229 North Road
Yate
BS37 7LG

Ecological Assessment

LUS Ecology
On behalf of
Scott Brothers UK LTD

Date: 20/03/24
Document Reference: LUS2385 EA
Revision: Submission A
Approved by: Greg Nightingale

Lus

CIEEM
REGISTERED
PRACTICE 2023-2024

Contents

Chapter 1: Summary

1.1 A planning application for the construction of seven residential units, with associated access and landscaping at 229 North Road, Yate, BS37 7LG will be submitted soon. This report sets out an Ecological Assessment of the Proposed Development at the aforementioned Site.

1.2 A data search and ecological surveys have been completed to determine the Proposed Development's impact, inform the Proposed Development's iterative design, (including implementation of the Mitigation Hierarchy), and to ensure the required ecological mitigation and compensation is embedded into the Proposed Development's design, or can be delivered via suitably worded planning conditions.

1.3 The Site is of low importance and the Proposed Development's design minimises the loss of trees and vegetation to a small number of trees amenity grassland. The tree lines and hedgerows are set within appropriate landscape buffers, free from built development.

1.4 It is recognised that there will be an overall loss of greenspace. However, the retention of the connectivity, and boundary habitats will result in at least a neutral outcome and is likely are the best outcome for a development of this nature and scale at this location. The habitats lost are of Site Importance or lower.

1.5 Measures to protect wildlife during construction have been set out and committed to, including a pre-commencement badger survey within three months of the development commencing. It is recommended that these measures are included within a Construction Environmental Management Plan (CEMP), secured by a planning condition.

1.6 **The Applicant is aware of, and has committed to, the mitigation and compensation measures set out within this report**. This report should be read in conjunction with the Biodiversity Net Gain Assessment.

1.7 Based on the results from the survey, context of the Site, and overall low importance of the Site, this report is valid for a period of 18 months (i.e., the 25/03/2025). This is reasoned in line with good practice guidelines.

Chapter 2: Introduction

2.1 This report sets out an Ecological Assessment (EA) of 229 North Road, Yate, BS37 7LG at grid reference ST 69815 83708 (referred to as 'the Site' throughout this report), along with the applicant's ecological commitments in relation the Site.

Site Description

2.2 The Site consists of a rear garden, hardstanding, two buildings, and a small extension of an offsite building, and is bound by trees and hedgerows (**Figure 1**). The Site is located to the northwest of Yate, South Gloucestershire. The Site lies to the north of an area of housing currently being built, which was granted permission in January 2021 by South Gloucestershire Council (P20/15214/F). Existing areas of housing lie to the east, residential gardens lie to the north, and arable and pasture lie to the west. The area of land to the west is highly likely to be developed as conditions are being discharged for a planning application which covers this land (P19/2575/F, South Gloucestershire Council).

Figure 1. Aerial image - Site boundary in red line[1]

Proposed Development

2.3 A planning application for the construction of seven residential units, with associated access and landscaping will be submitted soon (referred to as the Proposed Development throughout this report). The Proposed Development will result in the demolition of a small single storey extension, the removal of two wooden structures, the removal of grassland, and the removal of a small number of trees. The boundary habitats will be retained and protected throughout the development process. **Figure 2** shows the Proposed Development.

[1] Image used under licence (©2023 Google): Accessed: 09/11/2023.

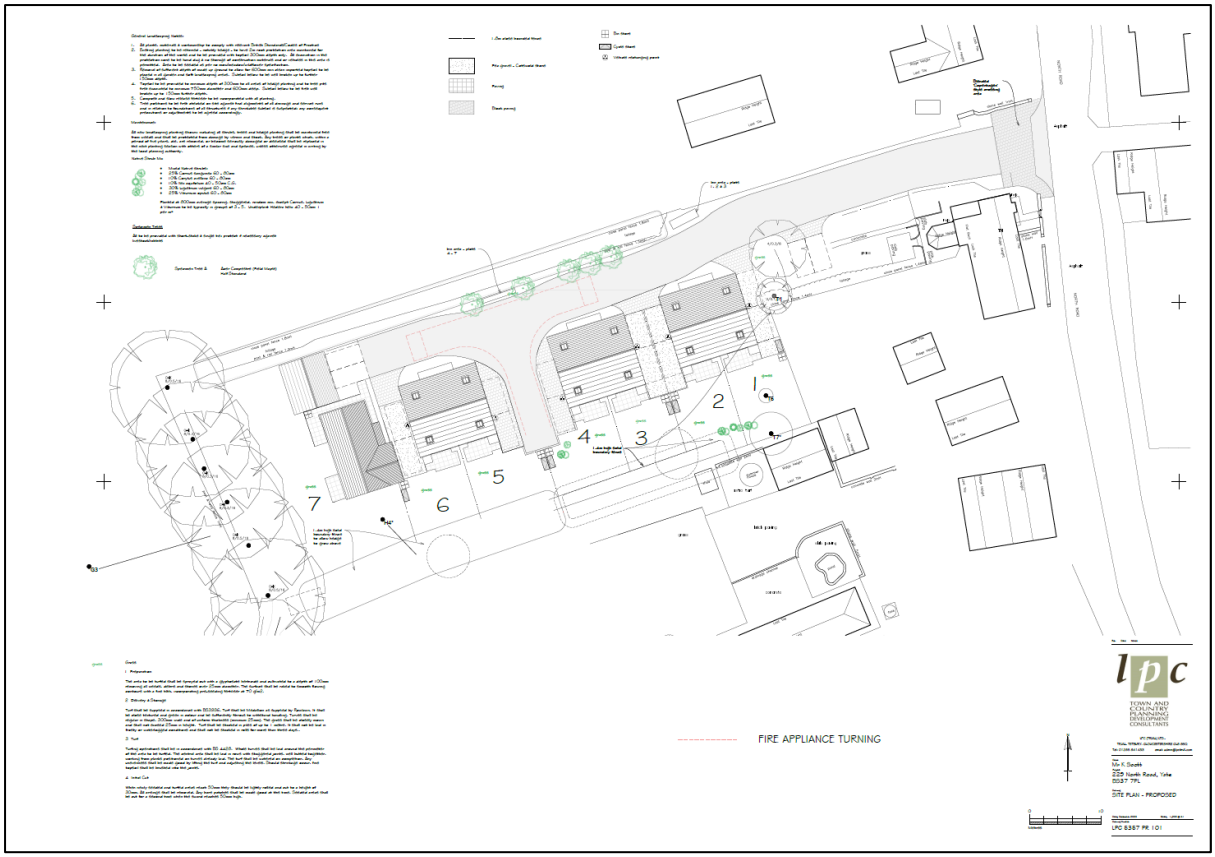


Figure 2. The Proposed Development

Purpose of this report

2.4 The purpose of this EA is to provide sufficient information for the Local Planning Authority to fully assess and understand the ecological outcomes of the Proposed Development. The key objectives of this EA are to:

- Outline the planning, legal, and landscape context of the Site.
- Ascertain the ecological importance of the Site by identifying and assessing the main habitats and plant communities within the Site and determining the presence/likely absence of protected species within the Site.
- Characterise and assess the ecological impacts/likely ecological impacts of the Proposed Development on the ecological importance of the Site.
- Follow the Mitigation Hierarchy to:
  - Demonstrate how the design of the Proposed Development has been shaped and revised since inception to minimise ecological impacts/likely ecological impacts (avoidance).
  - Demonstrate the Proposed Development's commitment to mitigation, compensation, offsetting, and enhancement in relation to protected and priority habitats and protected, priority and notable species.
- Outline the requirements for future monitoring of ecological receptors, impacted/likely impacted by the Proposed Development.

Chapter 3: Method

3.1 This report was written with regard to the CIEEM Guidelines on: Ecological Report Writing[2], Preliminary Ecological Appraisal[3], and Ecological Impact Assessment[4], as well as the British Standard on the Biodiversity Code of Practice for Planning and Development Biodiversity[5] and Writing Effective Ecological Reports[6].

Zone of Influence

3.2 The ecological impacts / likely ecological impacts of the Proposed Development will be largely confined to the construction zone within the Site itself and would include the loss, degradation, and fragmentation of habitats, along with ecological impacts (e.g., killing and injury) on protected, priority and notable species, including the loss of ecological functions such as (commuting, hibernation, breeding opportunities). In addition, consideration has been given to the following potential impacts, which may spread beyond the Site:

- Disruption to species within receiving range of dust, light, noise and pollution during demolition, construction, and occupation of the Proposed Development.
- Disturbance to habitats/species within walking/driving distance of the new residents of the Proposed Development once the Proposed Development is completed.

3.3 The surveys of the Site and search buffers used within the data search are sufficient to capture the full extent of the Zone of Influence (ZoI) of the Proposed Development.

Data Search

3.4 A review of existing ecological knowledge of the Site and its surrounding area was undertaken on 09/11/23. The data search included the following:

- A search for Internationally designated sites with mitigation strategies that overlap the Site[7].
- A 5km radius around the Site for statutory designated nature conservation sites[7].
- A 1km radius around the Site for granted European Protected Species Licences (EPSL), great crested newt class survey licence returns, and great crested newt pond surveys 2017 - 2019[7],
- A 1km data search from Bristol Regional Environmental Records Centre (BRERC) for protected and priority species and non-statutory sites[8].
- A 1km review of the habitats within the local landscape, habitat designations, and their suitability to support protected and notable species using aerial imagery[9].

