible potential for rare or notable species to be present.	None	**NEGLIGIBLE**

Species/ Group	Habitat Assessment	Evidence	Likelihood of Presence/Occurrence
Invasive non-native species	N/A	None	**NEGLIGIBLE**

5 Ecological Constraints

5.1 Development Proposals

5.1.1 It is proposed to extend the existing dwelling on the site, which would involve incorporation of an outbuilding into the dwelling and the relocation of a wall. Refer to Appendix 1 for the proposed site plan. The proposals would directly impact the house and outbuilding and a dry stone wall, and would require the removal of approximately 20 m^2 of garden shrub and herbaceous amenity planting and approximately 30 m^2 of long sward grassland/tall ruderal vegetation.

5.2 Great Crested Newt Rapid Risk Assessment

5.2.1 A Natural England Rapid Risk Assessment (RRA) was undertaken (see Figure 5-1), which is an assessment of the likelihood that the proposed development would result in an offence with respect to great crested newts. This RRA assumes that great crested newts are present within all ponds identified within 500 m of the site and that approximately 20 m^2 of garden shrub and herbaceous amenity planting and approximately 30 m^2 of long sward grassland/tall ruderal vegetation would be removed for the proposed development. It is also assumed that precautionary methods of working would be implemented during site clearance and works to avoid impacts on individual great crested newts. This RRA indicates that it is highly unlikely that the proposed development would result in an offence being committed with respect to great crested newts.

Component	Likely effect	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100 m of any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.05
Land 100 - 250m from any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.005
Land >250 m from any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.0005
Individual great crested newts	No effect	0
	Maximum:	0.005
Rapid Risk Assessment result:	**GREEN: OFFENCE HIGHLY UNLIKELY**	

Figure 5-1: Rapid Risk Assessment (Natural England, 2015)

5.3 Evaluation of Potential Impacts

5.3.1 Statutory designated sites, protected and ecologically valuable habitats, and protected and notable species may pose a constraint if there is potential for them to be impacted by a proposed development. Invasive non-native species may also pose a constraint to development, and provide opportunities to enhance the biodiversity value of a site by their removal or control.

5.3.2 Table 5-1 provides a valuation of features on and close to the site which could be impacted by the proposed development, justification for the valuation, and details of potential impacts upon these features in the absence of mitigation. Only species which were present or assessed to have potential to be present on or close to the site are included in the valuation. Features highlighted in blue have the potential to pose a constraint to the proposed development of the site and would require further surveys and/or mitigation (see Section 6).

Table 5-1: Valuation and potential impacts on ecological features

Ecological Feature	Value	Justification for Value	Potential Impacts Without Mitigation
Statutory designated site	International/ National	Site of international and national importance for biodiversity.	None.
Mapped priority habitats	County	Habitats of importance at the county level.	None.
Ancient woodland	National	Irreplaceable habitat.	None.
Buildings	Unknown	Provide potential for roosting bats and nesting birds.	See potential impacts on bats and birds.
Other developed land	Negligible	Negligible biodiversity value.	No biodiversity impacts are anticipated.
Hedgerow	Site	Provide suitable habitat for a range of species, including birds.	Damage to the hedgerow during works.
Modified grassland	Site	Widespread and common habitat.	No significant biodiversity impacts are anticipated. However, see potential impacts on species.
Urban (garden)	Site	Widespread and common habitat.	No significant biodiversity impacts are anticipated. However, see potential impacts on species.
Wall (dry stone)	Site	Widespread and common habitat.	No significant biodiversity impacts are anticipated. However, see potential impacts on species.
Bats (roosts)	Unknown	On-site buildings assessed to have moderate suitability for roosting bats.	If bats roost within the on-site buildings then the proposed works could destroy roost(s) and could kill or injure bats (if present at the time of works).

Ecological Feature	Value	Justification for Value	Potential Impacts Without Mitigation
Bats (foraging and commuting)	Site	Small area of low suitability habitat.	Loss of a very small area of suitable foraging habitat is considered unlikely to have a significant impact on local bat populations. Further and more extensive suitable habitat in the local landscape. Artificial light spill could disturb foraging and commuting bats.
Birds	Site	Small area of suitable foraging habitat. Trees, shrubs, and buildings, provided suitable nesting habitat.	Damage/destruction of active nests if shrubs are removed and obstructive/ destructive works to the buildings take place during the nesting season (which is typically March until the end of August, extended to the end of September for swallows which could nest within the outbuilding).
[redacted]			
Other mammals	Site	Small area of foraging and dispersal habitat for hedgehog.	Loss of a small area of suitable foraging habitat is considered unlikely to have a significant impact on the local hedgehog population. Further and more extensive suitable habitat in the local landscape. Injury/death if hedgehogs (and other mammals) are harmed during the clearance of shrubs and trapped in any open excavations or open pipework during construction.

Ecological Feature	Value	Justification for Value	Potential Impacts Without Mitigation
Amphibians	Site	Small area of suitable terrestrial habitat on the site.	Loss of a small area of suitable terrestrial habitat is considered unlikely to have a significant impact on amphibians populations. Further and more extensive suitable habitat in the local landscape. No impacts on great crested newts are considered likely.
			Injury/death during site clearance and construction.
Reptiles	Site	Small area of suitable habitat on the site.	Loss of a small area of suitable habitat is considered unlikely to have a significant impact on local reptile populations. Further and more extensive suitable habitat in the local landscape.
			Injury/death during site clearance and construction.
Invertebrates	Site	Small area of suitable habitat on the site, likely to be used by common and widespread species.	No significant impacts are anticipated. Further and more extensive suitable habitat in the local landscape.

6 Surveys, Mitigation and Enhancements

6.1 Surveys

Bats (Roosts)

6.1.1 The house and outbuilding are assessed to have moderate suitability for roosting bats. Therefore, in accordance with good practice guidelines (Collins, 2023) two emergence surveys must be carried out to determine the presence or likely absence of roosting bats in the buildings. Four surveyors and five infrared cameras would be required for full survey coverage of the buildings. These surveys must be carried out during the period between May and September inclusive, with at least one of the surveys carried out during the period between May and August inclusive.

