



Land to the rear of The Hollies

Ecological Assessment

Prepared on behalf of T A Fisher & Sons Ltd

November 2021

Land to the rear of The Hollies

Ecology 7758

Version 03

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1.0 Executive Summary

- 1.1 T A Fisher & Sons Ltd is proposing to construct a new residential development on an area of land to the rear of The Hollies, Reading Road, Burghfield Common. Pro Vision Ecology were commissioned in September 2020 to provide the ecological assessment of the habitats on site for the planning application.
- 1.2 The ecological assessment consisted of 1) a desk study of existing ecological data in relation to the site, and 2) an ecological assessment of the land within the application site.
- 1.3 The Phase I survey included a daytime inspection of the on-site vegetation for the presence or likely absence of protected or notable species and to assess the ecological value of the habitats present.
- 1.4 The application site currently comprises tussocky semi-improved grassland which was historically grazed but is now unmanaged. One of the fields has been colonised with scrub vegetation and old log piles and fallen trees are present. The site borders an area of ancient woodland to the north west and the development will require an ecological buffer along this edge.
- 1.5 Evidence of badgers was present on the site with a fresh latrine located near the gate separating two of the fields. There was no evidence of setts but the area provides optimum foraging for badgers and mitigation will be required during construction.
- 1.6 The building on the site has negligible potential to support bat roosts. Activity surveys and bat detector surveys carried out between April and July 2021 confirmed the presence of six bat species identified to species level and a number of Myotis species which could only be identified to genus level. These included: common pipistrelles, soprano pipistrelles, noctules, long-eared bats, serotines and Annex II species barbastelles.
- 1.7 The site provides key commuting and foraging habitat for the local bat population. Key areas include the lines of mature trees and woodland edge. The mature tree lines and woodland should be retained within the final development design. The lighting design for the development will need to be sensitive along these key features, with a five-metre buffer maintained to protect these elements from light spill.
- 1.8 The woodland, hedgerows, grassland, and scrub provide potential habitat for nesting birds. Any clearance of this habitat must be conducted outside the bird nesting season, March to September. The inclusion of wildflower meadows and native planting can provide enhancements for the local bird populations.
- 1.9 The areas of scrub and hedgerows across the site link into the neighbouring woodland and provide suitable habitat for dormice on site. Surveys were carried out between October and November 2020, and April and September 2021. No dormice were found and are considered absent from site.
- 1.10 The site is currently tussocky grassland and has the structural complexity to support populations of reptiles. Surveys conducted by Greenlink Ecology in 2015 recorded low populations of grass snake and slow worm on the site. Surveys carried out by Pro Vision in 2021 recorded a population of slow worm on site. Mitigation will be dependent on-site plans but will include a combination of habitat manipulation and full-scale translocation with drift fences and reptiles moved to an on-site receptor site.

- 1.11 The log piles on the site provide potential habitat for stag beetles and mitigation will be required for this species, if present, with log piles incorporated into the ecological buffers within the site.
- 1.12 The site has the potential to provide ecological enhancements and measures have been provided within the report which include enhancing the grassland, native species planting and the inclusion of a pond.

2.0 Introduction

Project Background

- 2.1 In 2015 Greenlink Ecology Ltd were commissioned to carry out ecological surveys for an area of land to the rear of the Hollies, Reading Road, Burghfield Common. The results of these surveys are now out of date; as a consequence, Pro Vision Ecology were commissioned in September 2020 to carry out an Ecological Assessment of the site.
- 2.2 For the site location refer to **Appendix A**. This report will contribute to a forthcoming planning application to be submitted by the Client to West Berkshire Council. The application will be for the erection of a new residential development in accordance with the local plan allocation for new housing.
- 2.3 This report describes the current ecological baseline of the site based on the findings of the ecological assessment. Previous ecology surveys were completed in 2015 and these included phase II surveys for reptiles, great crested newts and bats.

Brief

- 2.4 To carry out a Preliminary Ecological Assessment and Phase II surveys of the land within the site boundaries, to inform the Client of the ecological implications of their proposals.

Relevant Legislation and Planning Policy

- 2.5 The key legislative provisions of relevance to this report with respect to the development proposals and their potential effects on ecological features are listed below:
- The Conservation of Habitats and Species Regulations 2017 (as amended)
 - The Wildlife and Countryside Act 1981 (as amended)
 - The Countryside and Rights of Way (CROW) Act 2000
 - The Natural Environment and Rural Communities (NERC) Act 2006
- 2.6 The UK Biodiversity Action Plan (BAP) was the Governments response to the 1992 Convention on Biodiversity (The Rio Convention), with the aim of halting the loss of biodiversity in the UK. The new UK post-2010 Biodiversity Framework replaced the previous BAP and is the government's response to the new strategic plan on the United Nations Convention on Biological Diversity (CBD). Although the UK post-2010 Biodiversity Framework supersedes the UK BAP, the UK BAP lists of priority species and habitats still remain an important reference source for identifying habitats and species of principal importance within the UK. Within England, Section 41 of the NERC Act (2006) lists species and habitats of principal importance for the conservation of biodiversity.
- 2.7 The Government has set out its policies for the protection and enhancement of biodiversity through the planning system in the National Planning Policy Framework (NPPF, 2019), paragraph 174, which states that the planning system should '*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*'.

- 2.10 The application site is located within West Berkshire Council. The Core Strategy Development Plan Document (2006 – 2026) includes the planning policy CS17, relating to Biodiversity and Geodiversity.

Biodiversity and geodiversity assets across West Berkshire will be conserved and enhanced.

Habitats designated or proposed for designation as important for biodiversity or geodiversity at an international or national level or which support protected, rare or endangered species, will be protected and enhanced. The degree of protection given will be appropriate to the status of the site or species in terms of its international or national importance.

Development which may harm, either directly or indirectly,

- *locally designated sites (Local Wildlife Sites and Local Geological Sites), or*
- *habitats or species of principal importance for the purpose of conserving biodiversity, or*
- *the integrity or continuity of landscape features of major importance for wild flora and fauna*

will only be permitted if there are no reasonable alternatives and there are clear demonstrable social or economic benefits of regional or national importance that outweigh the need to safeguard the site or species and that adequate compensation and mitigation measures are provided when damage to biodiversity/geodiversity interests are unavoidable.

In order to conserve and enhance the environmental capacity of the District, all new development should maximise opportunities to achieve net gains in biodiversity and geodiversity in accordance with the Berkshire Biodiversity Action Plan and the Berkshire Local Geodiversity Action Plan. Opportunities will be taken to create links between natural habitats and, in particular, strategic opportunities for biodiversity improvement will be actively pursued within the Biodiversity Opportunity Areas identified on the Proposals Map in accordance with the Berkshire Biodiversity Action Plan.

3.0 Methodologies

Desk Study

- 3.1 The desk study methodology is based upon guidelines set out by the Chartered Institute of Environmental and Ecological Management (CIEEM, 2017). A data-gathering exercise was undertaken to obtain any available information relating to statutory nature conservation sites and priority habitats and bat species (**Table 1**).

Table 1: Summary of information sources used for the Desk Study

Organisation / Source	Information Sought
Thames Valley Environmental Records Centre (TVERC)	Records of the presence of key protected and notable species and non-statutory wildlife sites within two kilometres of the site.
MAGIC	Locations of and citations for all national statutory wildlife sites, including SSSI, within two kilometres and all international sites including SAC, SPA or Ramsar sites within five kilometres of the site.
Ordnance Survey Maps	Large scale habitat information and identification of off-site habitats which may require consideration (such as ponds) within 500m.

Ecological Assessment

Habitats

- 3.2 A site visit was carried out on 16th September 2020. The survey was carried out by experienced ecologist Louisa Jones in overcast weather conditions, still, dry and an ambient temperature of 23°C. The survey employed techniques based on standard Phase I Habitat Survey methods (CIEEM, 2016). Habitat types on site were identified according to standard habitat definitions (JNCC, 2010) and mapped at an appropriate scale.
- 3.3 The collection of botanical information focused on the dominant and/or key indicator species for each habitat, to allow allocation of habitats to the standard Phase I habitat types and where relevant to identify any BAP habitats which are present on site. Any habitats identified as having potentially high botanical value will be subject to further botanical surveys, if deemed necessary.

Protected species

- 3.4 The Ecological Assessment included an assessment of the potential for habitats on or immediately adjacent to the site to support legally protected or conservation-notable species. The location and nature of any signs of the presence of protected species (such as droppings, footprints, burrows, etc.) were documented and mapped accordingly. Indicative survey methods for protected species are outlined below.

Badgers (Meles meles)

3.5 Any area that could be used for foraging by badgers or could potentially contain a badger sett was surveyed and any signs noted including:

- Evidence of active or disused setts;
- Evidence of potential badger diggings;
- Latrines / dung pits;
- Evidence of badger foraging ('snuffle holes');
- Footprints; and
- Badger hairs.

Bats

3.6 Bats use features within buildings such as stone crevices or cracks in brickwork, ridge beams, gaps between roofing materials and the main building structure, and any potential access points. An internal and external inspection of the building was conducted by Louisa Jones (Bat Licence 2016-22038-CLS-CLS). During the survey any evidence of bats such as droppings, urine staining, claw marks, feeding remains or bats themselves were recorded. An assessment of the potential of the building to support roosts was then made in line with BCT guidelines (2016) shown in **Table 2** below.

Table 2: Assessment of buildings to support roosting bats

Potential	Criteria
Negligible	Negligible features on site likely to be used by bats
Low	Potential features present which may support low numbers of bats irregularly but no suitable features for regular use by large numbers of bats.
Moderate	A building with one or more potential roost features that may be used by bats due to their size, shelter, protection, condition and habitats present. Unlikely to support a roost of high conservation value.
High	A building with one or more potential roost sites that are suitable for use by a large number of bats on a regular basis.

3.7 Bats use trees as potential roost sites and trees on the site were inspected from the ground and an assessment made for the potential of the tree to support bats. Features which may support bats include holes and crevices, ivy covering and peeling bark. The assessment for roosting potential in trees is based on BCT guidelines (Collins, 2016) shown below in **Table 3**.

Table 3: Potential of trees to support bat roosts

Potential	Criteria
Negligible	Negligible features on the tree
Low	A tree of sufficient size and age but features present have limited roosting potential
Medium	A tree with one or more potential roost features that may be used by bats due to their size, shelter, protection, condition and habitats present. Unlikely to support a roost of high conservation value.
High	A tree with one or more potential roost sites that are suitable for use by a large number of bats.

3.8 Bats use features in the landscape to navigate and also habitats may provide key foraging locations. Foraging and commuting habitat was assessed based on based on BCT guidelines (Collins, 2016) shown in **Table 4** below.