[2] CIEEM (2015). *Guidelines on Ecological Report Writing*. Chartered Institute for Ecology and Environmental Management, Winchester.
[3] CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal. 2nd Edition*. Chartered Institute for Ecology and Environmental Management, Winchester.
[4] CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, and Coastal and Marine.* Chartered Institute for Ecology and Environmental Management, Winchester.
[5] BSI (2013). BS 42020:2013: *Biodiversity: Code of Practice for Planning and Development*. British Standards Institution, Bristol.
[6] Dean M. (2021). *Writing Effective Ecological Reports: A Guide to Principles and Practice*. Pelagic Publishing, Exeter.
[7] Multi-Agency Geographic Information for the Countryside (MAGIC) maps For England and Wales. *Available online at: https://magic.defra.gov.uk/home.htm*
[8] Bristol Regional Environmental Records Centre (BRERC), received 10/10/23.
[9] Google Earth. *Available online at: https://earth.google.com/web/*

- The ecology reporting and consultee responses to the Adjacent Development Planning Application (**ADPA South**) to the South (P20/15214/F, South Gloucestershire Council).
- The ecology reporting and consultee responses to the Adjacent Development Planning Application (**ADPA West**) to the West (P19/2575/F, South Gloucestershire Council).

Field Surveys

3.5 The following surveys were undertaken at the Site:

- Extended Phase 1 Habitat Survey[10] (25/09/23, Greg Nightingale).
- Bats – Preliminary Roost Assessment[12] (PRA; 25/09/23, Greg Nightingale).
- Bats – Ground Level Tree Assessment[12] (GLTA; 25/09/23, Greg Nightingale).
- Incidental observations (25/09/23).

3.6 A detailed method for each of the surveys listed above is presented within that **Appendix A**.

Assessing Ecological Importance

3.7 The assessment of the importance of sites, habitats and species are made in line with good practice guidelines[4]. These guidelines provide consistency in the approach to evaluating the importance of the ecological features within a site and the effects or impacts the Proposed Development will have on them.

3.8 Firstly, the sites, habitats and species are assessed using a framework which assigns a level of geographical importance to ecological features. This framework incorporates a wide range of legislation and governmental guidance in assessing each feature's importance.

3.9 Next, the effects/likely effects of the Proposed Development are predicted, considering different stages and activities within the development process. These effects/likely effects are then assessed for their significance, based upon the importance of the site, habitat or species being assessed. The assessment of the significance of an effect/likely effect is considered before and after the proposed mitigation to give an overall indication of significance.

3.10 The importance of specific ecological receptors (sites, habitats, or species) is assigned according to their level of importance using the following terms:

- International Importance.
- UK Importance.
- National Importance.
- Regional Importance.
- County Importance.

[10] JNCC (2010). *Handbook for Phase 1 habitat survey - a technique for environmental audit*. Joint Nature Conservation Committee, Peterborough.
[11] Harris, S., Cresswell, P. & Jefferies, D. (1989). *Surveying Badgers. An occasional publication by the Mammal Society. No. 9.* Mammal Society, London.
[12] Collins, J. (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition)*. The Bat Conservation Trust, London.

- District Importance.
- Local Importance.
- Site Importance.

Assessing Ecological Significance

3.11 The following factors are considered when assessing the significance of ecological impacts and effects: extent, magnitude, duration, reversibility, timing and frequency and cumulative effects.

3.12 An effect is considered significant if it either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g., for a designated site) or broad (e.g., national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. Non-significant effects (referred to as 'negligible') are those changes which do not cause an effect (adverse or positive) on the conservation objectives for 'important ecological features' or for biodiversity in general.

3.13 Significant ecological effects are qualified with reference to an appropriate geographic scale. However, the scale of significance of an effect may not be the same as the geographic context in which the feature is considered important.

3.14 In determining if an effect is ecologically significant, the following is considered:

- For designated sites, the effect of the Proposed Development on the conservation objectives of the designated site and the conservation status of species or habitats for which the Site is designated is assessed.
- For ecosystems, the effect of the Proposed Development on ecosystem structure and function is assessed.
- For habitats and species, the effect of the Proposed Development on the conservation status is assessed as well as the effects of impacts on individual habitats and species.

Contributor information

3.15 The surveys and assessments were designed and led by Greg Nightingale. The EA was written by Greg Nightingale. **Table 1** outlines the relevant experience of the assessment contributor.

Contributor	Experience
Greg Nightingale BSc (Hons) MCIEEM	Greg is the Director of LUS Ecology with over nine years of ecology and environmental management in the private sector. Greg has worked extensively within the planning system, undertaking protected species surveys, habitat surveys and Ecological Impact Assessments as well as providing advice on habitat management and mitigation and enhancement design. He has a comprehensive understanding of environmental policy and the current and emerging challenges facing the environment and how these challenges are managed within the planning sector. Through an understanding of good practice, planning policy, the ecology of protected habitats and species, and environmental impact pathways, Greg provides robust ecological advice that is cognisant of wider planning and legal requirements. He is experienced in Phase 1 Habitat classification and condition assessment using the UKHabs Classification system. He has designed, undertaken, and reported on numerous habitat and protected species surveys (including Badger Surveys, Bat Emergence/Re-entry Surveys, Bat Activity Surveys, and Hazel Dormouse Surveys), including bespoke survey design and the implementation of numerous protected species mitigation strategies. Greg is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). He holds a level two Bat Licence, a level one great crested newt licence, and a NPTC (CS38) Tree Climbing and Aerial Rescue qualification. In addition, he has been named on badger mitigation licences and has completed courses in barn owls, botany, breeding birds, and hazel dormouse.

Table 1. Contributor experience

Limitations and assumptions

Limitations

3.16 The limitations associated with the survey work, data analysis, and reporting are set out within **Table 2**, along with an analysis of the effect of the limitation on the validity and robustness of the decision making within this report.

Limitation	Analysis of effect
The desk study does not produce a comprehensive list of plants and animals as this is limited by factors that influence their presence (e.g., activity and dormancy periods), along with varied recording effort across the landscape.	The species records of the desk study are a reflection of survey effort and therefore the data returned from each request is variable across the UK. As a result, the data search data has not been used to rule out the presence of protected species and habitats within and adjacent to the Site.
The Ground Level Tree Assessment was completed when the trees were in leaf and/or the trees were evergreen species.	Close focusing binoculars and a methodical approach to the assessment were used. This method, combined with the small size of the trees, their growth patterns, and the ability to access the entirety of the area surrounding the trees, meant that all areas of the trees could be readily assessed.

Table 2. Summary of limitations and their effect

Chapter 4: Results and Assessment

Data Search

The Local Landscape Context

4.1 The Site is located to the northwest of Yate, South Gloucestershire. The Site lies to the north of an area of housing currently being built, which was granted permission in January 2021 by South Gloucestershire Council (P20/15214/F). Existing areas of housing lie to the east, residential gardens lie to the north, and arable and pasture lie to the west.

4.2 The area of land to the west is highly likely to be developed as conditions are being discharged for a planning application which covers this land (P19/2575/F, South Gloucestershire Council).

4.3 More widely, dense commercial and residential development lies to the South and East and a landscape of pasture and arable lies to the North and West.

Statutory Designated Sites

4.4 Statutory designated sites are the most significant ecological receptors and include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, which are all of **International Importance**, and Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs), which are of **National Importance**.

4.5 Local Nature Reserves (LNRs) are notified under Section 21 of the National Parks and Access to the Countryside Act 1949 (as amended) by local authorities and are of **Local Importance**. They are intended for public appreciation and enjoyment of wildlife. The LNR designation does not afford special protection; however, LNRs are protected under legislation and planning policy.

4.6 The statutory designated sites within returned by the desk study are shown in **Table 3**.

Site Name	Reason for designation	Distance and direction
Barnhill Quarry SSSI	The area is designated for its earth heritage interest.	2.6 km east
Bishop's Hill Wood SSSI	The area is designated for its: • Lowland broadleaved, mixed and yew woodland interest. • Lowland calcareous grassland.	4.6 km northeast
Lower Woods SSSI	The area is designated for its: • Lowland broadleaved, mixed and yew woodland interest. • Lowland neutral grassland. • Earth heritage. • Standing open water and canals.	4.9 km northeast
Wapley Bushes LNR	The area supports flower rich meadow and ancient woodlands.	3.2 km south

Table 3. Summary of statutory designated sites returned by the desk study

Non-Statutory Designated Sites

4.7 In South Gloucestershire Local Wildlife Sites (LWSs) are termed Sites of Nature Conservation Importance (SNCIs) and are of **Local Importance**. The local sites within 1km of the Site are shown in **Table 4**.