6.1.2 If bat roosts were found to be present then one additional emergence survey would be required to characterise the roost(s); in this case at least two of the surveys must be carried out during the period between May and August inclusive

6.2 Mitigation

6.2.1 The following mitigation must be implemented to avoid impacts on species.

Hedgerow

6.2.2 Maintain a minimum 5 m wide buffer area between the hedgerow and any excavations, delimited by a temporary fence or barrier tape or using suitable ground protection at least 5 m from the hedgerow's edge where necessary. Where necessary, this protection must be installed before works commence and retained throughout the construction period.

6.2.3 If a minimum 5 m wide buffer area between the hedgerow and any excavations cannot be maintained then it is recommended that an arboricultural consultant is contacted for advice on how works should be carried out to protect the hedgerow.

Bats (Foraging & Commuting)

6.2.4 To avoid potential impacts on foraging and commuting bats it is recommended that additional external artificial lights are not installed on the exterior of the extended dwelling, or anywhere else on the site.

6.2.5 If the use of external artificial lighting cannot be avoided then this should be kept to a minimum and warm-white (long wavelength, not UV) LED lights used, and motion sensors on short-duration timers and high motion threshold fitted (e.g. so that moths do not set them off).

Birds

6.2.6 Removal of shrubs and obstructive/destructive works to the buildings must be undertaken outside of the nesting season (which is generally March until the end of August, extended to the end of September for swallows which could nest within the outbuilding), or these must be

checked for active nests by an ecologist no more than 48 hours before works start; if active nests were then found these would have to be left undisturbed until the young had fledged.

Badgers & Hedgehogs

6.2.7 The base of shrubs must be checked immediately before clearance of the vegetation commences, to check whether hedgehogs (or any other animals) are present. Any animals present (other than great crested newts; see below) must be moved out of the works area using gloved hands or a suitable container

6.2.8 During construction it is recommended that any excavations are covered overnight to prevent animals falling in and becoming trapped. If excavations cannot be covered then a ramp at least 40 cm wide must be installed, with an angle no steeper than 40 degrees, to enable animals to escape. Excavations must be checked every morning to ensure that there are no trapped animals, and any animals present left to escape by their own volition (badger) or moved out of the works area using gloved hands or a suitable container (hedgehogs and other animals). Any open pipework larger than 100 mm outside diameter must be capped overnight to prevent animals from becoming trapped.

Amphibians & Reptiles

6.2.9 Implement Reasonable Avoidance Measures (RAMs) during site clearance and construction to minimise the risk of injuring or killing amphibians and reptiles, as follows:

- The base of shrubs must be checked immediately before clearance of the vegetation commences, to check whether amphibians or reptiles are present. Any animals present (other than great crested newts; see below) must be moved out of the works area using gloved hands or a suitable container.
- During construction, store building material on pallets or hardstanding to deter amphibians and reptiles from sheltering underneath. All waste must be stored in skips or containers and not in piles on the ground.
- Any excavations must be covered overnight, or a ramp installed with an angle no steeper than 40 degrees, to enable animals to escape. Any open pipework must be capped overnight. Excavations must be checked every morning to ensure there are no trapped amphibians and reptiles; any animals present must be moved outside of the works area by gloved hand or using a suitable container.
- In the unlikely event that a great crested newt is found at any time during works then works must stop immediately and an ecologist must be contacted. A guide to newt identification is provided in Appendix 5, and this must be displayed on site for contractors to see.

6.3 Biodiversity Enhancements

6.3.1 Under the Environment Act 2021, all planning applications in England except for small sites[1] (with a small number of exemptions including developments that are granted planning permission by a development order, including permitted development rights) must provide at least a 10 % biodiversity net gain (BNG) from February 2024. BNG will be required for small sites from the 2nd of April 2024. BNG is measured using the statutory biodiversity metric tool.

6.3.2 In line with the NPPF and local planning policy, details of opportunities to permit biodiversity enhancements are provided in Table 6-1.

Table 6-1: Opportunities for biodiversity enhancements

Opportunity	Details
Provision of bird nest boxes	One or more nest boxes could be installed on the external elevations of the extended building. Ideally these should be integrated boxes which are built into the walls (e.g. Vivara Pro WoodStone House Sparrow Nest Box, Woodstone Build-in Open Nest Box, Schwegler Brick Nest Boxes). Alternatively, boxes could be mounted on the external walls (e.g. Vivara Pro Seville 28 mm or 32 mm WoodStone nest box, Vivara Pro WoodStone house martin nest) or on trees (e.g. 1B Schwegler bird box, Vivara Pro Seville 32mm WoodStone nest box, 2GR Schwegler nest box). Nest boxes must be installed 3 – 4 m above ground level, and ideally face between the north and east to avoid direct sunlight and prevailing wind and rain. Birds must have a clear flight path to and from the boxes.
Provision of hedgehog nest boxes	One or more hedgehog nest boxes could be installed in sheltered areas to provide permanent nesting opportunities for hedgehogs.
Provision of invertebrate habitat	One or more bee bricks could be incorporated into the external elevations of the proposed building to provide additional opportunities for invertebrates. Bee bricks should be located at least 1 m above ground level on a south-facing wall. Additionally, one or more invertebrate hotels could be installed within the garden area.

[1] Small sites are defined for the purpose of the BNG exemption as:
(i) For residential: where the number of dwellings to be provided is between one and nine inclusive on a site having an area of less than one hectare, or where the number of dwellings to be provided is not known, a site area of less than 0.5 hectares.
(ii) For non-residential: where the floor space to be created is less than 1,000 square metres OR where the site area is less than one hectare.

7 Conclusions

7.1.1 It is proposed to extend the existing dwelling on the site, which would involve the incorporation of an outbuilding into the dwelling and the relocation of a wall. Refer to Appendix 1 for the proposed site plan. The proposals would directly impact the house, outbuilding and dry stone wall, and would require the removal of approximately 20 m^2 of garden shrub and herbaceous amenity planting and approximately 30 m^2 of long sward grassland/tall ruderal vegetation.