Table 4: Assessment of foraging/commuting habitat

Potential	Criteria
Negligible	Negligible features on site likely to be used by bats
Low	Suitable but isolated habitat that could be used by small numbers of bats.
Medium	Habitat that is well connected to the wider landscape and 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 and may be used by significant numbers of bats including annex II species.

Bat Activity surveys

3.9 The bat activity surveys were conducted in accordance with current guidelines (Collins, 2016) between April and July 2021. **Table 5** provides details of each survey visit, with sunrise/sunset time and weather conditions. The surveys were undertaken by two surveyors walking a pre-determined survey transect route around the site (**Appendix C**). This gave sufficient coverage to determine how bats were using the site. The surveyors were equipped with an Echo Metre Touch Pro 2. Recordings of bat echolocations were analysed with Kaleidoscope software to confirm the identity of the species encountered.

Table 5: Phase II Bat activity survey details (wind force measured using the Beaufort scale)

Date	Survey type	Duration	Weather Conditions	Sunset/Sunrise Time
14.04.21	Dusk	19:55 – 21:55	9°C at start and 4°C at end of survey. Wind force 1. 0% cloud cover. No rain.	20:10
20.05.21	Dusk	20:48 – 22:55	11°C at start and 10°C at end of survey. Wind force 0. 100% cloud cover. Brief light rain showers.	20:56
14.06.21	Dusk	21:24 – 23:24	20°C at start and 19°C at end of survey. Wind force 1. 8% cloud cover. No rain.	21:21
06.07.21	Dusk	21:15 – 23:15	14°C at start and 12°C at end of survey. Wind force 1. 40% cloud cover. No rain.	21:22

Static/automatic Surveys

- 3.10 Two Song Meter SM4BAT FS Bat Detectors with SMM-U1 Microphones were installed in two locations per month from April to July 2021 (**Appendix C**). Due to equipment availability, the number of nights during which the statics were deployed varied per month, this is illustrated in **Table 6**.

Table 6: Number of nights of deployment for each static bat detector per month.

Static location	April	May	June	July
1	6	1	6	7
2	6	7	6	7

Survey Limitations

- 3.11 A technical issue in Static 1 during its May deployment meant that only one night’s worth of data was gathered for that location that month but full sets of data were collected on all other sessions. Echolocation calls are reliably distinguishable between most bat species in the UK. However, the ability to distinguish *Myotis* and long-eared species can be extremely difficult, calls have therefore been attributed to species where possible, but myotis calls which did not reliably fit the parameters of an individual species were labelled as ‘Myotis’.

Site Valuation Assessment for Bats

- 3.12 Using the data from the Phase I and Phase II bat surveys the site will be assigned a value for bats using a geographical scale of reference (local, district, county, etc.). The value will be determined in accordance with **Table 7, 8, and 9** which has been adapted from Valuing Bats in Ecological Assessment (Wray *et al.*, 2010).

Table 7: Valuing commuting habitat for bats

Species	Number of bats	Roosts/potential roosts nearby	Type and complexity of linear features
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Un-vegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/not known (4)	Walls, gappy or flailed hedgerows, isolated well-grown hedgerows and moderate field sizes (3)
		Large number of roosts, or close to a SSSI for the species (5)	Well-grown and well-connected hedgerows, small field size (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)

Table 8: Valuing foraging habitat for bats

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
		Small number (3)	Sub-urban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
		Large number of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture and small villages/hamlets (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

Table 9: Scoring system for valuing habitat features (commuting and foraging habitat) for bats

Geographic Frame of Reference	Score
International	>50
National	41-50
Regional	31-40
County	21-30
District/local or parish	11-20

Negligible importance	1-10
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Birds

- 3.13 Any habitat features, for example, scrub and trees, which could potentially be used by nesting birds, were surveyed and any nesting activity was noted. The habitat was also assessed regarding its potential for bird activity.

Dormice (Muscardinus avellanarius)

- 3.14 The suitability of the habitat was assessed for dormice. Any small mammal feeding signs were checked and assessed, including:
- Examination of hazel nuts; and
 - Evidence of nest building.
- 3.15 The initial site ecological assessment highlighted areas of suitable habitat to support dormice and a series of presence/likely absence surveys were recommended if proposals were likely to affect areas of potentially suitable habitat. Current best practice survey guidance for dormice (English Nature, 2006) recommends the use of 'nest tubes' for ascertaining presence/likely absence. Natural England recommend at least 50 tubes are placed within areas of suitable habitat.
- 3.16 Dormouse tubes were installed within suitable habitat on site in September 2020 (**Appendix D**) and allowed to 'bed-in' for at least four weeks. The surveys were conducted during October and November 2020, and April and September 2021 giving an index of probability 'score' of 25.

Great Crested Newts (Triturus cristatus)

- 3.17 Ponds within the vicinity of the site were noted and the potential of the land to act as a commuting route, shelter or foraging resource for great crested newts was assessed. If present, areas of standing water present on-site were assessed in accordance with current Habitat Suitability Index (HSI) assessment guidance (Oldham *et al.*, 2000) for their potential to support breeding newts.

Reptiles

- 3.18 Habitat features that could be suitable as hibernacula, foraging or basking areas were noted. Extant refugia were lifted and examined for evidence of reptiles, including sloughs (shed skins).
- 3.19 A series of presence / likely absence surveys were conducted within the boundaries of the proposed development site, targeting areas of habitat with the potential to support reptiles. Artificial refugia were laid out within the site boundaries and left on 4th May 2020 to 'bed-in' for at least two weeks (**Appendix D**). Mats were placed on private land in areas which were not easily accessed by the public. Field 3 however is accessed by local walkers and dog walkers, and, 14 mats were removed and had to be replaced. Seven separate survey visits were conducted during suitable weather conditions as defined by Froglife (1999).

3.20 The surveys consisted of the following three methods, in accordance with current guidance (Froglife, 1999):

- *Visual Search* – The site was searched visually during each visit. Details of reptiles encountered basking in the open were recorded. Recorded data included; species, sex, age and location.
- *Extant Refugia* – Any existing potential refugia present within the site boundaries were carefully searched by hand for reptiles. Such refugia included; logs and discarded wood.
- *Artificial Refugia* – a total of 67 artificial refugia, consisting of bitumen roofing felt and profiled underlay were sited in areas of habitat with reptile potential. Such areas included; ruderal vegetation and grassland margins. All refugia were lifted during each survey visit and all reptiles present on, under or next to each refugia were recorded.

3.21 Dates, weather conditions and areas surveyed are detailed in **Table 10** below.

Table 10: Weather conditions during the reptile surveys

Date	Temp	Weather condition
13.04.21	12	5/8 cloud, 1/8 wind, dry and cool
19.04.21	12	1/8 cloud, 1/8 wind, dry and cool
22.04.21	13	0/8 cloud, 0/8 wind, clear and warm
17.05.21	15	1/8 sky, 0/8 wind, dry, scattered clouds
09.06.21	18	6/8 sky, 1/8 wind, muggy
11.06.21	17	6/8 sky, 1/8 wind, overcast, dry
17.06.21	18	4/8 sky, 1/8 wind, partially overcast, dry

Terrestrial Invertebrates

3.22 An assessment was made of the site for the potential to support diverse communities of invertebrates, or any Biodiversity Action Plan (BAP) species. The assessment was made on the basis of the presence of a number of habitat features, which may support important invertebrate communities such as:

- An abundance of deadwood;
- Presence of diverse plant communities;
- Presence of varied woodland structure and sunny woodland edge;
- Presence of ponds or watercourses; and
- Presence of free draining soil exposures.

3.23 During the Phase I survey no attempt was made to identify invertebrate species and where habitats were identified capable of supporting important or rare species, further Phase II survey work may be necessary to assess the importance of the site.

4.0 Results and Analysis

Designated sites

Statutory Designated Sites

- 4.1 The data search revealed no international statutory designated sites within five kilometres or national statutory sites within two kilometres of the site.

Non-Statutory Designated Sites

- 4.2 The data search revealed the presence of twelve non-statutory designated sites within two kilometres of the site.

- Clayhill Copse Local Wildlife Site (LWS)– the site has semi-natural ancient woodland. This site lies 0.35 kilometres north west.
- Burgefield Hillwood LWS – A small area of ancient woodland surrounded by housing. This site lies 0.4 kilometres south.
- Omers Gully LWS– Broadleaved woodland which slopes down to a stream. The site supports populations of badger. This site lies 0.8 kilometres north west.
- Wokefield Common LWS – an area of acid heathy common land. This site lies 0.7 kilometres south west.
- Bristow’s Copse LWS– A small wood with a stream running through the centre. The site supports populations of badgers. This site lies 0.97 kilometre north west.
- Millbarn Pond LWS – A pond which supports badgers and common frog. This site lies 1.4 kilometres south east.
- Boarmoor Wood LWS – An area of ancient woodland. This site lies 1.5 kilometres north east.
- Heathland east of Cowpond Piece LWS– an area of open and semi-open humin heath. The site supports populations of lizard. This site lies 1.7 kilometres south west.
- Pitchkettle Wood – a dense area of oak and ask woodland. This site lies 1.9 kilometres south east.
- Hosehill Green, James’s Hill, Bennettshill Copse LWS – A broad-leaved woodland on a steep facing slope of the River Kennet. The site supports populations of badger. This site lies two kilometres north.
- Cowpond Piece and Gibbet Piece LWS – A pine plantation with the main interest birds and fungi. This site lies two kilometres south west.
- Field north of Lukin’s Wood – a species rich wet meadow. This site lies two kilometres south west.

- 4.3 The search also included Poundhouse Copse which is adjacent to the site and is currently listed as a proposed LWS due to the presence of semi-natural ancient woodland. The development may impact this area which is discussed further in **Section 5.0**.

Ecological Assessment

- 4.4 The results of the Ecological Assessment are presented below. A Phase I habitat survey map is shown in **Appendix B**. The map illustrates the location and extent of the sites surveyed, along with additional notable features.

Habitats

- 4.5 The site at the rear of the Hollies is located on the edge of the village of Burghfield Common. There are currently two development sites under construction to the north and east of the site, these were largely complete by the end of the ecology surveys. The western edge of the site is formed by an area of broadleaved woodland and a section of this has been identified as ancient woodland.

Buildings

- 4.6 There is a dilapidated shed on the site, this is discussed further in the bat section of the report.

