



WILD
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Ecological Appraisal, Roost Assessment & Phase 2 Bat Survey Report

Shepherds Cottage

Ecchinswell Road

Sydmonton

Hampshire

RG20 9NJ

January 2024

Wild Earth Ecology


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Project Details

<i>Client</i>	The Watership Down Partnership
<i>Site/Job</i>	Shepherds Cottage, Ecchinswell Road, Sydmonton, Hampshire, RG20 9NJ
<i>Report Title</i>	Ecological Appraisal & Roost Assessment
<i>Report Reference</i>	Shepherds/EARAP2-2023
<i>Report author</i>	Laura Kahane
<i>Grid Reference</i>	SU 49055 57131
<i>Survey date(s)</i>	Ecological Appraisal & Roost Assessment: 17/07/2023 Phase 2 Bat Surveys: 27/07/2023, 23/08/2023 & 11/09/2023
<i>Surveyed by</i>	Laura Kahane
<i>Architect/Agent</i>	The Watership Down Partnership
<i>Planning reference</i>	

Quality Control

<i>Version</i>	<i>Status</i>	<i>Date</i>	<i>Author(s)</i>	<i>Signature</i>	<i>Reviewed/ Approved by</i>	<i>Signature</i>
1	Complete	04/01/2024	Laura Kahane		Ceridwyn Adkins	C.Adkins
This report remains valid for 12 months from date of issue. Survey data are valid for 12-24 months from the date the survey was undertaken.						

Disclaimer

This report has been produced by Wild Earth Ecology in accordance with the Chartered Institute of Ecology and Management (CIEEM) Guidelines for Ecological Report Writing 2017¹ and CIEEM's Code of Professional Conduct. All opinions expressed represent our true and professional bona fide opinions.

This report has been prepared by Wild Earth Ecology for the client and The Watership Down Partnership and associated agents for use solely as a Ecological Appraisal and Roost Assessment. Wild Earth Ecology accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

This is a technical report which does not represent legal advice. You may wish to seek legal advice if this is required. This report is not intended to be submitted with a planning application for a development without supporting documents, including results of further surveys and detailed assessments of the effects of the proposed development.

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

¹ CIEEM (2017) *Guidelines on Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.

Executive Summary

Assessment	<ul style="list-style-type: none"> - Ecologist Laura Kahane (a licenced bat Ecologist) was appointed by The Watership Down Partnership to undertake an Ecological Appraisal (EA) for Shepherds Cottage, Ecchinswell Road, Sydmonton, Hampshire, RG20 9NJ. This survey was required to support the planning application for the demolition of the existing building and replacement with a detached residential dwelling. - Following the building assessment inspection, the Shepherds Cottage was assessed as a confirmed roost and as having high bat potential to support roosting bats. One loft void within the house was examined during the assessment. This was found to have two areas of bat droppings and lower numbers distributed throughout. Approximately 150 bat droppings characteristic of Brown long-eared bats (<i>Plecotus auritus</i>) were found on the insulation immediately beneath the ridge beam in the southwestern area of the void. A collection of approx. 20 bat droppings was found on the insulation immediately west of the access hatch indicating use of the void in both directions. - Three emergence / re-entry surveys were recommended and undertaken using two surveyors and four infrared cameras), carried out between July and September 2023 under suitable weather conditions. Four individual common pipistrelle (<i>Pipistrellus pipistrellus</i>) bats were recorded to emerge from gaps under lifted, slipped or missing roof or hanging tiles on the western and southern-facing elevations, such that the building has been assessed as being a confirmed roost. The numbers of bats and levels of activity recorded are considered to be indicative of low-level day roosts for these species. No further evidence of void-dwelling bats roosting within the loft was observed and it is considered to be an occasional roost for low numbers of brown long-eared bats that were likely absent during the survey period. - An assessment of the value of the Site for both commuting and foraging by bats was carried out using guidance from Wray et al, 2010. Within the phase 2 bat surveys, district/local or parish levels of Common pipistrelle, Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>), Noctule (<i>Nyctalus noctule</i>), Serotine (<i>Eptesicus serotinus</i>), Brown long-eared and Myotis (<i>Myotis</i> sp.) species with regards to foraging and commuting activity was observed using the assessment criteria (appendix 4, table 10). Regional levels of Barbastelle (<i>Barbastella barbastellus</i>), an annex 2 species were also observed within two emergence surveys. - The desk study has revealed that the site is located within an Impact Risk Zone (IRZ) with respect to The River Test Site of Special Scientific Interest (SSSI) which states that Natural England should be contacted for certain development types. Given the scale and nature of the proposal, it does not fall into any of these categories, and it therefore considered that no further consideration is required with respect to this designation.
Methodologies	<ul style="list-style-type: none"> • During the survey work a Bat Roost Assessment was undertaken, consisting of a desk study and field survey (internal and external assessment of the building), following best practice in line with the Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edn (Collins 2016). • An assessment was also undertaken of the likely presence or absence of protected and notable animal species within the zone of influence of the proposed development. • A web-based desk study was undertaken for designated sites and protected species and habitat records within 2 km of the site. • Data searches were requested from the Hampshire Bat Group (HBG) for all bat species records within 2 km of the site. Any rare species of bat recorded during emergence surveys were verified by the county recorder.
Key Issues	<ul style="list-style-type: none"> • Under the current development proposals, the works will affect areas of improved grassland, hardstanding, amenity planting, species-poor hedgerow and buildings within the site boundary. • The habitats to be affected by the proposed development are considered negligible-low ecological value. • The proposed plans to demolish the existing building and replacement with a new residential dwelling will directly impact bat roosts for two species, and it is therefore likely that the work will result in an offence under the Conservation of Habitats and Species Regulations (2019) (as amended). A Bat Mitigation Class Licence (BMCL) or European Protected Species Licence (EPSL) will be required to permit any works to the roost and must be secured following planning approval by the Council, and prior to any planned works. These licences are issued by Natural England. Given that a low conservation status (day roost) for a small number of a common species has been found to be roosting within the building, it is highly likely to meet the criteria for a bat low impact class licence (BLICL) (England only) application which are known to have a significantly faster application process of an average of 10 days. Within the licence application, mitigation and compensation will be detailed to ensure protection of the species group during works at Shepherds Cottage. Mitigation measures are likely to include: <ul style="list-style-type: none"> o Ecological supervision of stripping or dismantling of roof features which should be carried out cautiously, by hand and using hand tools. o Erection of bat boxes suitable for use by pipistrelle bats to be installed in locations suggested by a Licensed Bat Ecologist. o Avoidance of the use of breathable roofing membranes which cause fatalities in bats. o Bat sensitive lighting should be used within the design to minimise light spillage on site and on adjacent areas whilst considering rare annex 2 species that feature locally.