7.1.2 The proposed development would not impact any statutory designated sites or ecologically important or protected habitats. Further surveys are required of the on-site buildings to determine the presence or likely absence of bat roosts. No significant impacts on other protected or notable species are considered likely if the mitigation measures provided in this report are implemented.

7.1.3 A summary of potential impacts which could arise from the proposed development and details of required further surveys and mitigation are provided in Table 7-1.

Table 7-1: Summary of potential impacts and required surveys and mitigation

Ecological Feature	**Potential Impacts without Mitigation** (refer to Section 5)	**Required Surveys & Mitigation** (refer to Sections 6.1 & 6.2)
Hedgerow	Damage to the hedgerow during works.	Protect the hedgerow during works.
Bat (roosts)	If bats roost within the on-site buildings then the proposed works could destroy roost(s) and could kill or injure bats (if present at the time of works).	**Two emergence surveys are required of the buildings (May-September inclusive, at least one of the surveys must be carried out between May and August inclusive) to confirm the presence/likely absence of roosting bats. If bat roost(s) were found to be present then one more additional emergence survey would be required.**
Bats (foraging/ commuting)	Artificial light spill could disturb foraging and commuting bats.	Avoid installing additional external lighting, or mitigate for impacts if external lighting is essential.
Birds	Damage/destruction of active nests if shrubs are removed or obstructive/ destructive works to the buildings take place during the nesting season (which is typically March until the end of August, extended to the end of September for swallows which could nest within the outbuilding).	Removal of shrubs and destructive/obstructive works to the buildings must be undertaken outside of the nesting season, or they must be checked for active nests by an ecologist no more than 48 hours before removal/commencement of works; if active nests were then found to be present then these would have to be left undisturbed until the young had fledged.

Ecological Feature	Potential Impacts without Mitigation (refer to Section 5)	Required Surveys & Mitigation (refer to Sections 6.1 & 6.2)
[redacted] hedgehogs	Injury/death during site clearance and if animals are trapped in any open excavations or open pipework during construction.	The base of shrubs must be checked for the presence of hedgehogs, and other animals, immediately before the removal of the shrubs starts. Any animals present (other than great crested newts) must be moved outside of the works area. Cover excavations or provide a ramp overnight and cap any open pipework overnight.
Amphibians & reptiles	Injury/death during site clearance and construction.	Implement Reasonable Avoidance Measures (RAMs) during works.