Semi-Improved grassland

- 4.7 The majority of the site is formed by semi-improved grassland which is currently unmanaged (**Figure 1**). Fields 2 and 3 were previously used as pony paddocks with one un-grazed for longer than the other. The grassland is tussocky in field 2 and more uniform in field 3. The grassland is relatively species rich and includes common bent (*Agrostis capillaris*), timothy (*Phleum pratense*), false oat-grass (*Arrhenatherum elatius*), annual meadow-grass (*Poa annua*) and Yorkshire-fog (*Holcus lanatus*). Herbaceous plants within the sward include common knapweed (*Centaurea nigra*), selfheal (*Prunella vulgaris*), tormentil (*Potentilla erecta*), field scabious (*Knautia arvensis*), birds-foot-trefoil (*Lotus corniculatus*), vetch sp (*Vicia* sp) and dove's-foot cranes-bill (*Geranium mole*). The fields also include areas of deadwood from fallen trees which have been left on the site.



Figure 1: Semi-improved fields with more recently grazed field in the right image

- 4.8 The semi-improved fields are not botanically significant but do provide potential habitat for protected species.

Poor semi-improved grassland

- 4.9 The southern field (Field 4) is regularly maintained at a short sward (**Figure 2**). The species diversity in this field is lower and the field is dominated by nutrient rich plants such as creeping buttercup (*Ranunculus repens*), perennial rye-grass (*Lolium perenne*), dandelion (*Taraxacum officinale*) and common sorrel (*Rumex acetosa*).



Figure 2: Poor semi-improved fields

- 4.10 The poor semi-improved grassland has limited ecological value and due to the management is unlikely to support populations of protected species.

Tree line

- 4.11 The fields are separated by mature tree lines which are intermixed with scrub. The mature tree lines include oak (*Quercus robur*), hawthorn (*Crataegus monogyna*), ash (*Fraxinus excelsior*) and yew (*Taxus baccata*) trees. Due to the density of the scrub and maturity of the trees these provide thick green corridors across the site.
- 4.12 The mature trees have ecological value and should be retained where possible. The trees potentially support populations of protected species.

Broadleaved woodland

- 4.13 The north western boundary of the site is formed by an area of deciduous woodland. A section of this woodland has been identified as ancient which is directly adjacent to the boundary, with areas of woodland within the site outside the classification. The tree canopy of the woodland comprises oak, sweet chestnut (*Castanea sativa*), field maple (*Acer campestre*) with coppiced specimens of hazel present in the understorey. Within the fields and along the boundary of the woodland wood spurge (*Euphorbia amygdaloides*) and yellow pimpernel (*Lysimachia nemorum*) were present, these are both ancient woodland indicators.
- 4.14 The area of woodland is an area of high ecological value and will require ecological buffers within the final design of the development. This is discussed further in **Section 5.0**.

Hedges

- 4.15 There are species poor hedgerows which separate the site from the neighbouring residential dwellings to the north. These are predominantly bramble and hawthorn.
- 4.16 The hedgerows have low ecological value and potentially support populations of protected species.

Scrub

- 4.17 The field behind the Hollies (Field 2) has been left unmanaged and dense areas of scrub have colonised one of the fields. These are dominated by bramble (*Rubus fruticosus*) and stretch across the site and connect into the adjacent woodland.



Figure 3: Large areas of dense bramble

- 4.18 The scrub has low ecological value but may support populations of protected species.

Protected and/or notable species

Badgers

- 4.19 The TVERC data search returned 20 records for badger within two kilometres of the site dated 1997 to 2018.
- 4.20 During the survey badger latrines were present near the gate along the mature tree line (**Appendix B, Target note 1**). A total of four latrines were present in this area with fresh dung present. Mammal paths bisected the site but no evidence of setts was present. It was not possible to search within the dense areas of bramble but there were no clear pathways leading into these areas. The setts are therefore more likely to be present within the neighbouring woodland with badgers foraging within the grassland.
- 4.21 Badgers are present on the site and use the fields for foraging, further mitigation measures are provided in **Section 5.0**.

Bats

- 4.22 The TVERC data search returned records for the following bat species within two kilometres of the site dated between 1995 and 2018.
- Serotine (*Eptesicus serotinus*)
 - Natterer's bat (*Myotis nattereri*)
 - Noctule (*Nyctalus noctula*)
 - Common pipistrelle (*Pipistrellus pipistrellus*)
 - Soprano pipistrelle (*Pipistrellus pygmaeus*)
 - Long-eared bat (*Plecotus* sp.)
 - Brown long-eared bat (*Plecotus auritus*)
- 4.23 The DEFRA run website, MAGIC, was searched for a list of granted European Protected Species (EPS) licences. There was one record of a granted EPS licence within two kilometres of the site. The licence was for a brown long-eared day roost.

Buildings

Shed

- 4.24 There is an existing shed on the site which has wooden clad walls with a corrugated felt roof (**Figure 4**). The walls of the building are single skinned and it has partially collapsed in places. The building has negligible potential for bats due to the exposed nature of the building and absence of any roosting features.



Figure 4: Dilapidated Shed

Trees

- 4.25 The site has large mature oak trees bordering the fields which may provide suitable roosts for bats. Some of these trees are covered by a TPO and are anticipated to be retained where possible within the development. There are no trees with bat potential within the central sections of the field. The tree line separating fields 3 and 4 will be largely removed, however this predominantly comprises trees with smaller trunks and scrub vegetation. The trees along this boundary were

assessed as having negligible bat potential. If any large mature trees are lost to the development bat roosts may be impacted and further assessment will be required.

Phase II Bat Activity Transect Survey Results

- 4.26 Activity surveys carried out by Greenlink Ecology in August, September and October 2015, recorded five species of bat using the site, including: common pipistrelle, soprano pipistrelle, noctule, brown long-eared bats and a Myotis species. No Annex II species were recorded during these initial surveys. Activity was concentrated in Fields 2 and 3, particularly along the lines of mature trees which separate the two fields, the woodland edge, and the tree line separating Fields 3 and 4.
- 4.27 The results of the bat activity surveys carried out by Pro Vision between April and July 2021 are summarised below and shown in **Table 11** and **Appendix E**. A total of six bat species were recorded and identified to species level during the transect surveys including common and soprano pipistrelles, long-eared bats, noctule, serotines, and barbastelle bats. An additional number of bats were recorded and identified as belonging to the Myotis genus.
- 4.28 Overall bat activity levels were defined as the number of occasions a bat was recorded during the survey. Levels were considered low if bats were recorded zero to fifteen times. Levels were considered moderate if bats were recorded fifteen to fifty times, and levels were considered to be high if they were recorded more than fifty times.
- 4.29 The highest activity levels were recorded in July, with a maximum of 149 passes recorded during one survey (**Table 11**). Activity levels were lowest in May, with a maximum of 23 passes recorded. The highest number of species observed during one survey occurred in June.

Table 11: Transect results

Transect Date	Species recorded	Total number of passes recorded	Activity levels
14.04.21	Common pipistrelle, Soprano pipistrelle, Serotine, Myotis spp	30	moderate
20.05.21	Common pipistrelle, Soprano pipistrelle	23	moderate
14.06.21	Common pipistrelle, Soprano pipistrelle, Long-eared bat, Myotis spp, Noctule,	82	High
06.07.21	Common pipistrelle, Soprano pipistrelle, Myotis spp, Barbastelle	149	High

- 4.30 Common and soprano pipistrelles accounted for the majority of activity recorded during transects with 72% and 25.4% of calls respectively. These were predominantly recorded along the tree line separating Fields 2 and 3.
- 4.31 Barbastelle bats were only recorded in July, and only one pass was recorded during the transect. This was also recorded on the tree line separating Fields 2 and 3.

- 4.32 Long-eared bats, serotines and noctules were only recorded once during the transects. Myotis bats were recorded four times during the transects.
- 4.33 Activity surveys carried out in 2021 therefore identified two new species on site: serotines and Annex II species barbastelle. These had not been previously recorded during the 2015 Greenlink Ecology surveys.

Phase II Static bat detector survey

- 4.1 The results of the static surveys are summarised in **Table 12** and **Fig. 5**. The results of these surveys have confirmed the presence of species recorded during the walked transect surveys and recorded additional species. A total of six bat species were identified to species level with an additional number of bats identified as belonging to the Myotis genus.
- 4.2 Considering the differences in the timing of static deployment, and despite recording for less nights, Static 1, recorded 58% of passes whereas Static 2 recorded 42% of passes. This indicates a higher level of activity along the tree line than at the woodland boundary.

Table 12: Static detector results

Species	Static	Average Number of passes/night			
		April	May	June	July
Common pipistrelle	S1	31.50	379.00	339.17	387.43
	S2	7.00	43.29	322.33	281.71
Soprano pipistrelle	S1	29.83	56.00	132.33	371.57
	S2	1.33	11.29	117.33	207.43
Nathusius' pipistrelle	S1	0.50	0.00	4.17	0.00
	S2	0.00	0.00	0.00	0.29
Myotis spp.	S1	1.67	5.00	2.50	1.71
	S2	0.00	0.00	3.83	1.00
Noctule	S1	0.83	10.00	4.67	2.71
	S2	1.00	1.14	2.67	2.71
Long-eared bat	S1	1.00	0.00	5.00	6.29
	S2	3.33	0.14	2.83	4.00
Serotine	S1	0.33	0.00	10.17	0.57
	S2	0.00	0.00	0.00	0.29
Barbastelle	S1	0.00	0.00	0.17	0.14
	S2	0.00	0.00	0.67	0.00

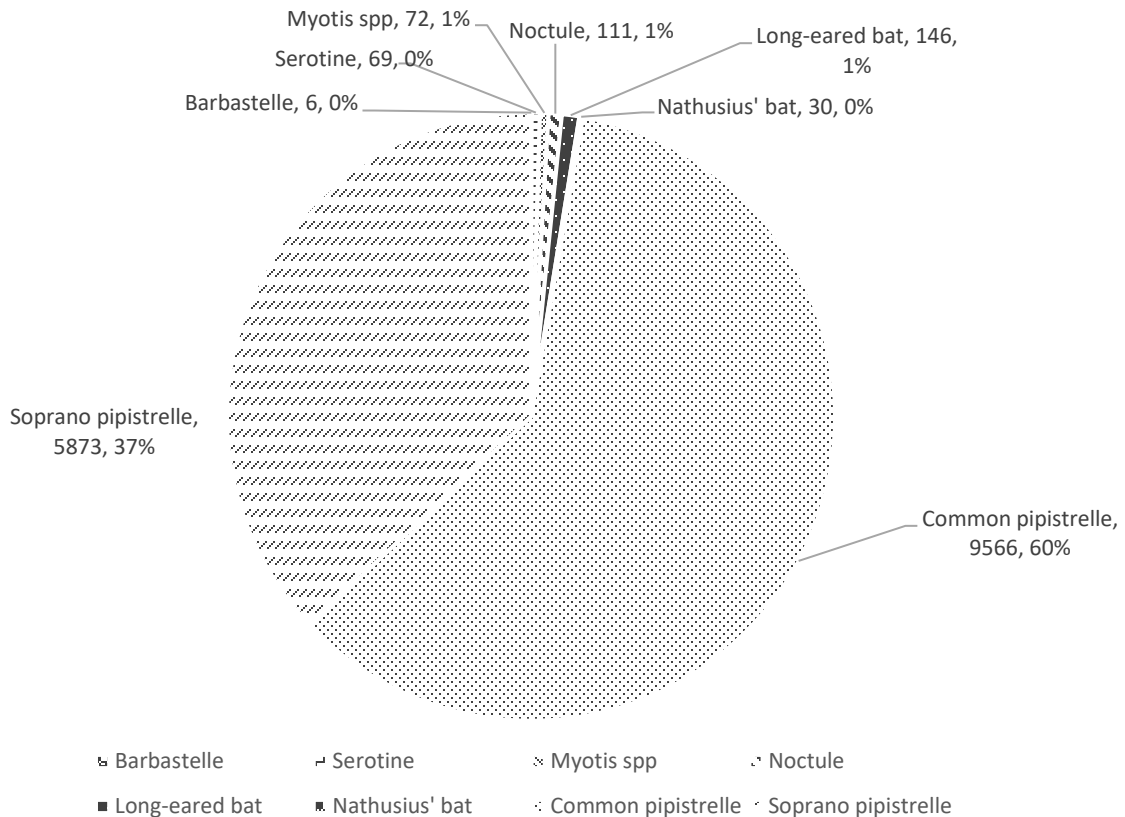


Figure 5: Percentage of calls recorded by the static detectors per species.