- o If a bat is found unexpectedly during operations, then all works must cease and a licensed Ecologist be contacted for immediate advice.

Recommendations

Bats

A Bat Mitigation Class Licence (BMCL), European Protected Species Licence (EPSL) or BLICL will be required to permit any works to the roost and must be secured following planning approval by the Council, and prior to any planned works.

Vegetation clearance & ground works

- Any vegetation to be removed should be done so carefully by hand in order to allow any animals which may be present to escape.
- Any trenches or ditches created during the development should be covered at night or provide a means of escape for mammals such as badger (*Meles meles*) and brown hare (*Lepus europaeus*).

Tree protection

To minimise the impact of the development, methods of tree protection in accordance with the BS5837 2012 are required to be in place. All retained trees should be protected throughout the development in accordance with British Standards BS 5837:2012. Root protection areas should be 12x the diameter at breast height (DBH) or the reach of the longest branch (whichever is greater), unless otherwise advised by a qualified arboriculturist. Trees located off site but with their roots on site should also be protected. No materials should be allowed to be stored within these root protection areas and no heavy machinery should run over them. The plan shall include the specification and positioning of temporary tree protective fencing/ground protection (where required) in accordance with the National Planning Policy Framework (March 2012) and Saved Policies E1 and E6 of the Basingstoke and Deane Borough Local Plan 2011-2029.

Ecological Enhancement

Enhancements will be easy to integrate into the design of the development and suitable recommendations which will aim to meet the NPPF / local planning policies include native trees, hedgerows and wildflower area planting, as well as the inclusion of bat and bird nesting boxes.

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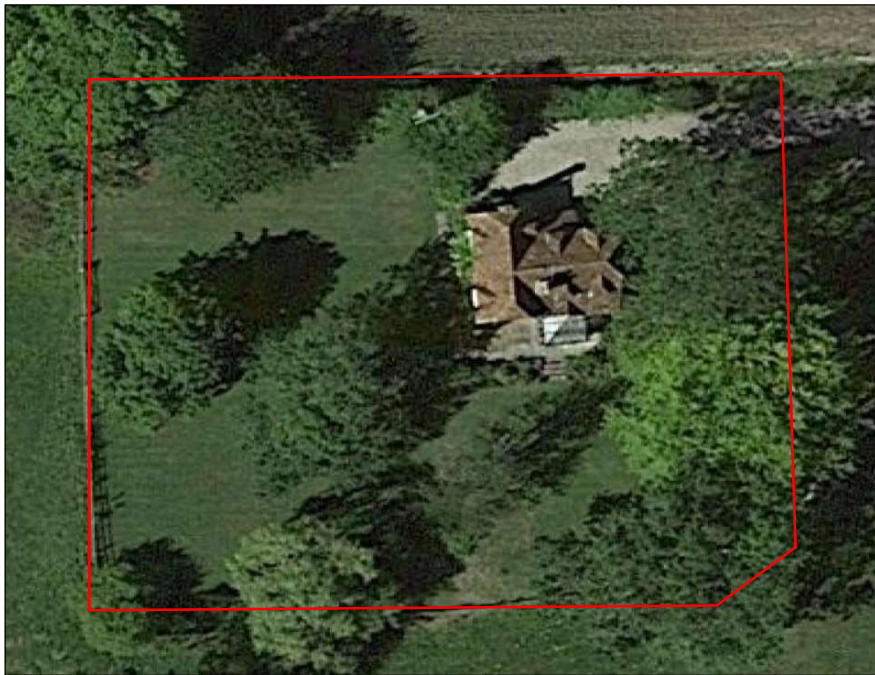
1.0 Introduction & Background