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9 Figures

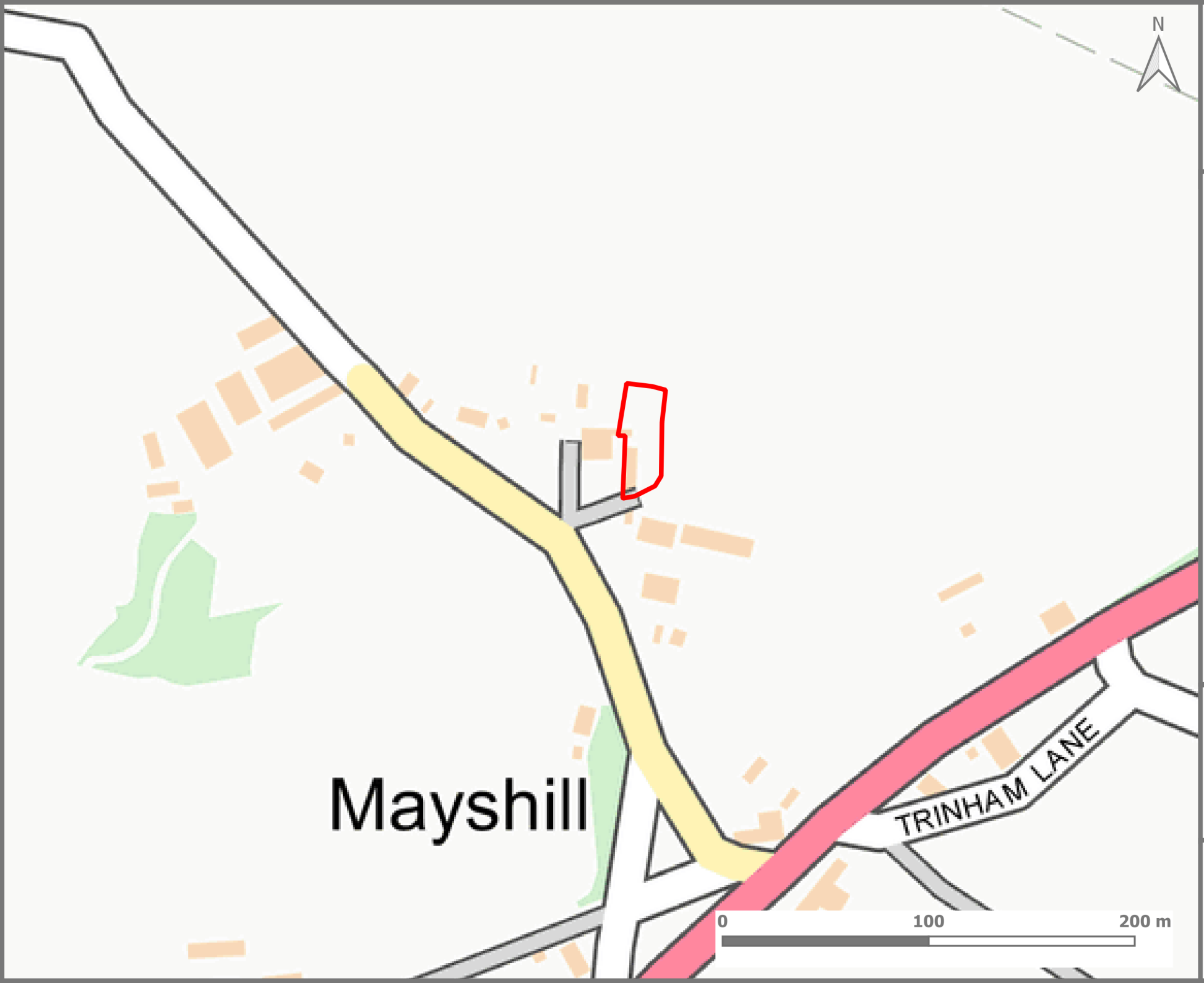

Figure 1 -
Site Location Map

Ironstones,
Mays Hill,
Frampton Cotterell,
Bristol,
BS36 2NS

Site Boundary

Date:	25/07/2023
Drawn by:	Robert Dunn
Checked by:	Rachel Barber

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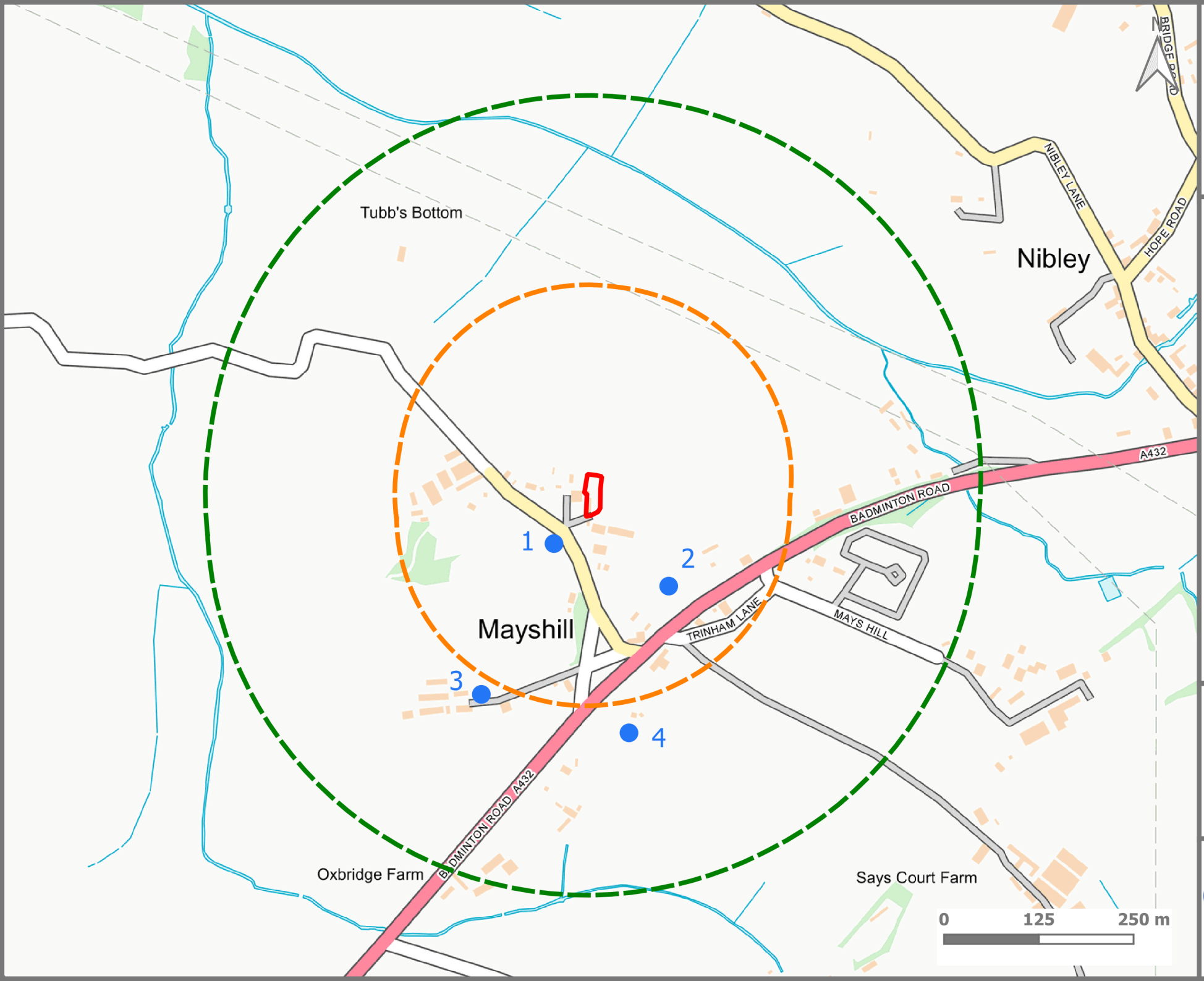