- 4.3 The majority of passes recorded were produced by common pipistrelles and soprano pipistrelles which accounted for 60% and 37% of passes respectively (**Fig. 5**). Rarest and rarer species such as barbastelles and Nathusius’ pipistrelles accounted for only 0.04% and 0.19% of passes respectively.
- 4.4 Both statics recorded barbastelle with low activity levels in both June and July. The low number of barbastelle passes recorded indicates that these features are used occasionally as commuting routes rather than as a core area for foraging or roosting.

Impact assessment for bats

- 4.5 Based on an assessment utilizing the method recognised in Wray et al. (2010), the site has been assessed as supporting commuting and foraging routes of Local importance (**Table 13 and 14**).
- 4.6 This valuation has been reached using the following values from **Tables 5 and 6**, for valuing commuting and foraging areas.

Table 13: Commuting route valuation

	Barbastelle	Noctules, serotines, Nathusius' pipistrelle, Myotis	Common pipistrelle, soprano pipistrelle and brown long-eared
Species	Rarest (20)	Rare (5)	Common (2)
Number of bats	Individuals (5)	Individuals (5)	Small number (10)
Roosts	None (1)	None (1)	Small number (3)
Linear features	Well-connected (4)	Well-connected (4)	Well-connected (4)
Total	30	15	19
Value	County	Local	Local

Table 14: Foraging habitat valuation

	Noctules, serotines, Nathusius' pipistrelle, Myotis	Common pipistrelle, soprano pipistrelle and brown long-eared
Species	Rare (5)	Common (2)
Number of bats	Individuals (5)	Small number (10)
Roosts	None (1)	Small number (3)
Foraging habitats	Larger/connected woodland blocks (4)	Larger/connected woodland blocks (4)
Total	15	19
Value	Local	Local

- 4.7 The rarest species barbastelle was briefly recorded commuting on the site. Static data shows single brief passes across site from June to July. The assessment concludes the site is of county importance for commuting barbastelles. This is considered an over valuation within the context of the use of the site by other species due to the low number of passes recorded. The site is valued of local importance for the bat species recorded on the site.
- 4.8 Further recommendations have been provided in **Section 5.0** to maintain and enhance the site for the local bat populations.

Birds

- 4.34 TVERC provided records for the following red list bird species of conservation concern that may be present on the site: cuckoo (*Cuculus canorus*), fieldfare (*Turdus pilaris*), grey wagtail (*Motacilla cinerea*), house sparrow (*Passer domesticus*), lapwing (*Vanellus vanellus*), lesser redpoll (*Acanthis cabaret*), linnet (*Linaria cannabina*), marsh tit (*Poecile palustris*), mistle thrush (*Turdus viscivorus*), nightingale (*Luscinia megarhynchos*), redwing (*Turdus iliacus*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), starling (*Sturnus vulgaris*), turtle dove (*Streptopelia turtur*), yellow wagtail (*Motacilla flava*) and yellowhammer (*Emberiza citrinella*). In addition to these records the

following Schedule 1 and/or Annex I species were returned which may be present during the breeding season: peregrine (*Falco peregrinus*), hobby (*Falco subbuteo*), woodlark (*Lullula arborea*), red kite (*Milvus milvus*), and barn owl (*Tyto alba*).

- 4.35 The mixture of scrub and tussocky grassland on the site provides potential habitat for breeding birds with the neighbouring woodland providing high quality habitat. The fields are separated by mature tree lines which could potentially support nesting birds.
- 4.36 Nesting birds may be impacted by the development and further mitigation has been provided in **Section 5.0**.

Dormice

- 4.37 The TVERC data search returned no records of dormice presence within two kilometres of the site.
- 4.38 The dense areas of scrub across the site provide suitable habitat for dormice and a potential food source. The areas of bramble also connect into the area of woodland which includes a section of ancient woodland. The woodland has areas of coppiced hazel and a mixed understorey which is highly suitable for dormice.
- 4.39 Due to the potential habitat for dormice across the site dormice surveys were started in 2020 and completed in 2021. The results of the surveys are provided in **Table 15** below.

Table 15: Dormice survey results

Date	Temperature (°C)	Weather	Dormice	Other species
28/10/20	12	0/8, still, clear	None	1 woodmouse nest
26/11/20	5	4/8, light breeze	None	2 woodmouse nests and chewed plastic on some tubes
19/04/21	13	0/8, light breeze	None	1 woodmouse nest
17/05/21	13	3/8, scattered clouds, light breeze	None	1 woodmouse nest and 1 blue tit nest
11/06/21	19	4/8, light breeze	None	1 woodmouse nest and 1 blue tit nest
29/07/21	20	4/8, light breeze	None	Woodmouse nests
09/08/21	20	0/8, still, dry	None	Woodmouse nests
14/09/21	18	8/8, dry, still	None	1 Woodmouse nest

- 4.40 No dormice were recorded on the site. Dormice are therefore considered absent from the site and no further action is required.

Great crested newts

- 4.41 The TVERC data search returned one record of great crested newt presence within two kilometres of the site dated 2012. This was located within woodland over one kilometre to the south of the site. The DEFRA run website, MAGIC, was searched for a list of granted European Protected Species (EPS) licences with none recorded and no class licence returns
- 4.42 No evidence of amphibian presence was recorded during the survey. The grassland on the site provides high quality habitat due to being tussocky and due to the presence of deadwood across the site. There are no ponds within the site boundary. A pond is located to the north of the site and falls within the boundaries of the neighbouring construction site, this was surveyed as part of the neighbouring development with no concerns about great crested newts raised. This pond is now separated from the site by an active construction site.
- 4.43 During the original survey work completed by Greenlink there was a depression on the site which was classified as a pond and underwent an assessment for GCN with the pond concluded as being poor habitat. There was no evidence of this pond during the update survey and it has likely naturally filled in.
- 4.44 Great crested newts are considered absent due to the absence of suitable waterbodies in the area and the absence of local records. In the unlikely event a great crested newt is encountered works will stop and an ecologist will be consulted.

Hedgehogs

- 4.45 TVERC provided two records of hedgehog (*Erinaceus europaeus*) within two kilometres of the site.
- 4.46 The site provides suitable habitat for hedgehogs with the mixture of grassland and scrub habitat. The areas of dead wood on the site will also provide invertebrate prey. The development of the site will result in a loss of habitat and may create barriers across the landscape. Measures to ensure hedgehogs can still use the areas are outlined in **Section 5.0**.

Reptiles

- 4.47 The TVERC data search returned 23 records of adder (*Vipera berus*), 35 records of common lizard (*Zootoca vivipara*), 15 records of grass snake (*Natrix natrix*) and 44 records of slow worm (*Anguis fragilis*) within one kilometre of the site. Greenlink (2015) previously recorded low populations of grass snake and slow worm on the site. A peak of 2 adult slow worms and 1 grass snake was recorded.
- 4.48 The semi- improved grassland on the site provides suitable habitat for reptiles due to the tussocky structure. Since the surveys were completed by Greenlink (2015) the neighbouring areas have been developed and the grazing has ceased on one of the fields resulting in more suitable habitat. The populations of reptiles on the site are therefore likely to have changed since the original survey work was completed.
- 4.49 Further surveys were conducted, the results of which are detailed in **Table 15** below and shown in **Appendix G**.

Table 15: Reptile survey results

Date	Slow worm	Common lizard	Grass snake	Adder
13.04.21	1 adult male	None	None	None
19.04.21	2 adult males	None	None	None
22.04.21	1 adult male	None	None	None
17.05.21	4 adult females 1 adult male 3 juveniles (1 newborn)	None	None	None
09.06.21	1 adult female 2 juveniles	None	None	None
11.06.21	2 adult females (1 pregnant) 1 adult male 5 juveniles	None	None	None
17.06.21	None	None	None	None

- 4.50 A peak count of 5 adult slow worms was recorded across the site, representing a good population according to Froglife guidelines (Froglife 1999), although this level of population was only recorded on one survey. Juvenile animals were recorded on the site and therefore a breeding population is present. Reptiles are present on site and further mitigation is provided in **Section 5.0**.

Invertebrates

- 4.51 TVERC provided records of three species of legally protected invertebrate species; stag beetle (*Lucanus cervus*), silver-studded blue (*Plebejus argus*) and white-letter hairstreak (*Satyrium w-album*).
- 4.52 The site includes a number of dead logs which may provide suitable habitat for stag beetles. During the bat surveys in May and June no stag beetles were recorded flying on the site. One of these tree stumps currently has a hornets (*Vespa crabro*) nest present (**Appendix B, Target note 2**). There is no habitat for the other protected species included within the data search. Further recommendations for stag beetle have been made in **Section 5.0**.

5.0 Further Surveys, Impacts and Mitigation

Further survey work

Badgers

- 5.1 During the survey badger latrines were present with no evidence of setts within the site boundary. Badgers use the area for foraging and commuting and the site likely forms a clan boundary. Prior to the development commencing an update badger survey will be undertaken to ensure no setts have been opened close to any proposed works.

Bats

- 5.2 Mature trees within the boundaries of the site should be retained where possible as they have ecological value and may contain features suitable for bats, in particular the lines of mature trees separating Fields 2 and 3. The current plans only include the removal of trees which have been deemed to have negligible potential for bats.
- 5.3 If the final plans alter and require the felling of additional trees, further tree inspections may be required. This may involve a licenced tree climber inspecting the feature with the use of an endoscope.