Site Name	Area (ha)	Distance and direction
Fields South of Engine Common SNCI	The area is designated for its neutral grassland, marshy grassland, and broadleaved woodland interest.	400 m North
Engine Common Lane SNCI	The area is designated for its neutral grassland interest.	750 m northeast
Engine common SNCI	The area is designated for its neutral grassland interest.	800 m northeast
Fields at Mission Road / North Road SNCI	The area is designated for its semi-improved neutral grassland / species-rich neutral grassland and diverse hedgerow interest.	100 m North
Broad Lane Council Depot SNCI	The area is designated for its unimproved neutral grassland, semi-improved neutral grassland, and hedgerow interest.	550 m East
Goose Green Way SNCI	The area is designated for its neutral grassland, marshy grassland, and scrub/carr interest. The site also supports grass snake *Natrix helvetica*, slow worm *Anguis fragilis*, and water vole *Arvicola amphibius*.	600 m East
River Frome (South Gloucestershire) SNCI	The area is designated for its flowing open water and bankside vegetation interest.	580 m southeast

Table 4. Summary of non-statutory designated sites returned by the desk study

Protected, Priority, and Notable species

4.8 The relevant protected species records from the data search are incorporated into the Protected, Priority and Notable Species section, below.

Habitat survey

4.9 The Site supported the following habitats:

- Amenity grassland.
- Buildings.
- Hardstanding.
- Scattered trees.
- Intact species-poor hedge.
- Tree line.

4.10 All the features described are shown on the Extended Phase 1 Habitat Plan at **Appendix B**.

Amenity grassland

4.11 The Site is predominantly formed a rear garden in use as amenity space and comprising turf. The grassland was in regular use as a family garden and supported areas of bare ground, stored materials, and rougher grassland edges (**Photograph 1**). The grassland

had a short sward height, limited structure diversity, and no thatch layer. The ground was relatively flat and appeared moderately compacted. Species recorded included: annual meadow grass *Poa annua*, broadleaved dock *Rumex obtusifolius*, broadleaved plantain *Plantago major*, common bent *Agrostis capillaris*, creeping buttercup *Ranunculus repens*, daisy *Bellis perennis*, dandelion *taraxacum officinale*, ground elder *Aegopodium podagraria*, ribwort plantain *Plantago lanceolata*, and Yorkshire fog *Holcus lanatus*.

4.12 The **amenity grassland** was of **Negligible Importance**.

Photograph 1: Amenity grassland

Buildings and Hardstanding

4.13 The Site supported a small area of predominantly formed of tarmac and gravel (**Photograph 2**). There were three buildings within the Site (**B1** – **B3**). The **buildings and hardstanding were of Negligible Importance**. The importance of the buildings in relation to bats and birds is discussed in the 'Protected, Priority, and Notable Species' section below.

Photograph 2: Tarmac and gravel area at entrance

4.14 **B1** was a single storey rendered butterfly-roofed extension to an offsite residential property (**Photographs 3 – 6**). The extension had been extended with fencing to enclose the porch style design to the rear. The roof was formed of tiling and polycarbonate sheeting. No cavity walls or loft space were present. The building was in use as a toilet and shower room. The outside porch area was used as storage.

Photograph 3: B1, northern elevation

Photograph 4: B1, roofscape

Photograph 5: B1, eastern elevation

Photograph 6: B1, western elevation

4.15 **B2** was a single storey wooden framed building with walls formed of wood and corrugated metal (**Photograph 7**). The roof was a shed style, formed of corrugated metal. The building was sub-divided into two areas. No loft space or cavities walls were present. The structure was used for storage.

Photograph 7: B2, eastern and southern elevations

4.16 **B3** was a single storey wooden shed connected to a wooden framed chicken wire chicken coup (**Photograph 8**). No loft space or cavities walls were present.

Photograph 8: B3, Shed and chicken coup

Scattered trees

4.17 There were three scattered mature trees within the Site (**Photographs 9 – 11**). The trees included a plum *Prunus domestica*, a conifer, and a fruit tree. The plum tree was 4m in height and had a 18cm diameter a breast height. The remaining trees are not labelled but comprised a 4m tall fruit tree and a 6m tall conifer tree. The fruit trees are not native to the UK, but their flowers and fruit are resources for local wildlife. **The fruit trees were of Site Importance. The conifer was of Negligible Importance.**

Photograph 9: Plum, T6

Photograph 10: Fruit tree

Photograph 11: Conifer tree

Hedgerows and Tree lines

4.18 There was one hedgerow (**H1**) and one tree line (**TL1**) within the Site. An additional hedgerow (**H2**) formed the southern boundary of the Site but was rooted offsite[13]. **Table 5** sets out the details of the hedgerows. **H1** and **H2** were of **Site Importance**. **TL1** was of **Local Importance** given the size and age of the oak trees which formed the tree line's overall structure.

Hedgerow Number	Hedgerow Type	Description
H1	Intact species poor hedgerow	Located along the western and central extent of the northern boundary of the Site, forming a residential property boundary, was a 4/5m tall, 66m long, over 1.5m wide, intact species poor hedgerow (**Photographs 12 and 13**). The hedgerow was predominately formed of blackthorn *Prunus spinosa*, elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, and hazel *Corylus avellana* with crab apple *Malus sylvestris* and field maple *Acer campestre* also present. The hedgerow was adjacent to, and overgrowing, a stockproof fence.

[13] The applicant has advised they do not own this hedgerow.

H2 (offsite)	Intact species poor hedgerow	Located within the centre of the Site, splitting the two gardens, and forming a residential property boundary, was a 6/7m tall, 53m long, over 1.5m wide, intact species poor hedgerow (**Photographs 14 and 15**). The hedgerow was predominately formed of mature ash *Fraxinus excelsior*, blackthorn, elder, hawthorn, hazel, and holly *Ilex aquarium*. Various materials were stored beneath the canopy of the hedgerow (**Photograph 16**).
TL1	Species-poor tree line	A 35m long line of English oak *Quercus robur* was present along the western boundary of the Site (**Photograph 17**). The trees were between approximately 22m tall, with connected canopies. The tree line also included bramble, crab apple, hawthorn, and holly. The trees were located between garden and an open field. The trees appeared healthy, with limited evidence of adverse impact health as a result of human activity. A number of the oaks were decaying and providing natural ecological niches for vertebrates and invertebrates (i.e., deadwood, cavities, ivy, and/or loose bark). Materials had been stored beneath the canopy of the tree line (**Photograph 18**).

Table 5. Details of hedgerows and tree lines within the Site

Photograph 12: H1, viewing from southeast

Photograph 13: H1, viewing from southwest

Photograph 14: H2, viewing from southeast

Photograph 15: H2, viewing from southwest

Photograph 16: H2, viewing from northwest

Photograph 17: TL1, northern section, viewing from East

Photograph 18: Materials beneath canopy of Northern section of TL1

Protected, Priority and Notable Species

4.19 The suitability of the Site to support the following species/species groups is outlined below:

- Amphibians, including great crested newt *Triturus cristatus.*
- Bats.
- Birds.
- Hazel dormouse *Muscardinus avellanarius*.
- Hedgehog *Erinaceus europaeus.*
- Reptiles.

4.20 The following were not considered due to a lack of suitable habitats to support the species within the Site and local landscape:

- Otter *Lutra lutra*.
- Water vole *Arvicola amphibius*.
- White-clawed crayfish *Austropotamobius pallipes*.

Amphibians

4.21 The ponds and ditches within this section are mapped at **Appendix C**.

Data search

4.22 BRERC returned seven records of smooth newt *Lissotriton vulgaris*, four records of common frog *Rana temporaria*, three records of great crested newt *Triturus cristatus*, and one record of common toad *Bufo bufo*. One of the great crested newt records was from North Road Primary School, located approximately 85m to the north. Magic returned no records of granted great crested newt EPSLs, positive great crested newt pond surveys (2017 – 2019), or great crested newt class survey licence return records. However, it was evident that a population of great crested newts was present 1.2km to the northeast of the Site.

4.23 The **ADPA South** assessed a ditch 40m to the South of the Site (**D1**) and a ditch located at Grid reference: ST 6955 8325 (**D2**) as both having 'Poor' suitability for great crested newts, which was considered *'below the 0.5 threshold at which further surveys are usually required"*. **ADPA South** also attempted access to a pond within the grounds of North Road Primary School at Grid Reference: ST 69888 83825 (**P1**) and were refused access.

4.24 Within 500m of the Site, there is also an ornamental garden pond located at Grid Reference ST 6993 8375 (**P2**) and a field boundary pond located at Grid reference ST 69590 84050 (**P3**).

4.25 **ADPA South** reasoned that great crested newts could be present and proposed a Precautionary Method of Working. This approach was approved by South Gloucestershire Council and appended as a planning condition.

4.26 **ADPA West** confirmed the presence of great crested newts within a pond 625m to the southwest of the Site, located at Grid reference ST 69273 83249 (**P4**).

Assessment

4.27 There were no ponds within or adjacent to the Site. The ditch (**D1**) was dry at the time of survey but has previously been confirmed by the survey work of **ADPA South** in February 2020 to hold water but not support aquatic vegetation. It is not expected that **D1** is suitable for amphibians during the breeding season, as it is expected to dry each year. In addition, **ADPA South** assessed **D1** to be of Poor Suitability for great crested newts. This assessment is agreed.

4.28 The Site supports terrestrial habitat suitable for amphibians. However, this is expected to be low quality, both in general, and comparative to the local area. The amenity grassland could be used for foraging and commuting. However, the short sward and lack of cover, significantly limits the likelihood amphibians would use the grassland. The hedgerows and tree lines, and their associated scrub, debris, and root systems, may be used as movement corridors and provide cover and opportunities for resting and hibernation.