Figure 2 - Waterbody Location Map

Ironstones,
Mays Hill,
Frampton Cotterell,
Bristol,
BS36 2NS

250 m Buffer
500 m Buffer
Site Boundary
Ponds

Date:	25/07/2023
Drawn by:	Robert Dunn
Checked by:	Rachel Barber

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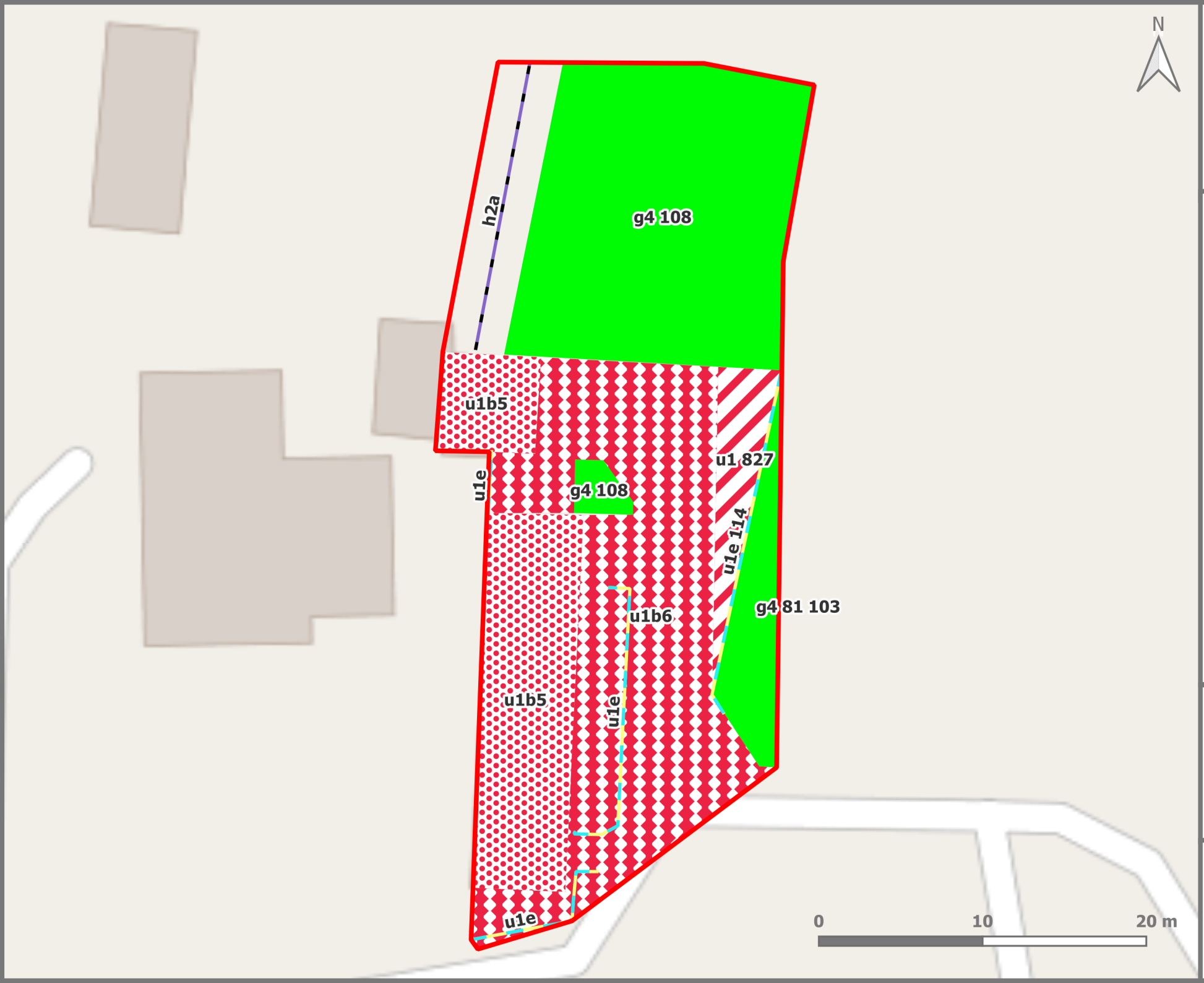

Figure 3 - UK Habitats Classification Plan

Ironstones,
Mays Hill,
Frampton Cotterell,
Bristol,
BS36 2NS

- Site boundary
- h2a - hedgerow
- u1e - built linear feature
- g4 - modified grassland
- u1 - built-up areas and gardens
- u1b5 - buildings
- u1b6 - other developed land

Secondary Codes

81 - Ruderal
103 - Horse grazed
108 - Frequently mown
114 - Dry stone wall
827 - Garden

Date:	14/08/2023
Drawn by:	Robert Dunn
Checked by:	Rachel Barber

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Appendix 1 – Proposed Site Plan

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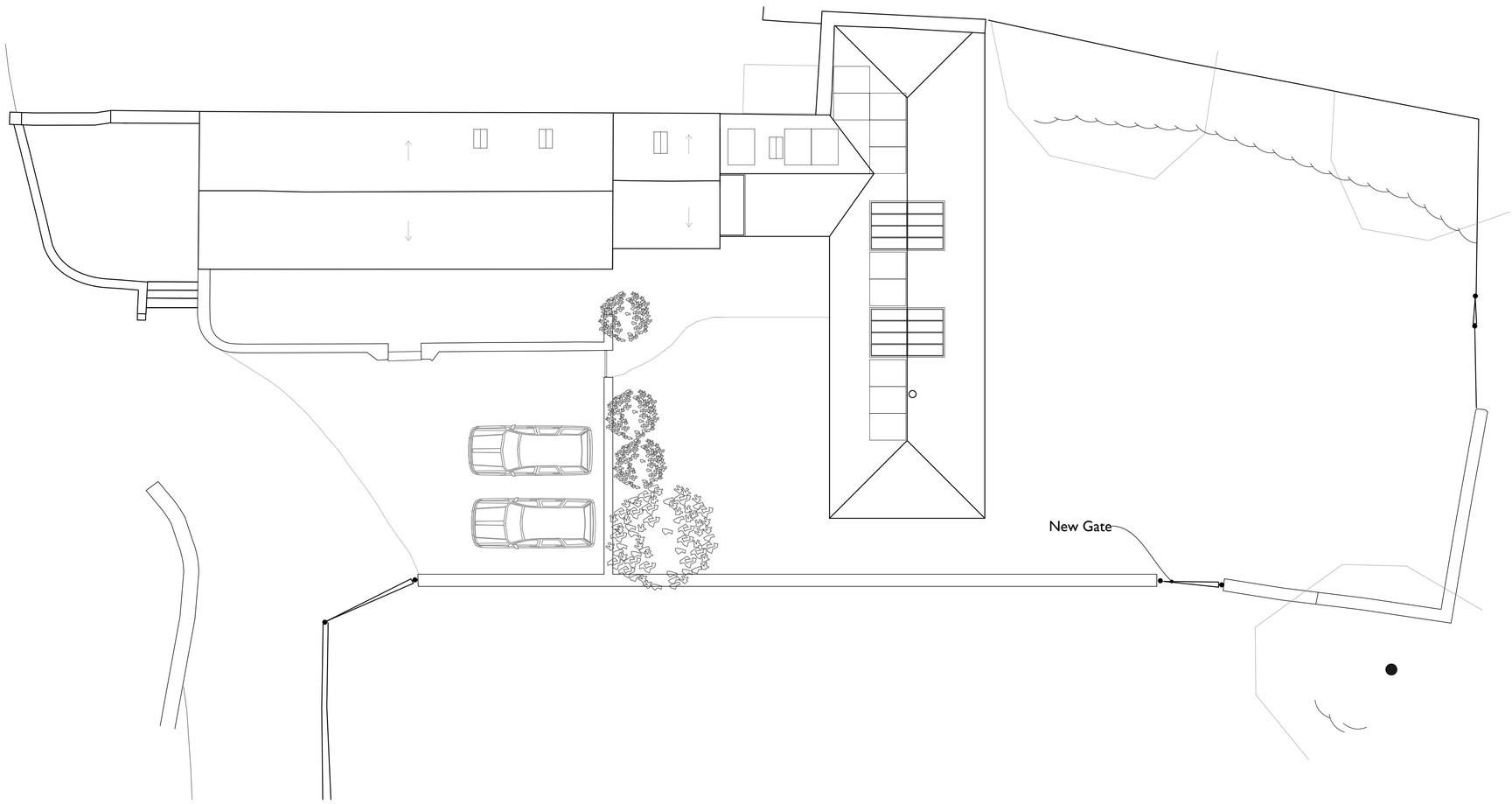