Impacts and Required Mitigation for the Proposed Development

Non-Statutory Designated Sites

- 5.4 The site is adjacent to Pond House Copse which is a proposed Local Wildlife Site and incorporates areas of ancient woodland. While this area has not been officially designated as an LWS it has been identified as an area of high ecological value and will require protective measures. This area may be impacted during construction and once the development is operational there may be increased recreational pressure, lighting impacts, garden escapes, increased predation and conflicts with local gardens. Mitigation measures are provided below.

Design considerations

- 5.5 The design of the housing development will need to maintain a minimum 15 metre buffer with the area of woodland. This buffer should be planted with woodland edge species and a shade tolerant wildflower mix. The inclusion of scrub will help deter cats hunting in the woodland and prevent access to the area by residents.
- 5.6 Pedestrian access routes for the development should not run through the woodland and access to this area from the residents of the development should be dissuaded. Pathways should link into the wider existing footpath network.

Construction Impacts

- 5.7 There is potential for pollution incidents from surface water run-off and dust deposition during the construction phase and these will be mitigated through the implementation of a Construction Method Statement (CMS).
- 5.8 The following matters will be addressed (but not restricted to) in the CMS:
- Appropriately store and control materials/chemicals to avoid pollution and siltation incidents (e.g. fit all plant with drip-trays and re-fuel machinery off-site);
 - Avoid working at night to minimise disturbance to wildlife;
 - Standard dust suppression method will be employed as necessary e.g. dampen down with water.
 - Traffic control to ensure the movement of plant is located away from any designated sites.
 - A toolbox talk should be provided to all contractors to outline the importance of the neighbouring habitats and contractors will be prohibited from entering the woodland.

Badgers

- 5.9 Badgers may forage across the open grassland on the site and therefore during the works any trenches will either be backfilled nightly or a ramp will be provided to ensure that no badgers become trapped in any excavations.
- 5.10 The landscape plan for the development should enhance the area for badgers to mitigate for the loss of grassland foraging habitat. This should include planting trees which provide berries and fruit that badgers forage on. Species should include elder (*Sambucus nigra*), crab apple (*Malus sylvestris*), hawthorn, blackthorn (*Prunus spinosa*), field maple, hazel and bramble.

Bats

- 5.11 Activity surveys and static bat detector surveys confirmed the continued presence of the five species identified during the 2015 Greenlink Ecology surveys. Activity surveys and static bat detector surveys additionally recorded the presence of serotines and Annex II species barbastelle bats, as well as recording a number of Myotis passes.
- 5.12 Deciduous woodland, wet meadows and water bodies, such as woodland streams and rivers, riparian margins and unimproved grassland are used by barbastelles for foraging which are not present on the site. This species commutes along hedgerows, riparian corridors and treelines.
- 5.13 Barbastelles were recorded by both statics making brief passes in June and July, and briefly during the July transect. Key areas are the woodland margins and line of mature trees. Due to the low number of passes recorded, it is not considered likely that a barbastelle roost is present on or near site. Barbastelles are therefore likely using the woodland and line of mature trees as commuting habitat. All woodland will be retained within the design of the final development and an ecological buffer incorporated.
- 5.14 The surveys showed high levels of foraging activity along the lines of mature trees and the woodland edge present in Fields 2 and 3. Retention of these key features within the final plans will be essential. Foraging areas will need to be retained on the site for the wider species of bats present. This can be provided within the wider development with the retention and enhancement of grassland in line with mitigation for other species on the site. This will provide habitat for invertebrates such as moths which are favoured by bat species.

- 5.15 Lighting within the development will be a key consideration and a detailed lighting plan will be required. This will need to highlight areas which are maintained as dark corridors for the local bat population, key areas are shown in **Appendix G**.
- 5.16 As barbastelles avoid lit areas a dark buffer of a width of 5 metres will need to be incorporated, this will encompass the tree canopies of retained trees. There should be no lightspill within this buffer, this can be achieved by siting lighting away from these areas or using planting to provide screening. The lighting design of the development will need to minimise any light spill along the woodland boundary and lines of trees. In line with current guidelines, on-site lighting will need to be agreed with the LPA but is recommended to include:
- not exceed 1lux on boundary features and lighting will be hooded or cowled to avoid light spill on these features (ILP, 2018).
 - Any necessary lighting within the development will utilise security timers where possible and be LED lighting of a warm white spectrum (<2700 Kelvin) which will feature peak wavelengths higher than 550 nm.
 - Only lighting with an upward light ratio of 0% will be used.
- 5.17 Additional roosting features can be incorporated into the new buildings or attached to retained trees, outlined further in enhancement recommendations below.

Breeding birds

- 5.1 The woodland, mature trees, hedgerows, grassland and scrub within the site provides habitat for nesting birds. It is an offence under the Wildlife and Countryside Act 1981 (as amended) to take, damage or destroy the nest of any wild bird while that nest is in use (**Appendix H**). To avoid contravention of protected species legislation, the woodland and scrub clearance must be scheduled to avoid peak bird nesting season (1st March to 31st August, although this will vary between species and local conditions).
- 5.2 The scheme can provide enhancements for the local breeding bird populations with the inclusion of native planting and additional nest boxes, detailed further in enhancements below.

Invertebrates

- 5.18 The dead wood present on the site should be retained and moved to the buffer areas adjacent to the ancient woodland. The site can be enhanced with the inclusion of additional log piles on the site. These are discussed further in enhancement recommendations below.
- 5.19 No stag beetles have been recorded on the site during the bat activity surveys, which covered the peak activity period for stag beetles. It is recommended that an ecologist is present when the log piles are moved to inspect the areas for any stag beetle larvae that may be present. If present these will be moved alongside the wooden logs.

Hedgehogs

- 5.20 Hedgehogs are listed as a UK 'Priority Species' under S41 of the NERC Act (2006). The grassland is likely to provide suitable habitat for foraging hedgehogs.

- 5.21 Furthermore, Ministry of Housing, Communities and Local Government Guidance on the Natural Environment (2019) states that developments should provide safe routes for hedgehogs between different areas of habitat as a measure to secure biodiversity net gain. Boundaries between properties should therefore be permeable to hedgehogs, with the use of 13x13cm ground level access holes. Each fenced or walled garden should be connected to other neighbouring piece of land with a hedgehog hole. Specific hedgehog holes can be built into gravel boards, and gates can have a gap height of 13cm to ensure permeability.
- 5.22 The retention and enhancement of wildflower grassland and native species will provide foraging opportunities for the local hedgehog population.

Reptiles

- 5.1 During the surveys of the site a good population of slow worms was recorded on the site. Key areas for reptiles are shown in **Appendix F**. Reptiles are present in the areas of long grass on the site with the majority of the population present in Field 2. Mitigation for reptiles will be required for the site and is shown in **Appendix H**.
- 5.2 During construction the reptile receptor site will include the area to the north of the site and will incorporate the woodland buffer zone and an area further south. The woodland buffer will provide connectivity along the boundary of the site. The receptor site will then be expanded to incorporate the SuDs and public open space land. These sections will be enhanced to provide optimum habitat for reptiles and will be sown with a wildflower mix. The edges of the public open space will be managed to provide a tussocky structure suitable for reptiles
- 5.3 A hibernacula will be constructed within the receptor sites to provide areas for hibernation and refuge. The hibernacula will be created by digging a shallow pit and then creating a pile with logs or rubble. This will then be capped with either an area of turf or soil which will then be seeded with the grassland mix. The hibernacula will be a minimum of two metres wide and 0.5 metres high. The logs currently present on the site can be utilised in the hibernacula.
- 5.4 Woody vegetation and dense areas of tall ruderal can be cut to 15cm from ground level prior to any translocation to make the translocation easier. This will be conducted towards the retained habitat. This will be undertaken under ecological supervision and any reptiles found nearby moved to the receptor area. All arisings will be removed from the site and all brash piles will be removed by hand.
- 5.5 A reptile fence will be erected around the construction zone. This will be erected to ensure all areas with future construction impacts are included. The reptile fence will be installed using wooden posts and plastic sheeting under the supervision of a qualified ecologist. Reptile fencing will go underground level by approximately 150mm or buried above ground where tree roots may be impacted.
- 5.6 Artificial refugia in the form of 0.5m² sections of roofing felt, corrugated metal or other suitable material will be distributed within the construction zone in suitable areas of reptile habitat.
- 5.7 The 'refugia' will then be visited during suitable weather conditions (where possible, cloudy with sunny breaks, with temperatures between 10 and 20°C, no rain and no to moderate wind) at a time of year when reptiles are active which is usually from April through to late October. Surveys may need to take place in early morning if temperatures are high during the summer period. Trapping will take place over a period of approximately 30 consecutive days or until there have

been 5 consecutive days with zero captures or until reptiles are consistently being captured in low numbers and the site can be destructively searched.

- 5.8 Any reptiles encountered will be caught and relocated to the designated receptor site which will be located outside the reptile fence.
- 5.9 A destructive search will take place under ecological supervision once the translocation is complete. An ecological watching brief will be maintained during the destructive search. An experienced reptile handler will work alongside a mechanical digger (with toothed bucket), stripping the grassland, scrub and areas of more suitable reptile habitat, searching each bucket for any individuals and safely relocating any animals encountered.
- 5.10 If any further reptiles are found on site during construction works an ecologist should be contacted for further advice and for removal as appropriate.
- 5.11 Once the development is complete the reptile fence will be removed and reptiles will be able to colonise other areas of the site.

Enhancement Measures for the Development

Biodiversity Enhancement

- 5.12 In accordance with the Natural Planning Policy Framework (NPPF, 2019), paragraph 174, development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.
- 5.13 The following enhancement measures should be included within the development:
- Areas of grassland should be retained within the site and enhanced with seeds sourced from local provenance where possible. The ground should be prepared prior to sowing to ensure species develop and are not crowded out by more competitive grass species. Plots of wildflower grassland areas can be incorporated, and other maintained areas managed to maximise species diversity.
 - New dwellings will be designed to include an integrated bat brick or bat tiles. These should be placed in dwellings along the tree lines. Six 2FN Schwegler bat boxes will be installed on retained mature trees within the development. These measures will enhance roosting opportunities for bats on site. Suggested designs are shown in **Appendix J**.
 - Two integral swift bricks will be incorporated under the eaves of ten of the new dwellings which will provide potential nesting habitat for swifts. These will also be readily used by house sparrows. Four bird boxes which suit a variety of species will be installed on retained mature trees on site to enhance nesting opportunities for birds. Suggested designs are shown in **Appendix k**.
 - Partially buried log piles will provide suitable habitat for stag beetles and other invertebrates. These can then provide additional foraging resources for birds and bats. Suggested bricks are shown in **Appendix L**.