4.29 It is clear that there is a great crested newt population within the local landscape to the southwest and northeast and presence/absence data is not available for the northwest or southeast. On this basis, the presence of individual great crested newts (and other common amphibians) within the Site cannot be reasonably ruled out. However, there are no features within the Site that could be used by amphibians to breed. On this basis, great crested newts and other common amphibians are scoped into further assessment.

4.30 The **amphibian interest** was of **Site Importance as a precaution.**

Bats

Data search

4.39 The data search from BRERC returned three records of at least two bat species: Daubenton's bat *Myotis daubentonii*, *Myotis* species, and whiskered bat *Myotis mystacinus*.

4.40 **ADPA South** cited **ADPA West's** bat activity surveys and also stated they were also undertaking bat activity surveys: *"Bat activity surveys are on-going at the time of report writing."*. These surveys do not appear to have been submitted as part of the planning application.

4.41 Bat activity surveys between July – September 2017 by **ADPA West**, which included surveys of the Site's western boundary, confirmed the presence of the following species: brown long-eared *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros*, myotis species *Myotis sp.*, Nathusius' pipistrelle *Pipistrellus nathusii*, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus*, and soprano pipistrelle *Pipistrellus pygmaeus*.

4.42 These results confirmed that common pipistrelle, greater horseshoe, lesser horseshoe, myotis species, noctule, and serotine were using the Site's western boundary in 2017 (**TL1**). The use of the boundary by horseshoe bats was low (one pass each).

Assessment: Roosts: Buildings

4.43 The buildings within the Site were subject to a Preliminary Roost Assessment. No evidence of bats was recorded within/associated with any of the buildings within the Site. **All buildings within the Site were assessed to have No (None) Suitability to support bat roosts**. **Table 6** sets out the results of the PRA of each of the buildings.

Building number	Feature					
	Direct evidence of bats	Suitability of materials and design to support bat roosts	Loft void or space	Cavity walls	Exterior features suitable to support bat roosts	Overall Suitability of the building to support a bat roost
B1	None	Poor	None	None	None	No (None)
B2	None	Poor	None	None	None	No (None)
B3	None	Poor	None	None	None	No (None)

Table 6. PRA results

4.44 Due to the materials used in the construction of **B1**, further evidence to support its No (None) Suitability Assessment is presented.

4.45 **B1** had sealed 'eaves' (**Photographs 19 and 20**, no damage to the ridge line (**Photograph 21**). A cracked tile was gently lifted an no evidence of bats was present within the area (**Photograph 22**). A connection point to the main building (**Photograph 23**) was searched using torch light and no evidence of bats was found.

Photograph 19: B1, 'eave' of eastern elevation

Photograph 20: B1, 'eave' of northern elevation

Photograph 21: B1, ridge line and tiling of roof

Photograph 22: B1, cracked tile, gently lifted, no evidence of bats

Photograph 23: B1, connection point to retained building, no evidence of bats

Roosts: Trees

4.46 All the trees within the Site were subject to a Ground Level Tree Assessment for bats, this included the scattered trees, tree lines, and trees within hedgerows. The majority of the **trees within the Site** had **No (None) Suitability to bat roosts**. This was due to a physical lack of areas of damage, decay, disease, or growth forms which lead to roost suitability (e.g., fluting).

4.47 **However, TL1 supported two oak trees with high suitability for bats (PRF-M), and had multiple trees with at least low suitability (PRF-I).**

Flight-paths and Foraging

4.48 The Site is located to the northwest of Yate, South Gloucestershire. The Site lies to the north of an area of housing currently being built. Existing areas of housing lie to the east, residential gardens lie to the north, and arable and pasture lie to the west. The area of land to the west is highly likely to be developed as conditions are being discharged for a planning application which covers this land. When constructed the Site will be largely enclosed by development. More widely, dense commercial and residential development lies to the South and East and a landscape of pasture and arable lies to the North and West.

4.49 As set out above, Bat Activity Surveys undertaken in 2017, confirmed that common pipistrelle, greater horseshoe, lesser horseshoe, myotis species, noctule, and serotine were using the Site's western boundary, with the use of the boundary by horseshoe bats limited to one pass each.

4.50 **The Site majority of the Site would meet the definition of Low Suitability for flight-paths and foraging habitats** (habitat which could be used by small numbers of bats).

4.51 **TL1 would meet the definition of Moderate Suitability for flight-paths and foraging habitats** (continuous habitat connected to the wider landscape, e.g., lines of trees).

4.52 With the Site locate at the built edge of Yate, South Gloucestershire, the habitats, and features within the Site are unlikely to form key flight-lines or foraging area. The use of **TL1** by greater horseshoe and lesser horseshoe increases the importance of **TL1**.

Nesting birds

Data search

4.53 BRERC returned 1,177 records of 88 bird species. Of these, 22 were of wetland and wading species and nine were birds of prey. Given the habitats within and adjacent to the Site, not particularly relevant to this assessment. The remaining 57 species could broadly be associated with the habitats within and adjacent to the Site. None of these records appeared to be located within or adjacent to the Site. The records included: house martin *Delichon urbicum*, house sparrow *Passer domesticus*, swallow *Hirundo rustica*, and swift *Apus apus*.

4.54 **ADPA West** confirmed the presence of the following species to the West of the Site during their survey work: blue tit *Cyanistes caeruleus*, buzzard *Buteo buteo*, chiffchaff *Phylloscopus collybita*, goldcrest *Regulus regulus*, green woodpecker *Picus viridis*, long-tailed tit *Aegithalos caudatus*, magpie *Pica pica*, robin *Erithacus rubecula*, swift *Apus apus*, woodpigeon *Columba palumbus*, and wren *Troglodytes troglodytes*.

Assessment

4.55 The hedgerows, tree lines, scrub, and scattered trees within the Site are considered to offer suitable foraging and nesting opportunities for a range of common and widespread bird species. In addition, **B2** may occasionally be used by common birds to nest. The tree line (**TL1**) may occasionally be used by more notable bird species to nest. However, it is not

considered that any bird species/population would be reliant on the habitats present within the Site.

4.56 The **nesting bird interest** was of **Site Importance**.

Hazel dormouse

Data search

4.57 BRERC returned one record of hazel dormouse. The record was located 860m to the west, within arable field hedgerow and from 2001.

4.58 The **ADPA South** outlined the presence of hazel dormouse in the local area couldn't be ruled out, but that mitigation and enhancement would ensure that the species was not affected by the development. South Gloucestershire Council approved the development with a condition for a hazel dormouse mitigation strategy.

4.59 **ADPA West** undertook a presence/absence hazel dormouse survey between July and November 2017, which met good practice guidelines. It is presumed (but not known[14]) that this included surveying the western boundary of the Site. Hazel dormice were not recorded within the Site.

Assessment

4.60 The likely absence of hazel dormouse within the landscape to the west of the Site in 2017 (and likely including the western boundary of the Site), is likely to remain significant. It is reasoned that the presence of hazel dormouse being within the landscape to the West but not detected is low. Further, it is considered that hazel dormice are unlikely to have spread into the area to the west[15], and then into the Site since 2017. However, this is unknown.

4.61 **H1**, **H2**, and **TL1** are broadly suitable for hazel dormouse. However, the Site is located next to urban development and is likely to be subject to pressure from disturbance, light spill, and cat predation. This limits the likelihood of hazel dormouse spreading from the local landscape, into the hedgerows to the west, and eventually the Site.

4.62 It is reasoned that the likelihood of hazel dormouse within the Site is negligible. However, as **ADPA South** included the requirement for a hazel dormouse mitigation strategy and no further survey work has been undertaken since. On this basis, it is reasoned that the presence of hazel dormouse cannot be ruled out.

4.63 The **hazel dormouse interest** of the Site was of **Site Importance as a precaution**.

Hedgehog

4.64 BRERC returned 19 records of hedgehog. The closest record was located 150m to the north.

4.65 If present in the local area, then hedgehog may occasionally enter the Site to commute and forage. Hedgehogs may also use the stored materials, hedgerows (**H1** and **H2**), and tree line (**TL1**) to rest and hibernate.

[14] A survey plan was not provided within the ecological reporting of **ADPA West**.
[15] It could be reasoned that this view is shared by those involved in the decision making for **ADPA West**, as **ADPA West** has no specific seasonal measures or working practices in place to protect hazel dormouse.

4.66 The **hedgehog interest** of the Site was of **Site Importance**.

Reptiles

Data search

4.67 BRERC returned two records of grass snake *Natrix helvetica* and two records of slow worm *Anguis fragilis*. All four records were located over 250m to the East of the Site. There were no granted EPSL records for reptiles returned by the data search. **ADPA South** proposed a Precautionary Method of Working to protect reptiles. **ADPA West** scoped out reptiles due to a lack of suitable habitat.

Assessment

4.68 The Site provides limited reptile habitat in the form of the bases of hedgerows and the treeline, along with scattered refugia in the form of stored and waste materials. However, the grassland appeared regularly managed, flat, moderately compacted, and did not support boundary ecotones or a thatch layer. Therefore, the refugia within the Site were isolated form wider areas suitable for reptiles. Furthermore, the site was immediately surrounded by residential gardens and proposed/ongoing construction Sites.