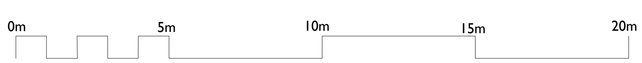

Rev.	DR.	CH.	Date	Notes
A	BH	GH	15.03.2024	Planning Issue
-	BH	GH	29.11.2023	First Issue

PROJECT: Ironstones

DRAWING: Proposed Site Plan

DRAWING No.: 4244 - 05 A

SCALE: 1:100 @ A1
1:200 @ A3

DATE: November 2023

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Appendix 2 – Preliminary Roost Assessment

Habitat Assessment

With reference to Collins (2016), it is assessed that habitats within the local landscape have **moderate suitability** for foraging and commuting bats; see Table A2-1 for details of the assessment. The presence of moderately suitable habitats in the local landscape indicates a higher likelihood that bats may roost in buildings close to these habitats where suitable roosting opportunities are available.

Table A2-1: Habitat assessment results

Habitat and Environmental Context	Suitability Assessment Descriptions[1]		Description	Suitability[1]
General location	H	Rural	Rural location.	**H**
	M	Suburban/intensive farmland		
	L	Dense urban		
Foraging habitat within 50 m	H	Well connected, high quality habitat (e.g. broadleaved woodland, tree-lined watercourses, grazed parkland)	Hedgerows, gardens, amenity grassland, pasture, and set-aside field.	**M**
	M	Connected habitat (e.g. trees, scrub, grassland, water)		
	L	Isolated habitat (e.g. lone tree, small scrub patch)		
Foraging habitat within 2 km	H	Well connected, high quality habitat (e.g. broadleaved woodland, tree-lined watercourses, grazed parkland)	Predominantly farmland with boundary hedgerows/tree-lines, with small scattered woodlands. Several watercourses (many tree/shrub-lined) and waterbodies.	**M**
	M	Connected habitat (e.g. trees, scrub, grassland, water)		
	L	Isolated habitat (e.g. lone tree, small scrub patch)		
Foraging habitat within 2 - 6 km	H	Well connected, high quality habitat (e.g. broadleaved woodland, tree-lined watercourses, grazed parkland)	Predominantly farmland with boundary hedgerows/tree-lines, with small scattered woodlands. Several watercourses (many tree/shrub-lined) and waterbodies. Extensive area of floodplain grazing marsh.	**M**
	M	Connected habitat (e.g. trees, scrub, grassland, water)		
	L	Isolated habitat (e.g. lone tree, small scrub patch)		
Commuting habitat	H	Continuous, high quality, well connected habitat (e.g. river valleys, hedgerows, tree lines, woodland edge)	Continuous connectivity to foraging habitat via hedgerows/tree-lines and watercourses.	**M**
	M	Continuous connected habitat (e.g. tree lines, linked back gardens)		
	L	Isolated habitats (e.g. gappy hedgerow, unvegetated stream)		

Habitat and Environmental Context	Suitability Assessment Descriptions[1]	Description	Suitability[1]
Overall Habitat Assessment Result		Features in the local landscape are assessed to have moderate suitability for foraging and commuting bats.	**Moderate**

[1] H = High; M = Moderate; L = Low

Building Survey

Table A2-2: Building survey results (House)

General Photographs		
 Northern and eastern elevations	 Eastern and southern elevations	
 Western elevation	 Roof space	
General Description	**Building description**	Residential building currently occupied as a dwelling.
	Current use	Residential.
	Number of storeys	One.
	Age	Converted and extended in 1998.

External Description	**Elevation construction**	Mortared stonework.
	Roof type	Gable ended double pitched.
	Roof material	Clay double Roman field tiles. Fly guard at the end of roof field tiles. Clay ridge tiles.
	Roof ridge orientation	North to south.
	Bargeboards/ fascias/soffits	Wooden soffits/fascias.
	Windows/doors	Wood framed.
	Lead flashing	Between northern and southern walls of the central higher section of the building and subservient roofs of the northern and southern sections. Also present around base of chimneys and flue pipe.
	Artificial lighting	Four lights on eastern elevation. One light on northern elevation.
External Potential Roost Features (See Appendix 3 for photographs)	• Multiple gaps between field tiles on roofs of all sections of the building, permitting access to areas between tiles and underlying bitumen felt (P1). • Several holes in roof field tiles where tiles damaged, permitting access to areas between tiles and underlying bitumen felt (P2). • Gap where verge mortar had slipped on south-eastern corner of the building (P3). • Several gaps between eastern and western walls and soffits, permitting access to areas between walls and soffit box and into soffit box (P4). • Gap between lead flashing and wall on the eastern elevation of the northern subservient section (P5). • Gap between cement verge and soffit at the northern end of the eastern elevation of the higher central section (P6). • Gap between roof field tile and lead flashing to the rear of flue on the east facing roof slope (P7). • Gap between southern pillar on the eastern elevation and soffit, potentially permitting access to soffit box (P8). • One gap where the ridge mortar had fallen away on the western side of the ridge, potentially permitting access to area under ridge tiles (P9).	
Internal Description	**Number of roof spaces**	Two roof spaces; Roof Space 1: located within the central section of the building and Roof Space 2 located above the northern section, linked by a small hole in the internal wall. Only Roof Space 1 was accessible for survey.
	Roof space dimensions	Roof Space 1: approximately 1.8 m high, 8-9 m long and 5.0 m wide.
	Presence and extent of cobwebs	Roof Space 1: abundant cobweb under roof slopes and at the top of the internal wall at the southern end of the roof space, and abundant in places along the ridge board. Abundant cobweb around the top of chimney within the roof space.
	Roof construction	Roof Space 1: machine cut ridge board, purlins, and rafters.
	Roof lining	Roof Space 1: bitumen felt.
	Elevation construction	Roof Space 1: blockwork (southern internal wall), and mortared stonework (northern internal wall).
	Natural light levels	Roof Space 1: dark.