- Log piles and hibernacula will be created within the reptile mitigation areas to provide additional refuge, nesting and hibernation habitat for reptiles on site. These will also provide habitat for invertebrates, and small mammals, thereby further enhancing the site for birds. Suggested designs are shown in **Appendix L**.

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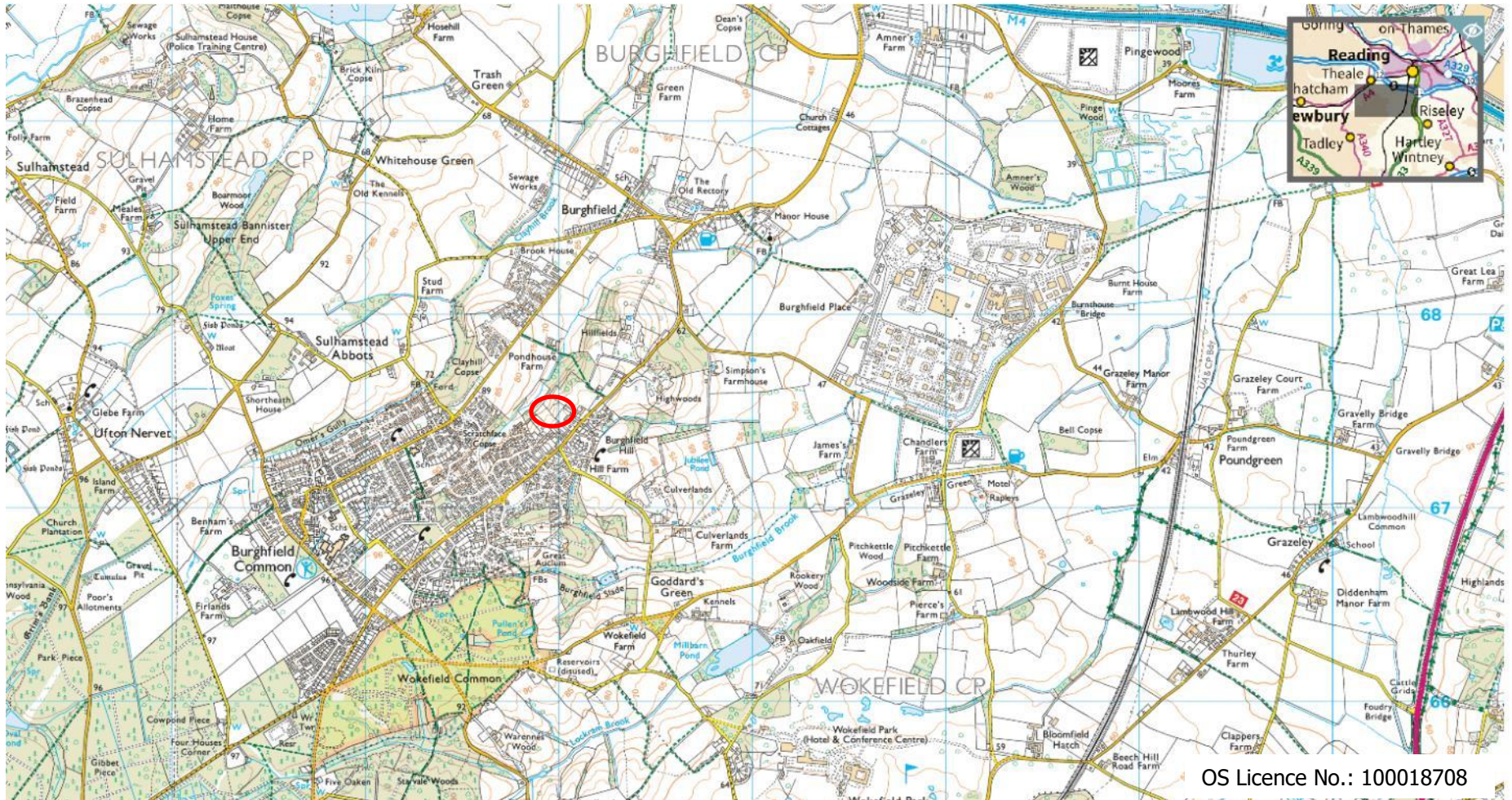
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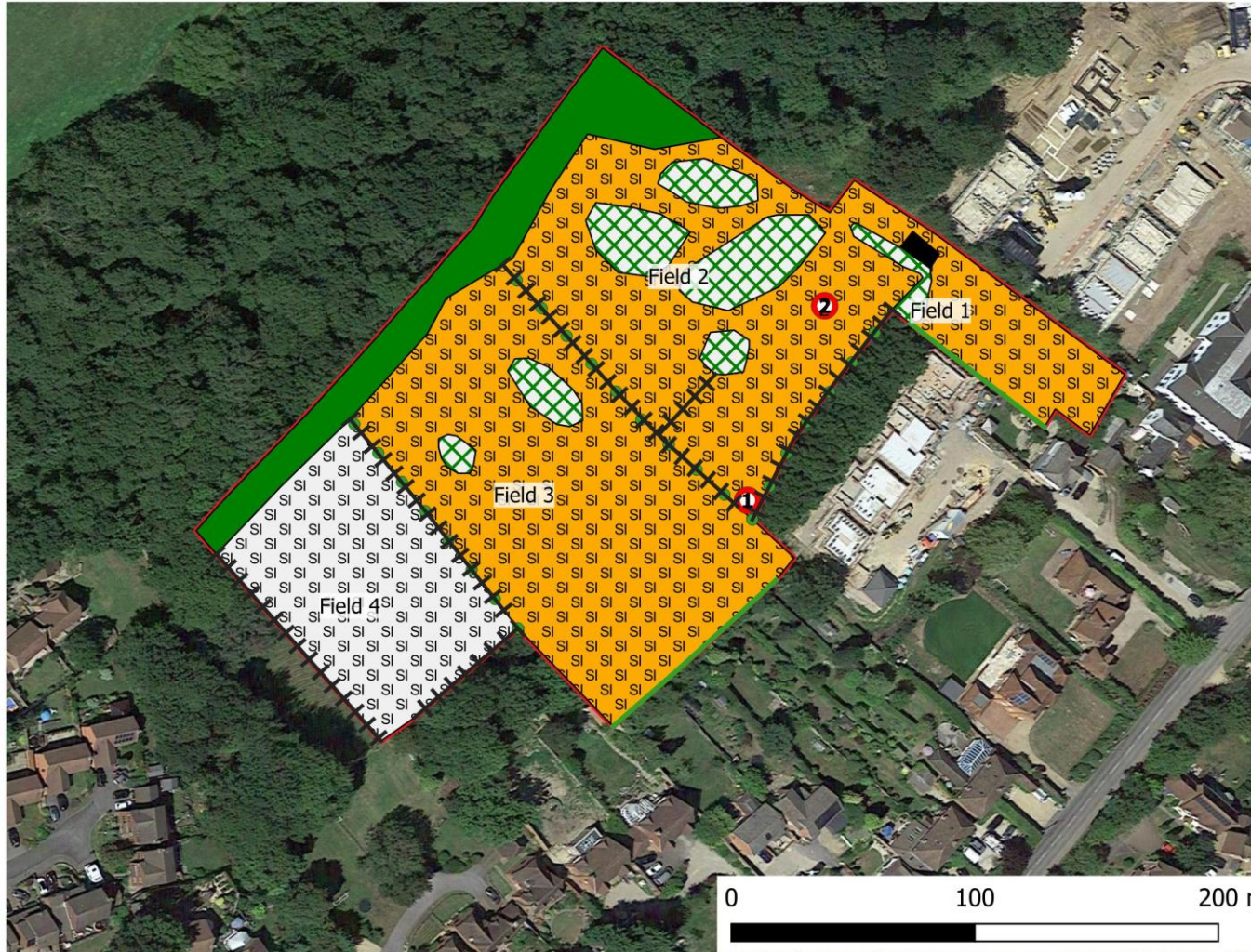
Appendices

Appendix A: Site Location



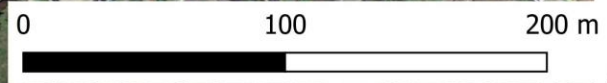
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Appendix B: Phase 1 Habitat Survey Map



Legend

- Hedge
- Tree line
- Fence
- Broadleaved woodland
- Scrub
- Semi-improved grassland
- Poor semi-improved grassland
- Buildings
- Development boundary
- Target Note
 - 1 - Badger latrine
 - 2 - Hornets' nest



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CLIENT:
T A Fisher

PROJECT:
Land to the rear of The Hollies

DRAWING:
Phase 1 habitat map

DATE:
15/12/20

SCALE: 1:1800
SIZE: A4
JOB NO: 7758
DWG NO: v1
REV:



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Appendix C: Bat transect route and static detector locations



Legend

- ★ Statics
- ← Bat transect
- Red line
- Development boundary
- Additional survey area



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CLIENT:
T A Fisher

PROJECT:
Land to the rear the Hollies

DRAWING:
Bat transect route and static location

DATE:
27/09/2021

SCALE: 1:2300

SIZE: A4

JOB NO: 7758

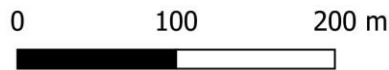
DWG NO: V1

REV:



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Appendix D: Dormouse nest tube and reptile mat locations



Legend

- Dormice nest tubes
- Reptile mats
- Boundary
- Development boundary
- Additional survey area