4.69 The **reptile interest** of the Site was assessed to be of **Negligible Importance** and reptiles will not be discussed any further within this report.

Results Conclusion

4.70 A summary of the results in presented in **Table 7**. Where further assessment is required, this is addressed and resolved in the following chapters of this report.

Ecological Feature	Ecological Importance / Suitability*	Further assessment required?
Barnhill Quarry SSSI	National	Yes
Bishop's Hill Wood SSSI		
Lower Woods SSSI		
Wapley Bushes LNR	Local	
Fields South of Engine Common SNCI		
Engine Common Lane SNCI		
Engine common SNCI		
Fields at Mission Road / North Road SNCI		
Broad Lane Council Depot SNCI		
Goose Green Way SNCI		
River Frome (South Gloucestershire) SNCI		
Amenity grassland	Negligible	No
Buildings		
Hardstanding		
Scattered Scrub		
Scattered trees		
Tall ruderal		
Intact species-poor hedge	Site	Yes
Tree line	Local	
Amphibians	Site	
Badgers		
Bats: Roost: Building	No (None)*	No
Bats: Roosts: Trees	PRF-I and PRF-M*	Yes
Bat: Flight-paths and Foraging	Moderate*	
Birds	Site	
Hazel dormouse		
Hedgehog		
Reptiles	Negligible	No

Table 7. Summary of Results

Chapter 5: Discussion

5.1 The following discussion and assessment have been provided to ensure full compliance with legislation and both local and national planning policy set out in **Appendix D**.

Embedded Mitigation

5.2 The selection of this Site for a Proposed Development has inherently avoided impacts on ecology and biodiversity, as the Site is formed of two residential gardens and is of low to negligible importance.

5.3 Minimising impacts further, the Proposed Development will avoid impacts on, and will retain: mature trees, **H1**, **H2**, and **TL1**.

Effects of the Proposed Development

5.4 This section concerns an assessment of ecological effects resulting from the Proposed Development. The following effects have been identified:

- The demolition of all of the buildings within the Site.
- The removal of the unlabelled trees.
- The removal of the amenity grassland.
- Effects from noise, dust, light during construction and/or occupation.
- An increase in residential units, leading to increases in recreation in the local area.

Designated Sites

Statutorily Protected

5.5 The statutory protected sites are spatially isolated from the Proposed Development as to avoid impacts in relation to habitat loss, habitat fragmentation, habitat degradation, noise, light, dust, and pollution.

5.6 Two SSSI Impact Risk Zones (IRZs) cover the Site. The first covers the western half of the Site and does not suggest a development of this nature in this location is likely to cause impacts on SSSIs/SACs/SPAs or Ramsars in the local area. The second covers the eastern half of the Site and outlines:

> *"all planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats, or landscape features such as trees, hedges, streams, rural buildings/structures is likely to cause impacts on SSSIs/SACs/SPAs or Ramsars in the local area."*

5.7 It would appear that this SSSI IRZ relates to either Lower Woods SSSI or Bishop's Hill Wood SSSI[16].

5.8 On balance, given the Sites location (the furthermost side of the SSSI and adjacent to existing development, the habitats within it (which are predominantly garden), and the construction of **ADPA South** and the future development of **ADPA West**, it is not

[16] It is not possible to determine which SSSI the IRZ relates. Natural England do not provide the source data for each zone and therefore zones are the amalgamations of likely impacts to multiple SSSIs.

considered that the Site meets the description the SSSI IRZ sets out. Statutorily sites are not discussed further within this report.

Non-statutorily Protected

5.9 The non-statutory sites are spatially isolated from the Proposed Development as to avoid impacts in relation to habitat loss, habitat fragmentation, habitat degradation, noise, light, dust, and pollution. Non-statutorily sites are not discussed further within this report.

Habitats

5.10 The Proposed Development will include a planting plan, inclusive of small native shrubs and trees. Given the low importance of the habitats within the Site, the retention of the hedgerows and tree line, and the Proposed Development's new native tree and shrub planting, the loss of a small number of trees will be adequately compensated. There will be some management pressure on **H2**. However, its removal is highly unlikely as it will not be within the new resident's ownership and any removal would effectively remove a property boundary.

5.11 The loss of garden will be replaced by new gardens and planting. There will be an overall loss of greenspace. However, the arrangement, connectivity, and quality of the habitats will be maintained and is likely are the best outcome for a development of this nature and scale in this location.

Protected, Priority, and Notable species

5.12 It is recommended that the below Mitigation, Compensation, and Enhancement is secured via the conditioning of a Construction Environmental Management Plan (CEMP).

5.13 Care must be taken during clearance/groundworks to ensure wildlife is not harmed and in the event any protected species are found when an ecologist is not in attendance, works must stop, the below mitigation followed, and an ecologist contacted.

5.14 To protect wildlife, including amphibians, badgers, and hedgehog, the following measures will be implemented throughout the construction process:

- Existing recently stored construction materials and arisings from Site management will be removed from the Site or re-stored on hardstanding or pallets. The removal of these features will be undertaken outside of November to February, inclusive.
- Any excavations (e.g., trenches/pits) will be covered when works are not taking place to ensure that they do not fill with water, to prevent wildlife (including badgers and hedgehogs) from becoming trapped, and to avoid encouraging amphibians into the Site during construction process.
- Any temporary exposed pipes will be capped to prevent badgers from gaining access during the night.
- If circumstances require any excavations to be left open, then a means of escape will be provided with should wildlife enter. This will be in the form of a roughened plank of wood placed in the excavation as a ramp to the surface.
- All excavations will be inspected each morning to ensure no wildlife has not become trapped overnight. If a badger becomes trapped, then it is likely to attempt to dig

itself into the side of the excavation and form a temporary sett. If trapped badger is encountered, the advice of an ecologist will be sought.

- The storage of topsoil or other 'soft' building materials within the clearance/construction site will be given careful consideration and will not be stored along the western boundary of the Site. This is because badgers could readily adopt such mounds as setts.
- The storage of any chemicals within the Construction site will be contained in such a way that they cannot be accessed or knocked over by wildlife.
- Any debris, spoil collected during site clearance will be removed from the Site immediately to avoid it becoming used as refugia by amphibians and other wildlife. Any building materials will be stored on hard standing or off the ground on pallets to avoid wildlife using the materials as cover/resting places/hibernation sites.

5.15 To avoid the spread of light into/onto the adjacent vegetation, during construction and occupation, a sensitive lighting strategy will be implemented, in line with the following principles:

- Positioned column heights will be reduced as far as practicably possible.
- If lighting is required along the new access, bollard lighting will be used, as opposed to taller lighting columns.
- Luminaires are to be positioned and directed away from vegetation (including **H1**, **H2**, and **TL1**).
- White light will be avoided, and warm colours preferably used. Preferable colours are 3000°k to 2700°k (where feasible) with peak wavelengths greater than 550nm.
- Luminaires with 0% upward light output and no tilting of the light head will be used.
- Motion sensors will be applied to security lighting.

Amphibians

5.16 As precaution, it has been reasoned that is a low likelihood of amphibians being present within the Site.

5.17 The grassland within the Site will continue to be managed to a short sward height throughout the planning and construction phases of the development. If management lapses, and the grassland is allowed to grow long, then an avoidance and mitigation strategy to search areas prior to removal/management will be required. This should be included within the proposed condition for a CEMP.

5.18 The hedgerows and tree lines, and their associated scrub, debris, and root systems, may be used as movement corridors and provide cover and opportunities for resting and hibernation. The Proposed Development will not impact these areas.

5.19 The above strategy will avoid the killing and injury of amphibians, with the overall residual impact on amphibians being neutral.

Bats

Roosts: Trees

5.25 The trees within the Site with suitability to support roosting bats will be retained. These trees are located within **TL1** and are therefore included within the sensitive lighting strategy outlined above. No further mitigation or compensation is required.

Commuting and foraging

5.26 In line with the limited predicted degree of risk and proportionality principle, no bat activity surveys were undertaken. This was reasoned as follows:

- The Site and Proposed Development were small in scale with a limited ZOI.
- The Site contained a simple habitat structure / connectivity (boundary habitats only) on the edge of an existing urban area.
- The Site supported habitats of Low / Negligible suitability, with retained boundary habitats being of Moderate Suitability.
- Recent survey data, adjacent to the Site and including some of the Site's features (**TL1**), was available and confirmed the presence of greater horseshoe and lesser horseshoe in small numbers. Further work would be unlikely to provide greater detail or certainty over impacts to the local bat populations.

- Impacts on commuting and foraging habitats(modification, fragmentation, and severance) have been avoided by embedded mitigation, including the retention of **H1**, **H2**, and **TL1**.

5.27 New lighting from the Proposed Development has the potential to lead to light spill and will require mitigation to limit light spill onto retained and offsite boundary habitats. The key area of importance being **TL1**. The measures outlined at 5.15 will protect bat flight-paths, foraging areas, and trees with suitability to support bat roosts.