	Exposure to weather	Roof Space 1: sheltered.
	Level of disturbance	Roof Space 1: low.
	Flight space	Roof Space 1: uncluttered.
	Artificial Lighting	Roof Space 1: strip light.
Internal Potential Roost Features (See Appendix 3 for photographs)	• Roof Space 1: hole in bitumen felt where flue pipe extruded through the roof, permitting access to area between roof field tiles and felt (P10). • Roof Space 1: gaps between top of internal walls and roof (P11). Gaps above the southern internal wall were covered by cobweb.	
Potential Access Points to Interior	• No access features which could permit access into Roof Space 1 were identified.	
Evidence of Bats	• None (but see limitations).	
Bat Roost Suitability Assessment	**MODERATE (active period)** The building was assessed to have moderate suitability for roosting bats during the active season, with multiple potential roost sites (e.g. under tiles) with suitable conditions and moderate suitability surrounding habitat, but which is considered unlikely to support high conservation status roosts. **LOW (hibernation period)** The building was assessed to have low suitability for hibernation, with features present with potential for use by species which can hibernate in more exposed conditions (including gaps between roof tiles), but which are not considered likely to provide the protection from weather or favourable temperature and humidity conditions during the winter period which would be found in a classic hibernation site.	

Table A2-3: Building survey results (Outbuilding)

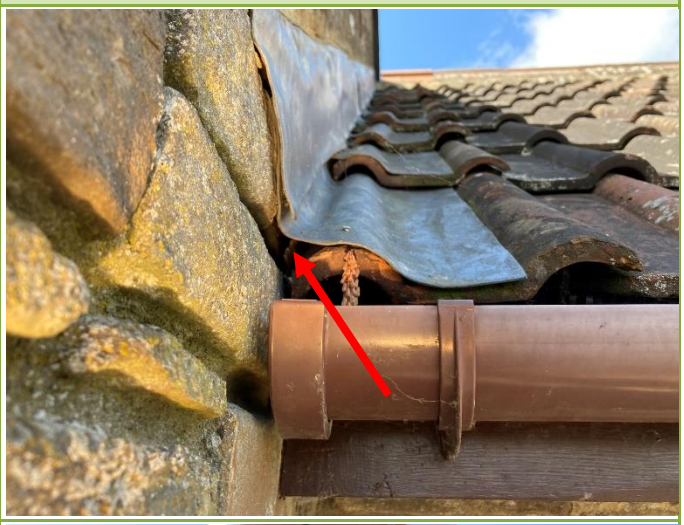
General Photographs		
 Northern and eastern elevations		 Southern elevation
 Interior (enclosed southern section)		 Interior (open northern section)
General Description	**Building description**	Outbuilding. Southern section of the building had been enclosed.
	Current use	Storage.
	Number of storeys	One.
	Age	Unknown.
External Description	**Elevation construction**	Mortared stonework and blockwork.
	Roof type	Mono-pitched.
	Roof material	Clay pantiles.
	Roof ridge orientation	N/A
	Bargeboards/ fascias/soffits	Wooden bargeboards.
	Windows/doors	N/A.
	Lead flashing	Present between top of roof and parapet.
	Artificial lighting	No lights on exterior.

External Potential Roost Features (See Appendix 3 for photographs)	• Multiple gaps between field tiles, permitting access to areas between tiles and underlying bitumen felt (P12). • Gaps at the end of roof tiles on the eastern elevation, permitting access to areas between tiles and underlying bitumen felt (P13). • Several wall cavities in the southern elevation (P14). • Gap between top of the northern wall and bargeboard, permitting access to wall top (P15).	
Internal Description	**Number of roof spaces**	None.
	Roof space dimensions	N/A.
	Presence and extent of cobwebs	Variable cover under roof.
	Roof construction	Machine cut timber roof supports.
	Roof lining	OSB with bitumen felt above.
	Elevation construction	Blockwork and stonework.
	Natural light levels	Southern enclosed section: dark. Northern open fronted section: light.
	Exposure to weather	Southern enclosed section: sheltered. Northern open fronted section: draughty, exposed.
	Level of disturbance	Moderate.
	Flight space	Uncluttered.
	Artificial Lighting	Strip lighting within both internal sections.
Internal Potential Roost Features (See Appendix 3 for photographs)	• Several cavities in stonework at the rear (western elevation) of the northern open fronted section, some of which extended back at least 20 cm (P16). • Roof support timbers.	
Potential Access Points to Interior	• Southern enclosed section: no access features which could permit access were identified. • Northern open fronted section: fully accessible as open fronted.	
Evidence of Bats	• None.	
Bat Roost Suitability Assessment	**MODERATE (active period)** The building was assessed to have moderate suitability for roosting bats during the active season with multiple potential roost sites (e.g. under tiles) with suitable conditions and moderate suitability surrounding habitat, but which is considered unlikely to support high conservation status roosts. **LOW (hibernation period)** The building was assessed to have low suitability for hibernation, with features present with potential for use by species which can hibernate in more exposed conditions (including gaps between roof tiles), but which are not considered likely to provide the protection from weather or favourable temperature and humidity conditions during the winter period which would be found in a classic hibernation site.	