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CLIENT:
T A Fisher

PROJECT:
Land to the rear of the
Hollies

DRAWING:
Dormouse nest tubes
and reptile mat locations

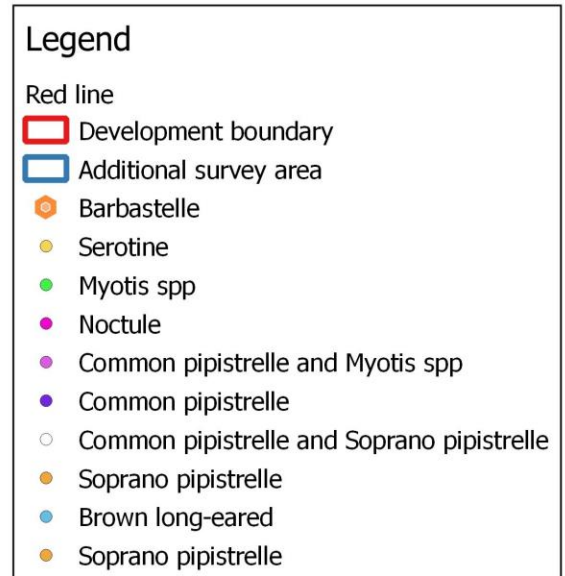
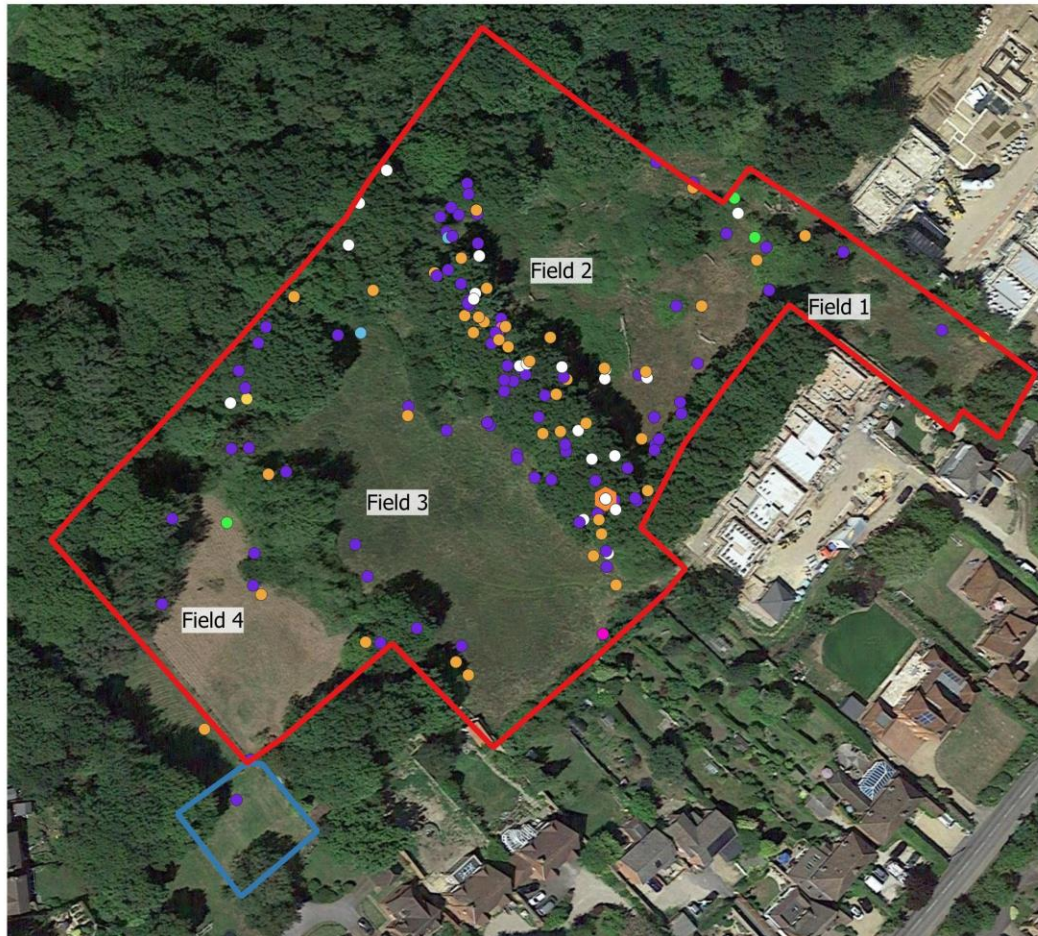
DATE:
27/09/2021

SCALE: 1:4000
SIZE: A4
JOB NO: 7758
DWG NO: V1
REV:

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Appendix E: Bat transect results



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CLIENT:
T A Fisher

PROJECT:
Land to the rear of the
Hollies

DRAWING:
Bat transect locations

DATE:
27/09/2021

SCALE: 1:2500
SIZE: A4
JOB NO: 7758
DWG NO: v1
REV:

PRO VISION

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Appendix E: Bat transect results continued

Dusk 14th April 2021

Date:	14.04.21	Surveyors:	Alexandra Phillips and Hazel Burridge
Time	Species	Description	
20:20	Common pipistrelle	Single pass - heard not seen	
20:27	Common pipistrelle	Single pass - heard not seen	
20:30	Common pipistrelle	Single pass - heard not seen	
20:35	Soprano pipistrelle	Two passes - heard not seen	
20:38	Common pipistrelle	Single pass - heard not seen	
20:40	Common pipistrelle	Single pass - heard not seen	
20:46	Soprano pipistrelle	Single pass - heard not seen	
21:11	Myotis spp	Single pass - heard not seen	
21:28	Soprano pipistrelle	Single pass - heard not seen	
21:40	Soprano pipistrelle	Single pass - heard not seen	
21:43	Common pipistrelle	Single pass - heard not seen	
21:45	Soprano pipistrelle	Single pass - heard not seen	
21:50	Common pipistrelle	Single pass - heard not seen	
21:57	Serotine	Single pass - heard not seen	

Dusk 20th May 2021

Date:	20.05.21	Surveyors:	Alex Phillips and Matthew Norris-Hill
Time	Species	Description	
21:15	Common pipistrelle	Heard not seen	
21:16	Soprano pipistrelle	Heard not seen - foraging in hedge on southern boundary of the first field, 2 passes, 2 minutes apart	
21:21	Common pipistrelle	Heard not seen	
21:35	Soprano pipistrelle	Heard not seen - several passes circular foraging in the trees in the NW corner of the first field	
21:37	Common pipistrelle	Circular foraging by the trees in the NW corner of the first field, several passes	
21:40	Common pipistrelle	Heard not seen	
21:43	Common pipistrelle	Heard not seen	

Dusk 14th June 2021

Date: 14.06.21		Surveyors: Alex Phillips and Matthew Norris-Hill
Time	Species	Description
21:38	Soprano pipistrelle	Heard not seen
21:44	Soprano pipistrelle	Heard not seen
21:51	Soprano pipistrelle	Circular foraging around the trees in the western corner of the first field
21:53	Common pipistrelle	Heard not seen
21:56	Common pipistrelle	Circular foraging around the trees in the western corner of the first field
21:59	Common pipistrelle	Foraging over trees and field
22:07	Common pipistrelle	Heard not seen
22:08	Noctule	Heard not seen
22:10	Common pipistrelle	Heard not seen
22:13	Common pipistrelle	Heard not seen
22:13	Soprano pipistrelle	Heard not seen
22:16	Soprano pipistrelle	Heard not seen
22:19	Common pipistrelle	Heard not seen
22:22	Common pipistrelle	Heard not seen
22:23	Common pipistrelle	Heard not seen
22:29	Common pipistrelle	Heard not seen
23:01	Common pipistrelle	Heard not seen
23:08	Common pipistrelle	Heard not seen
23:09	Common pipistrelle	Heard not seen

Dusk 6th July 2021

Date: 06.07.21		Surveyors: Hazel Burrige and Matthew Norris-Hill
Time	Species	Description
21:35	Common pipistrelle	Heard not seen
21:37	Soprano pipistrelle	Heard not seen
21:41	Barbastelle	Heard not seen
21:41	Soprano pipistrelle	Foraging around the trees behind the new houses
21:45	Soprano pipistrelle	Foraging around the trees and the eastern meadow
21:45	Common pipistrelle	Heard not seen
21:52	Common pipistrelle	Heard not seen
21:52	Soprano pipistrelle	Heard not seen
22:12	Common pipistrelle	Heard not seen
22:15	Soprano pipistrelle	Heard not seen
22:20	Soprano pipistrelle	Heard not seen
22:20	Common pipistrelle	Heard not seen
22:21	Common pipistrelle	Foraging around the trees

22:21	Soprano pipistrelle	Heard not seen
22:35	Common pipistrelle	Heard not seen
22:46	Common pipistrelle	Heard not seen
22:46	Soprano pipistrelle	Heard not seen
22:55	Common pipistrelle	Heard not seen
22:57	Common pipistrelle	Heard not seen
23:01	Common pipistrelle	Heard not seen
23:03	Soprano pipistrelle	Heard not seen
23:04	Soprano pipistrelle	Heard not seen
23:13	Soprano pipistrelle	Heard not seen
23:14	Common pipistrelle	Heard not seen

Appendix F: Reptile survey results



Legend

- Reptile locations - (slow worms)

Boundary

- ▭ Development boundary
- ▭ Additional survey area



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CLIENT:
T A Fisher

PROJECT:
Land to the rear of the Hollies

DRAWING:
Reptile survey results

DATE:
27/09/2021

SCALE: 1:2500
SIZE: A4
JOB NO: 7758
DWG NO: V1
REV:

PRO VISION

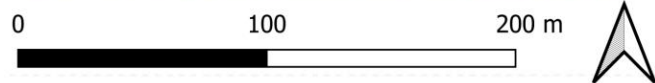
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Appendix G: Dark corridors and woodland buffer



Legend

- - - 15m buffer
- Ancient woodland
- Dark corridors
- Red line
- Development boundary