5.28 With the above mitigation, the overall residual impact on commuting and foraging bats will be neutral.

Nesting birds

5.29 The removal of vegetation and demolition of **B2** should ideally be undertaken outside the nesting bird season (which is generally taken to be March – August inclusive). Should it prove necessary to remove vegetation or demolish **B2** during the bird nesting season, then the area will be checked in advance for the presence of bird nests by a suitably competent person. If there is no evidence of breeding birds the work will be completed within 48 hours of inspection. If any active nests are identified, clearance/demolition will cease, and an appropriate buffer zone must be established around the nest in discussions with an ecologist (usually 5m). The buffer must remain intact until it has been confirmed that the young have fledged, and the nest is no longer in use.

5.30 With the above mitigation and compensation, the overall residual impact on nesting birds will be neutral.

Hazel dormouse

5.31 As a precaution hazel dormouse have been scoped into this assessment as there is a low likelihood that hazel dormouse could be present within/adjacent to the Site. The Proposed Development will not remove sections of hedgerow or scrub but may result in some features being cut back. These areas are adjacent to existing development and likely subject to various pressures which significantly limit the suitability of the hedgerow for hazel dormouse.

5.32 The works only involve the removal of thin/encroaching/overhanging vegetation, which is not dense, of low suitability for hazel dormouse, and is unlikely to have any hibernation suitability due to the adjacent ground cover. The works will proceed subject to a check by an ecologist and using hand tools only. If any dormouse nests are found, then works will stop and the advice of the ecologist will be followed.

5.33 With the above mitigation, the overall residual impact on hazel dormouse will be neutral (if present).

Hedgehog

5.34 It is expected that hedgehogs may enter the Site to commute, forage, rest, and hibernate. The measures outlined at 5.14 will protect hedgehogs throughout the construction process.

5.35 In addition, garden habitats will include features to allow the movement of hedgehogs and other wildlife between gardens by either raising close board fencing above the ground or

by cutting small 13cm x 13cm holes cut in the fencing gravel boards allowing continued access.

5.36 Hedgehogs (if present) will continue to be able to access habitats within and adjacent to the Site to commute, forage, rest, and hibernate. With the above mitigation, the overall residual impact on hedgehogs will be neutral.

Assessment Conclusion

5.37 A summary of the assessment outcomes is presented in **Table 8**.

Ecological Feature	Ecological Importance / Suitability*	Assessment outcome
Barnhill Quarry SSSI	National	No Impact / Impact Avoided
Bishop's Hill Wood SSSI		
Lower Woods SSSI		
Wapley Bushes LNR	Local	
Fields South of Engine Common SNCI		
Engine Common Lane SNCI		
Engine common SNCI		
Fields at Mission Road / North Road SNCI		
Broad Lane Council Depot SNCI		
Goose Green Way SNCI		
River Frome (South Gloucestershire) SNCI		
Intact species-poor hedge	Site	No Impact / Impact Avoided
Tree line	Local	
Amphibians	Site	Precautionary Method of Works set out. Recommendation for a CEMP to be conditioned.
Badgers		
Bats: Roosts: Trees	PRF-I and PRF-M*	Impact Avoided. Sensitive lighting strategy required.
Bat: Flight-paths and Foraging	Moderate*	
Birds	Site	Precautionary Method of Works set out. Recommendation for a CEMP to be conditioned. Sensitive lighting strategy required.
Hazel dormouse		
Hedgehog		

Table 8. Summary of assessment outcomes

5.38 Based on the results from the survey, context of the Site, and overall low importance of the Site, this report is valid for a period of 18 months (i.e., the 25/03/2025). This is reasoned in line with good practice guidelines[17].

Enhancement

5.39 The following ecological and biodiversity enhancements will be provided within the Site, and can be secured via a condition:

[17] CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute for Ecology and Environmental Management, Winchester.

- Schwegler 2FR bat tubes (or similar woodcrete alternatives) will be installed on the western or southern elevation of two new buildings at heights of 4m and away from obstructions. The locations will face existing retained vegetation, will not be lit by any adjacent lighting, and will be away from doors and windows.
- Schwegler 2F bat boxes (or similar woodcrete alternatives) will be installed three retained trees at heights of 4m and away from obstructions. The locations will face existing retained vegetation, and will not be lit by any adjacent lighting.
- To support pollinators and invertebrates and in turn the local bat population, the shrub planting scheme will utilise night-flowering blossoms, highly fragrant species, and pale coloured species, which will attract night flying insects. A species list of suitable plants, shrubs and trees has been provided by the Bat Conservation Trust[18]. In addition, native tree species will be planted, as native tree species are known to host a wider array of insect, compared to non-native tree species[19].
- Vivara Pro Seville WoodStone® Nest Boxes (or similar woodcrete alternative, with at least 32mm holes) will be installed on northern or eastern elevation for four new buildings at heights of at least 2m, and close to existing or newly planted vegetation. The locations will not be lit by any adjacent lighting and will be away from doors and windows.
- Bird nest boxes (Schwegler 1B, 2H or 2GR) will be installed onto three retained trees within the Site. The boxes will be mounted at heights of at least 2m, and close to existing or newly planted vegetation. The locations will not be lit by any adjacent lighting and will be away from doors and windows.
- A 1WI Schwegler Summer and Winter Bat Box (or similar woodcrete colony bat box) is incorporated into the external wall of a new building, thereby increasing the roosting, breeding, and hibernation opportunities for bats within the Site. The box will be installed at least 4m above ground level, with a south-east to south-west aspect and situated in sheltered areas of the building.

[18] The Bat Conservation Trust (2013). *Encouraging Bats: A guide for bat-friendly gardening and living.* The Bat Conservation Trust, London.
[19] Southwood T. R. E. (1961). *The Number of Species of Insect Associated with Various Trees*. Journal of Animal Ecology 30(1),1-8.

Appendix A: Survey Methods

Extended Phase 1 Habitat Survey

1. The Site was surveyed using the Phase I Habitat Survey method. The method classified the Site into areas of similar botanical community types with a representative sample of those species present at the time of the survey being described. The vegetation present was clearly visible and allowed an accurate assessment to be made. Subsequent visits to the Site were used as an opportunity to update the results and classifications of the Phase 1 Habitat Survey.

2. The 'Extended' to record evidence and assess the suitability of the Site to support rare, protected, and notable species of flora or fauna[20]. This extension to the survey allows identification of areas of greater suitability that require further survey. In the context of this report, rare, protected, and notable species of flora or fauna were those considered to meet any of the following criteria:
    - Species protected by UK or European legislation.
    - UK Post 2010 UK Biodiversity Framework priority species or Local Biodiversity Action Plan (LBAP) species.
    - Nationally rare or nationally scarce species.
    - Species of Conservation Concern (e.g., JNCC Red List, RSPB/BTO Red or Amber Lists).
    - The Wildlife and Countryside Act (1981) as amended, makes it an offence to release or allow to escape into the wild any animal, plant or micro-organism not ordinarily resident in the UK (as listed in Schedule 9 of the Act). Plant species listed in Schedule 9 were searched for during the survey. However, many invasive species can be cryptic and therefore this survey does not provide a guarantee that an invasive species is not present and shouldn't be relied upon to rule out absence of an invasive species.

3. An Extended Phase 1 Habitat Plan was produced (**Appendix B**), incorporating Target Notes (**TNs**) used to highlight features of ecological interest.

4. The survey included recording for invasive species. Invasive species can be cryptic and can rapidly spread from adjacent land. LUS Ecology cannot be held liable for invasive species found within the Site after the date of the Extended Phase 1 Habitat Survey.

[20] Suitability was determined using respective good practice guidance for each species/species group.

Bat Surveys

Preliminary Roost Assessment

6. The structures within the Site were subject to a Preliminary Roost Assessment (PRA) following good practice guidelines. This is an external and internal inspection survey, the purpose of which is to search for bats/evidence of bats and assess the likelihood of bats being present and the need for further survey and/or mitigation.

7. Prior to the external inspection, each structures' age, design, location, construction materials, state of repair, and current use, were assessed. These were then related to the likelihood of a bat roost being present, along with consideration of which species of bat are most likely to use the building. The external inspection included searching for the following features to determine if suitable exit/entry points were present:
    - Holes, gaps, cracks, and damage to masonry/walls.
    - Lifted, missing, slipped, and damaged tiles, including tiles at the ridge, hip and across the roof.
    - Lifted, slipped and missing areas of hanging tiles, weatherboarding, and cladding.
    - Gaps/holes/damaged to soffits and facias.
    - Lifted flashing around air vents, chimneys, roof joints.
    - Interfaces of different materials and roof designs, where construction and/or damage can cause gaps.

8. If suitable exit/entry points were observed during the external inspection, the following evidence of roosting bats was carefully searched for on the exterior of the building:
    - Droppings (down the wall, on the floor, caught in spiderwebs, on windowsills).
    - Staining and/or clean/smoothed areas, indicative of exit/entry.
    - Feeding remains, including moth/butterfly wings and beetle wing casings.