Appendix 3 – Building Survey Photographs

Number	Description	Photograph
House		
P1	Examples of gaps between field tiles on roofs of all sections of the building, permitting access to areas between tiles and underlying bitumen felt.	 
P2	Examples of holes in roof field tiles where tiles were damaged, permitting access to areas between tiles and underlying bitumen felt.	

Number	Description	Photograph
		
P3	Gap where verge mortar had slipped on south-eastern corner of the building.	
P4	Example of gaps between eastern and western walls and soffits, permitting access to areas between walls and soffit box and into soffit box.	

Number	Description	Photograph
P5	Gap between lead flashing and wall on the eastern elevation of the northern subservient section.	
P6	Gap between cement verge and soffit at the northern end of the eastern elevation of the higher central section.	
P7	Gap between roof field tile and lead flashing to the rear of flue on the east facing roof slope.	

Number	Description	Photograph
P8	Gap between southern pillar on the eastern elevation and soffit, potentially permitting access to soffit box.	
P9	One gap where ridge mortar had fallen away on the western side of the ridge, potentially permitting access to area under ridge tiles.	
P10	Roof Space 1: hole in bitumen felt where flue pipe extruded through the roof, permitting access to area between roof field tiles and felt.	

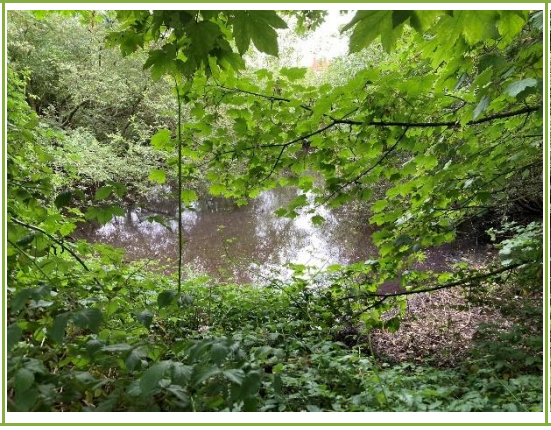
Number	Description	Photograph
P11	Roof Space 1: example of gaps between top of internal walls and roof. Gaps above the southern internal wall were covered by cobweb.	
Outbuilding		
P12	Example of gaps between field tiles, permitting access to areas between tiles and underlying bitumen felt.	
P13	Example of gaps at the end of roof tiles on the eastern elevation, permitting access to areas between tiles and underlying bitumen felt.	

Number	Description	Photograph
P14	Example of wall cavities in the southern elevation.	
P15	Gap between top of the northern wall and bargeboard, permitting access to wall top.	
P16	Examples of cavities in stonework at the rear wall (western elevation) of the northern open fronted section	

Number	Description	Photograph
		

Appendix 4 – HSI Data

Waterbody	1	**Survey by**	Robert Dunn
Grid Reference	ST 68355 82143	**Survey date**	25/07/2023

HSI Factor	Assessment	HSI Value	Rationale
Location	Zone A	1.00	-
Area (m^2)	Approximately 150	0.30	-
Pond drying	Never	0.90	-.
Water quality	Poor	0.33	Midge larvae and water beetles noted only.
Shade (%)	80	0.60	-
Waterfowl	Absent	1.00	No signs of waterfowl, other than moorhen.
Fish	Absent	1.00	None noted.
Pond density	7 ponds/π = 2.22	0.87	All mapped ponds within 1 km counted.
Terrestrial habitat	Poor	0.33	Less than 25 % of the area within 250 m of the pond comprises good quality terrestrial habitat (woodland, hedgerows, rough grassland, set-aside, gardens).
Macrophyte cover (%)	0	0.31	No macrophytes present.
HSI Score		**0.59**	**BELOW AVERAGE**
Photograph			

Waterbody	2	**Survey by**	Robert Dunn
Grid Reference	ST 68510 82083	**Survey date**	25/07/2023

HSI Factor	Assessment	HSI Value	Rationale
Location	Zone A	1.00	-
Area (m^2)	Approximately 200	0.40	-
Pond drying	Frequently	0.10	Dry at the time of the survey.
Water quality	Good	1.00	Precautionary value given,
Shade (%)	80	0.60	-
Waterfowl	Absent	1.00	No signs of waterfowl.
Fish	Absent	1.00	Pond is obviously frequently dry and so fish would not persist.
Pond density	>10 ponds/π = > 3.18	1.00	All mapped ponds within 1 km counted.
Terrestrial habitat	Poor	0.33	Less than 25 % of the area within 250 m of the pond comprises good quality terrestrial habitat (woodland, hedgerows, rough grassland, set-aside, gardens).
Macrophyte cover (%)	80	1.00	Abundant floating sweet-grass.
HSI Score		**0.62**	**Average**
Photograph			

Waterbody	3	**Survey by**	Robert Dunn
Grid Reference	ST 68248 81937	**Survey date**	25/07/2023

HSI Factor	Assessment	HSI Value	Rationale
Location	Zone A	1.00	-
Area (m^2)	Approximately 80	0.16	-
Pond drying	Sometimes	0.50	Pond was dry during a survey carried out in July 2022 (Herdwick Ecology, 2022).
Water quality	Good	1.00	Precautionary value given.
Shade (%)	50	1.00	-
Waterfowl	Absent	1.00	Precautionary value given.
Fish	Absent	1.00	Precautionary value given.
Pond density	7 ponds/π = 2.22	0.87	All mapped ponds within 1 km counted.
Terrestrial habitat	Poor	0.33	Less than 25 % of the area within 250 m of the pond comprises good quality terrestrial habitat (woodland, hedgerows, rough grassland, set-aside).
Macrophyte cover (%)	40	0.71	-
HSI Score		**0.66**	**AVERAGE**
Photograph