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CLIENT:
T A Fisher

PROJECT:
Land to the rear of the Hollies

DRAWING:
Recommended retained dark corridors

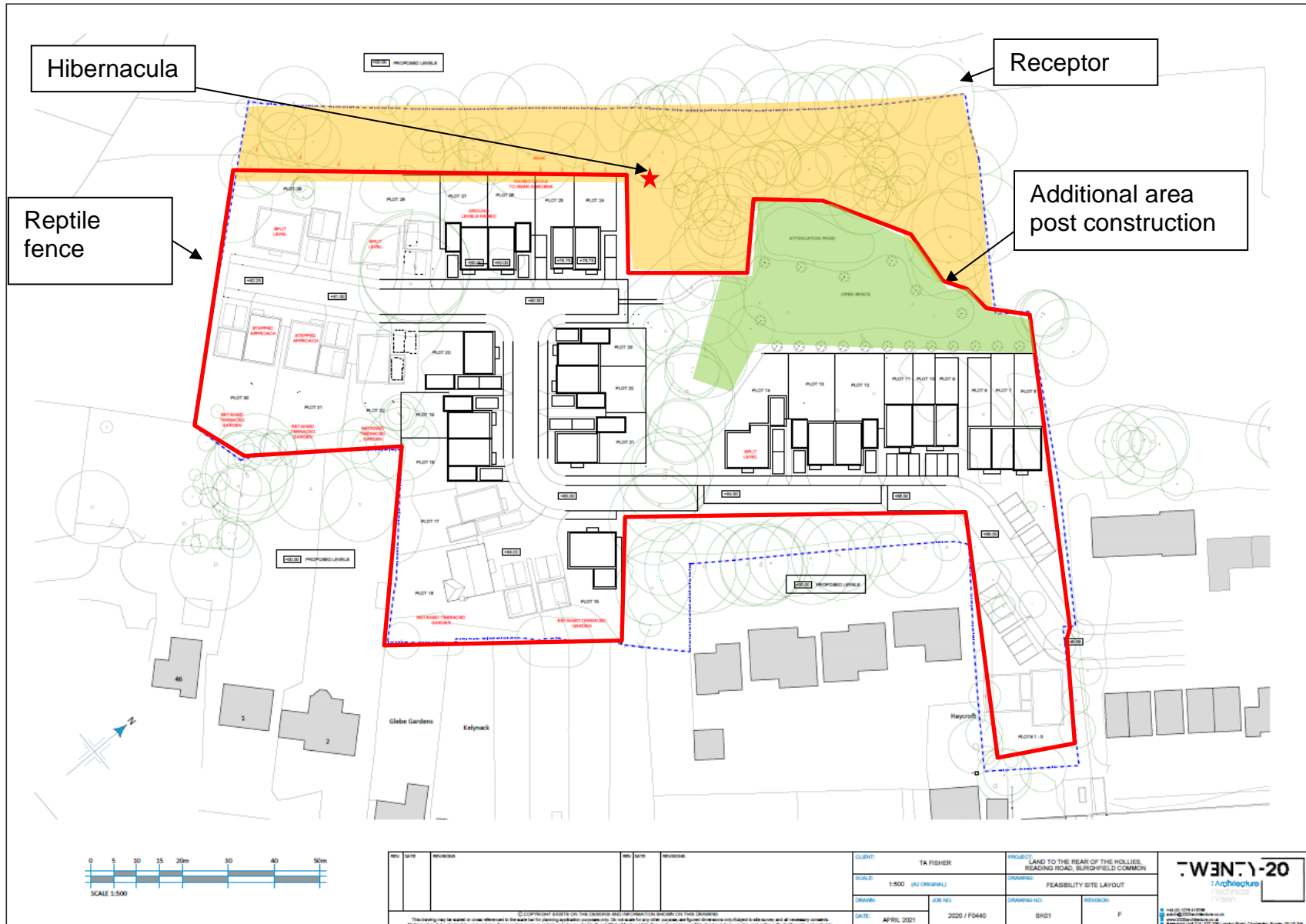
DATE:
05/11/21

SCALE: 1:2300
SIZE: A4
JOB NO: 7758
DWG NO: V2
REV:



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Appendix H: Reptile Mitigation Plan



Appendix I: Relevant Legislation

THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) transpose Habitats Directive into UK legislation. The Habitats Regulations provide for the designation and protection of European Sites and European Protected Species. European Sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which form part of the Natura 2000 network of protected areas across Europe.

European Protected Species (EPS) are those listed under Schedule 2 of the Habitats Regulations and include dormouse, great crested newt, otter and all species of bat. The regulations prohibit the deliberate capture, killing or disturbance of any EPS; it is also an offence to damage or destroy a breeding site or resting place of any of these species. In order to carry out a lawful operation (e.g. development work which has full planning permission) that may result in an offence under the Habitats Regulations, it is necessary to obtain a licence from Natural England. EPS Licences will only be granted after Natural England has been satisfied that there are no satisfactory alternative and that there will not be any adverse impacts on the favourable conservation status of the species. This has recently been amended by the Conservation of Habitats and Species Regulations (amendment) (EU Exit) Regulations 2019 which continue the same provision for European protected species, licencing requirements and protected areas after Brexit.

WILDLIFE AND COUNTRYSIDE ACT 1981

The Wildlife and Countryside Act 1981 is the principle piece of legislative protection of wildlife in Great Britain. Various amendments have occurred since the original enactment. The Wildlife and Countryside Act contains both habitat and species protection. Certain bird, animal and plant species are afforded protection under Schedules 1, 5 and 8 of the Act. Measures for the protection of the countryside, National Parks, Sites of Special Scientific Interest (SSSIs) are also included within the Act.

COUNTRYSIDE AND RIGHTS OF WAY ACT 2000

The Countryside and Rights of Way (CROW) Act 2000 adds to the protection afforded in the WCA to SSSI's and other important sites for nature conservation. In addition, under the Act it became a criminal offence to "recklessly disturb" Schedule 1 nesting birds and species protected under Schedule 5 of the Wildlife and Countryside Act. It also enabled heavier penalties on the conviction of wildlife offences.

THE NATURAL ENVIRONMENT AND RURAL COMMUNITIES ACT 2006

The Natural Environment and Rural Communities (NERC) Act 2006 improved wildlife protection by amending the WCA. The main function of the NERC Act was to raise the profile of biodiversity amongst public authorities. Section 40 (S40 of the Act places a 'Biodiversity Duty' on all public bodies to have regard to the conservation of biodiversity when carrying out their normal functions.

Appendix J: Ecological Enhancements – Bats

These bat boxes are best positioned in sunlit clusters, at a height of 3-6 metres and ideally facing a variety of aspects as bats will move around a building as the seasons change.

This product makes an ideal bat house for most of the UK's bat species, including Pipistrelles, who will use it for roosting, hibernating and (in maternity roosts) bringing up their young. The entrance hole and internal design can be tailored to suit different species of bat e.g. Bechstein's and Serotine.

The box is self-cleaning thanks to an internal tilt board at the base; this works by diverting droppings out of the entrance hole. The back of each box is lined with wood; in front of this sits a removable untreated sawn timber baffle board which divides the main area into two, giving extra roosting space.



NHBS Bat access tiles

Designed for integration into the roof of new buildings providing roosting space for pipistrelles and brown long-eared bats. It presents a bat optimized entrance to the under-felt, or to the loft when the under-felt is opened.



2FN Schwegler Bat Box - Can be positioned on trees or on buildings, at least 4m above ground level. The box will provide an ideal summer roost for woodland bat species. These boxes are best placed in sunny positions and in groups of 3-4 which all face different directions in order to provide a range of micro-habitats for bats.

Appendix K: Ecological Enhancements – Birds

Swift brick

This box has a crescent shaped hole to one side of the box, allowing swifts access but restricting use by starlings. Inside, a rough floor makes it easier for the birds to move around. The centre of the floor has a raised nest cup to assist the birds' nest building. The ideal internal depth of a swift box is 140 mm, however if cavity width is limited, boxes can be manufactured with a reduced depth (minimum 100 mm).



Vivara Pro Oval Open Front Woodstone Nest Box.

These open nest boxes will be used by Robins, Wrens (if well hidden), Spotted Flycatchers, Pied and Grey Wagtails, Song Thrushes, and Black Redstarts and they are available in brown or green in an attractive oval shape to complement both natural woodland and garden settings.

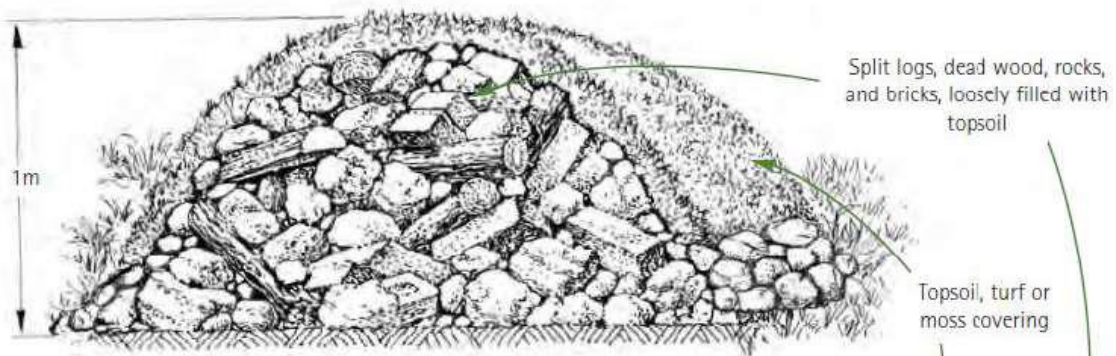
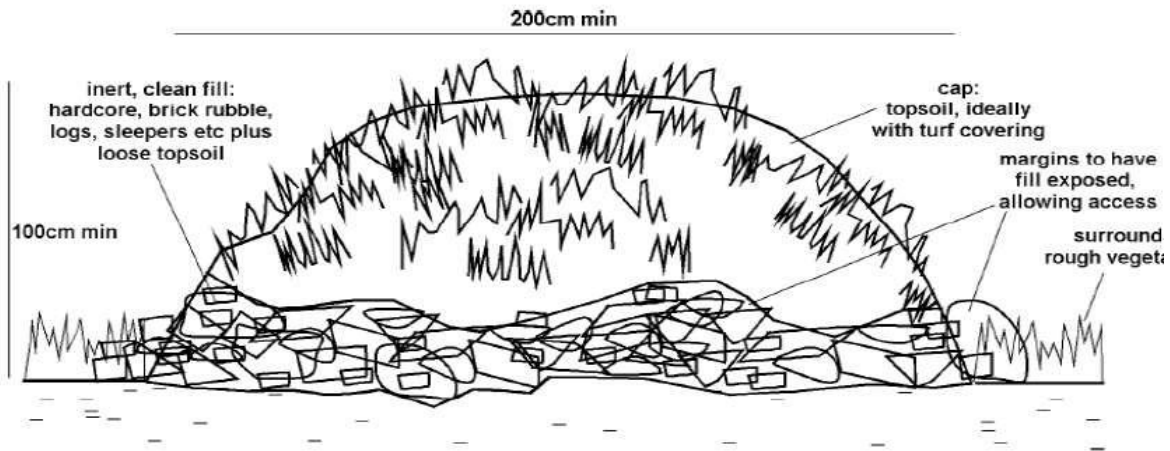


Schwegler 1B general purpose box (32mm hole).

To attract most Tit species the nest box should be hung at a height of 1.5 metres or higher although Coal and Marsh Tits prefer much lower nest sites. Nest boxes should be angled so that they face away from the prevailing wind (usually south-westerly in the UK). The chances of occupation are higher if there is good tree or hedge cover nearby as these will provide a good source of insect food for the nestlings when they hatch.

Appendix L: Ecological Enhancements – Reptiles and invertebrates

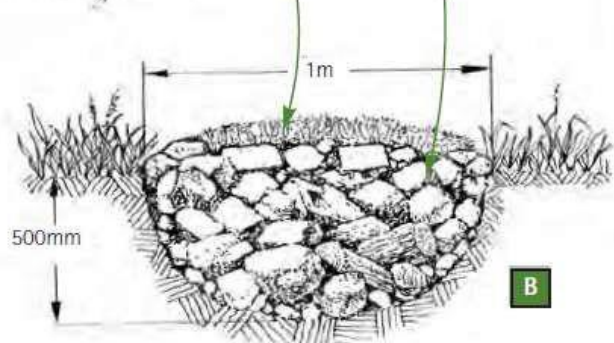
Log pile ideal for reptiles, amphibians, invertebrates, and small mammals.



A

Constructed on gentle slope to prevent flooding

Reptile/amphibian hibernacula



B