9. Prior to the internal inspection, the roof/loft design, likely levels of disturbance, and any likely recent changes to the roof/loft were assessed. These were then related to the likelihood of a bat roost being present, along with consideration of which species of bat are most likely to use the roof/loft space. The internal inspection included searching for the following evidence of roosting bats within the roof/loft space:
    - Roosting bats within crevices or free hanging.
    - Bat corpses (on the floor, in uncovered water tanks or other containers).
    - Bat droppings, including beneath likely roosting areas.
    - Feeding remains, including moth/butterfly wings and beetle wing casings.
    - Scratch marks, staining and/or clean/smoothed areas, indicative of regular use.
    - Bat-fly Nycteribiid spp. pupal cases.
    - Gaps within the structure of the building, including:
        - Light ingress in the roof indicating access points to the outside.
        - Between the roof lining and roof covering.

    - Within the structure of walls and suitable access points to cavity or rubble-filled walls.
    - Around the structure of chimneys or within disused chimney.
    - Around lintels.
  - Evidence beneath roof insulation, which indicates use by bats before the insulation was installed.
  - Clean swept floors, which may indicate evidence has been removed.

10. The following equipment was used for the Preliminary Roost Assessment:
    - Elevation and baseline drawings of the building or structure.
    - Binoculars (Pentax Papilio II 6.5 x 21 Close focusing).
    - Powerful torch to illuminate dark corners from the ground.
    - A ladder.
    - Camera to record evidence.

11. The assessment of the suitability of the buildings within the Site was assessed against Table 4.1 of the Bat Survey Guidelines[12]. A redacted version of the table is set out in Table 9 below, with additional information as noted.

Potential Suitability	Description of roosting habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e., a complete absence of crevices/suitable shelter at all ground/underground levels).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g., maternity, or classic cool/stable hibernation site.
Confirmed*	Evidence of bats has been confirmed within the structure. A temporal scale of recent use can also be applied based upon the type of evidence found and its condition. If a roost is found it may be assigned to the following: • Confirmed, active. • Confirmed, likely active. • Confirmed, unknown if active.
*This is an addition to Table 4.1 within the Bat Survey Guidelines but is based upon assertions and reasoning within the Bat Survey Guidelines.	

Table 9. Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement – redacted and with additions

Ground Level Tree Assessment

12. The trees within the Site were subject to a Ground Level Assessment (GLTA) following good practice guidelines. This is an external and internal inspection survey, the purpose of which is to search for bats/evidence of bats and assess the likelihood of bats being present and the need for further survey and/or mitigation.

13. The features suitable to support bat roosts were searched for on the trees with reference to the Bat Tree Habitat Key[21]. These features are as follows:
    - Longitudinal splits.
    - Crevices.

[21] Andrews H. (2018). *Bat Roosts in Trees - A Guide to Identification and Assessment for Tree-care and Ecology professionals: Bat Tree Habitat Key*. Pelagic Publishing, Exeter.

- Rot-hollows.
- Transverse cracks.
- Loose bark.
- Ivy.

14. The following equipment was used for the Ground Level Assessment:
    - Binoculars (Pentax Papilio II 6.5 x 21 Close focusing).
    - Powerful torch to illuminate dark features from the ground.
    - A ladder.
    - Camera to record evidence.

15. The assessment of the suitability of the trees within the Site was assessed against Table 4.1 of the Bat Survey Guidelines. The table is set out in **Table 9** below.

Suitability	Description
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Table 10. Guidelines for categorising the potential suitability of PRFs on a proposed development site for bats, to be applied using professional judgement.

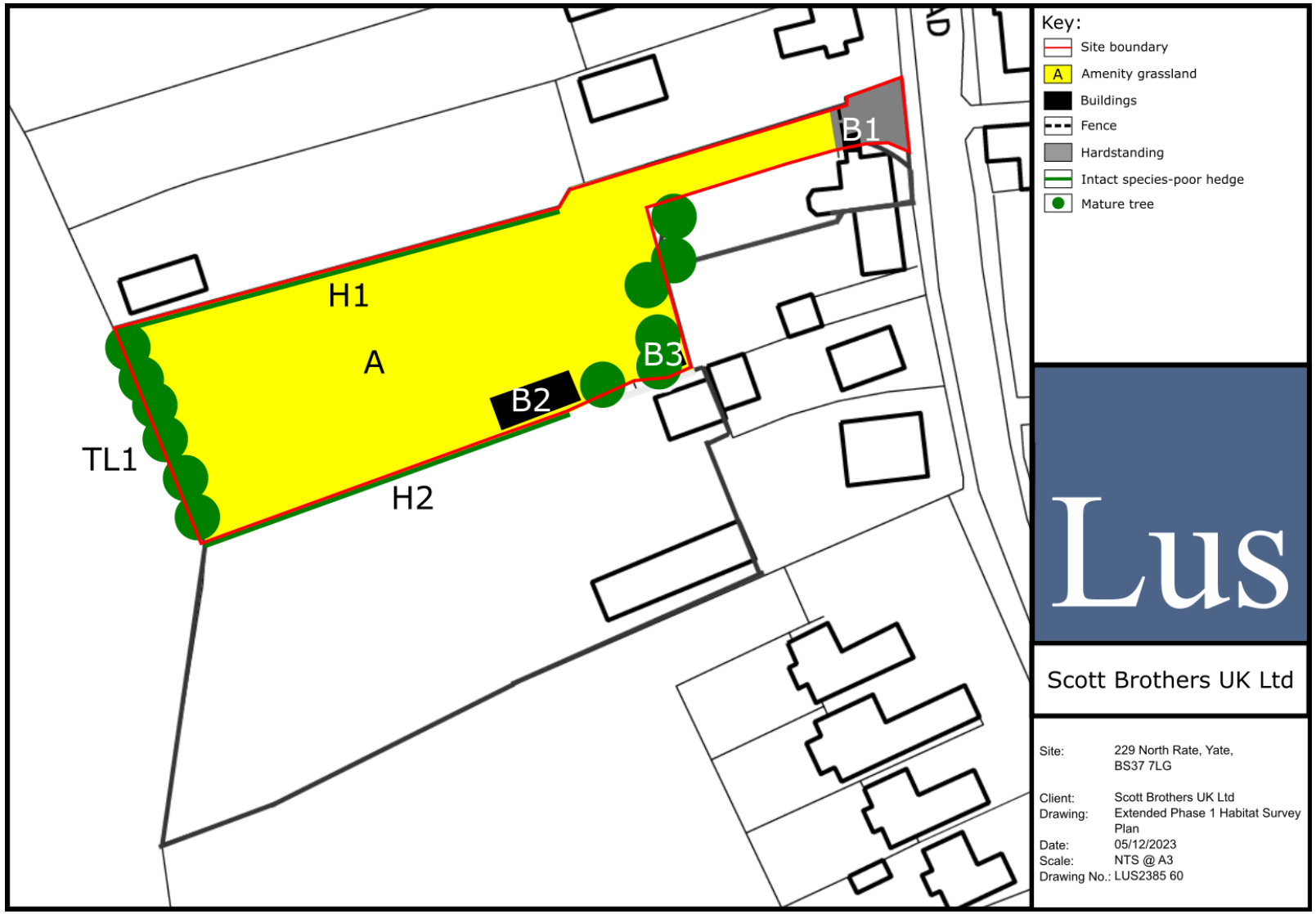
Bat Commuting and Foraging Interest

16. The assessment of the suitability of the commuting and foraging interest of the Site was compared against Table 4.1 within the Bat Survey Guidelines. A redacted version of the table is set out in **Table 10** below.

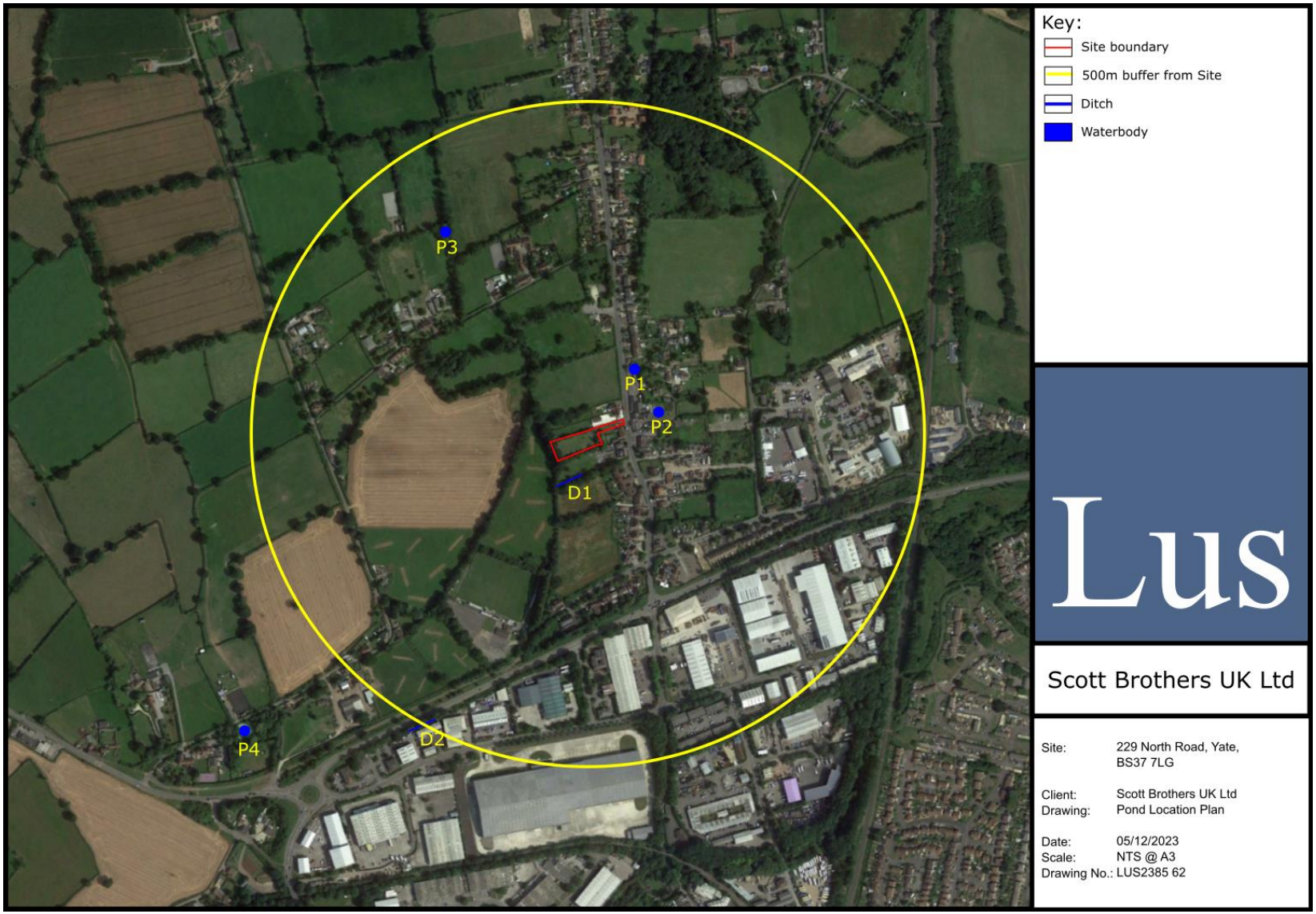
Potential suitability	Description of commuting and foraging habitats
None	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e., no habitats that provide continuous lines of shade/protection for flight-lines or generate/shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	Habitat that could be used by small numbers of bats as flight-paths 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 flight-paths 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 bats for flight-paths 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.

Table 11. Guidelines for assessing the potential suitability of Proposed Development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement – redacted.

Appendix B: Extended Phase 1 Habitat Survey Plan



Appendix C: **Pond Location Plan**



Appendix D: Legislation and Planning Policy

1. The following local policy, national planning policy and legislation relating to nature conservation and biodiversity status, are considered of relevance to the current proposal.

Planning and Biodiversity

2. Local Authorities have a requirement to consider biodiversity conservation issues when determining planning applications.

3. The following natural environmental policies from the South Gloucestershire Local Plan 'Core Strategy', and 'Policies, Sites and Places Plan' are of relevance to the Site:
   - CS2 Green infrastructure.
   - CS9 Managing the environment and heritage.
   - CS24 Green infrastructure, Sport, and recreation standards.
   - PSP2 Landscape.
   - PSP3 Trees and woodland.
   - PSP18 Statutory Wildlife Sites: European Sites and Sites of Special Scientific Interest (SSSIs).
   - PSP19 Wider biodiversity
   - PSP21 Environmental Pollution.

4. In addition, South Gloucestershire's 'Biodiversity and Planning: Guidance for new developments Supplementary Planning Document' and 'Biodiversity and the planning process Supplementary Guidance Document' are of relevance to the Site.

5. Chapter 15, Conserving and Enhancing the Natural Environment of the National Planning Policy Framework (NPPF) includes the following:

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

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

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;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

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;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

175. Plans should: distinguish between the hierarchy of international, national and locally 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.

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 a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
c) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."*

Legislation and biodiversity

6. Certain species of animals and plants found in the wild in the UK are legally protected from being harmed or disturbed. These species are listed in the Wildlife and Countryside Act 1981 (as amended) or are named as European Protected Species (EPS) in The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (as amended). These two main pieces of legislation have been consulted when writing this report and are therefore described in detail within this section.

7. Other relevant legislation and policy documents that have been consulted include:
    - Protection of Badgers Act (1992)
    - The Countryside and Rights of Way Act 2000
    - The Hedgerow Regulations 1997
    - Biodiversity Action Plans, both UK-wide (UKBAP), Local plans (LBAPs) and similar nature partnership plans.

Wildlife & Countryside Act 1981 (as amended)

8. The Wildlife & Countryside Act 1981 (as amended; WCA) is the primary legislation for England and Wales for the protection of flora, fauna and the countryside. Part I within the Act outlines the protection of wildlife.

9. Most offences are now covered under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (as amended), but some 'intentional' acts are still covered under the WCA, such as obstructing access to a bat roost.

10. The provisions relating to animals in the WCA only apply to 'wild animals'; these are defined as those that are living wild or were living wild before being captured or killed. It does not apply to captive bred animals being held in captivity.

11. There are 'defences' provided by the WCA. These are cases where acts that would otherwise be prohibited by the legislation are permitted, such as the incidental result of a lawful operation which could not be reasonable avoided, or actions within the living areas of a dwelling house.

12. Certain prohibited actions under the WCA may be undertaken under licence by the proper authority. For example, scientific study that requires capturing or disturbing protected animals can be allowed by obtaining a licence.

Natural Environment and Rural Communities (NERC) Act

13. The UK Post-2010 Biodiversity Framework, which supersedes UK Biodiversity Action Plan (UK BAP) priority habitats and species, provides the 'broad enabling structure for action across the UK', which in England is interpreted into Biodiversity 2020: A strategy for England's wildlife and ecosystem services; however, some authorities do still refer to BAPs. Protecting habitats and species listed on Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006 is an outcome of this strategy. The lists of priority habitats and species in England required under S41 were published by Natural England in May 2014. These measures are given due acknowledgement where relevant.

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (as amended)

14. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (as amended; The Regulations), which are the principal means by which the EC Habitats Directive is transposed in England and Wales update the legislation and consolidate all the many amendments which have been made since they were first made in 1994.

15. The Regulations provide for the:

- Protection of European Protected Species (EPS; animals and plants listed in Annex IV Habitats Directive which are resident in the wild in Great Britain), including: bats, hazel dormice, great crested newts, otters, sand lizard, and smooth snake
- Designation and protection of domestic and European Sites (e.g., Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protected Areas (SPA)
- adaptation of planning controls for the protection of such sites and species

16. Public bodies (including the Local Planning Authority) have a duty to have regard to the requirements of the Habitats Directive in exercising their function (e.g., when determining a planning application).

17. There is no defence that an act was the incidental and unavoidable result of a lawful activity.

18. It is possible for actions which would otherwise be an offence under The Regulations to be undertaken under licence issued by the proper authority. For example, where an EPS has been identified and the development risks deliberately affecting an EPS, then a 'development licence' may be required.

Species Protection

19. The following protected species information is relevant to this report. Legislation is only discussed in relation to planning and development; other offences may exist.

Amphibians

20. The common frog, common toad, common newt, and palmate newt receive limited protection under the Wildlife and Countryside Act 1981 (as amended), making it illegal to sell or trade them.

21. The great crested newt and natterjack toad are classed as EPS and therefore receive protection under The Regulations, making it an offence to:
    - Deliberately capture, injure, kill, or disturb either species,
    - Intentionally or recklessly obstruct access to any structure/place used for shelter or protection, or
    - Damage or destroy a breeding site or resting place.

Bats

24. All British bats are classed as EPS and therefore receive protection under The Regulations, making it an offence to:
    - Deliberately kill, injure or capture a bat
    - Deliberately disturb bats
    - Damage or destroy a breeding site or resting place of a bat

25. In addition, all British bats are also listed under Schedule 5 of the WCA, which contains further provisions making it an offence to intentionally or recklessly:
    - Obstruct access to any structure or place which any bat uses for shelter or protection
    - Disturb any bat while occupying a structure or place which it uses for that purpose

26. If proposed development work is likely to destroy or disturb bats or their roosts, then a licence will need to be obtained from Natural England, which would be subject to appropriate measures to safeguard bats.

Birds

27. In the UK, the provisions of the Birds Directive are implemented through the WCA and The Regulations. All wild birds, their nests and eggs are protected, and it is an offence to:
    - Kill, injure, or take any wild bird
    - Take, damage or destroy the nest of any such bird whilst it is in use or being built
    - Take or destroying an egg of any such wild bird

28. The law covers all species of wild birds including common, pest or opportunistic species. Special protection against disturbance during the breeding season is also afforded to those species listed on Schedule 1 of the Act.

Hazel dormouse

29. The hazel dormouse is classed as a European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence to:
    - Deliberately capture, injure, or kill hazel dormice
    - Deliberately disturb hazel dormice
    - Damage or destroy a breeding site or resting place of a hazel dormouse.

30. In addition, hazel dormouse is listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly:
    - Obstruct access to any structure or place which a hazel dormouse uses for shelter or protection; or
    - Disturb a hazel dormouse while occupying a structure or place which it uses for that shelter or protection.

Hedgehog

31. Hedgehog are protected under sections of the schedule 6 of the Wildlife and Countryside Act 1981 (as amended) making it an offence to:
    - It illegal to kill or capture hedgehogs unless they are suffering or need to be rehabilitated then released back into the wild.