Overview & Proposed Development

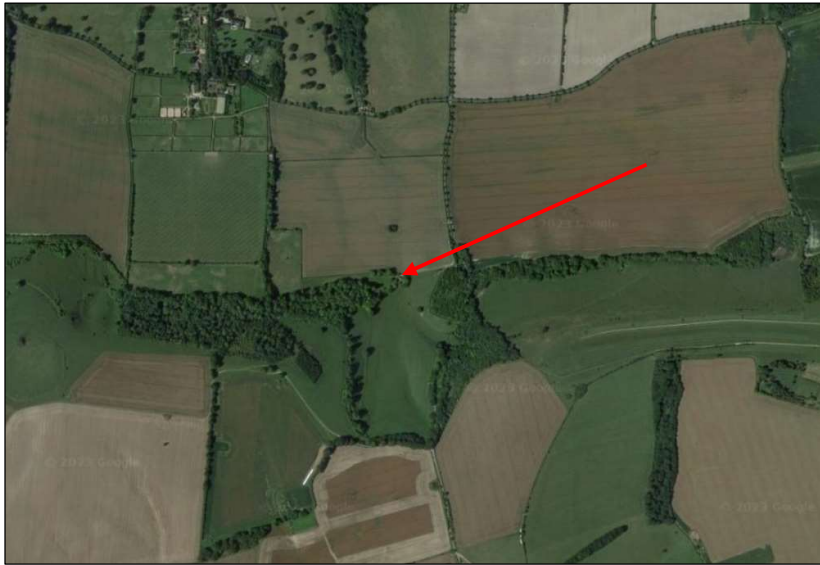
1.0 Wild Earth Ecology was commissioned by The Watership Down Partnership (hereafter referred to as the 'client') to undertake an Ecological Appraisal of Shepherds Cottage, Ecchinswell Road, Sydmonton, RG20 9NJ centred at grid reference SU 49055 57131 (hereafter referred to as the 'site'). The survey is required to support a planning application for the demolition of a residential building and replacement with a new residential building.

Site Description

1.1. The survey and report undertaken followed the Bat Conservation Trust (2016) guidelines and the standard JNCC Phase 1 Survey Methodology (2010), extended to assess the potential for the site to support protected species. The proposed development site is located in the village of Sydmonton, approximately 9km north of Whitchurch, Hampshire. Immediately surrounding the proposed development site are areas of agricultural land and broadleaved woodland (Map 1).



Map 1. Approximate boundary and footprint of the proposed development site (Copyright Google Maps, 2023). Please note that aerial images may not be recent and may show habitat features that no longer exist on site.



Map 2. The proposed development site in the context of the wider landscape (Copyright Google Earth Maps, 2023).

- 1.2. The wider landscape comprises areas of further agricultural and residential land with some areas of woodland to the east, west and south (Map 2). The surrounding habitats, particularly the agricultural land and woodland, are considered to provide suitable foraging and commuting opportunities for a number of bat species.

2.0. Methodology

Desk Study

2.1. Table 1 – Sources of biodiversity and ecological records

<i>Source</i>	<i>Information (search buffer 2 km from site centre/boundary)</i>
Hampshire Bat Group (HBG)	Key information regarding the confirmed presence and habitat of all bat species within a 4km* radius of the site boundary, or up to the HBG records boundary. *The standard radius is 2km however due to HBG's method of extracting records from MapMate, this search has produced records within 4km).
National Biodiversity Atlas (NBN)	Including a search radius of 2km from the site boundary.
Multi-Agency Geographic Information for the Countryside (MAGIC) and Joint Nature Conservation Committee (JNCC)	To obtain information on any designated sites of nature conservation interest within 2 km of the site and details of any European Protected Species licences issued within 2 km (http://www.magic.gov.uk/MagicMap.aspx).
Google Maps	To view aerial photographs and map data, to assess the ecological context of the site (http://acme.com/planimeter/).

Field Survey

- 2.2. Licensed bat Ecologist Laura Kahane AMRSB MRes BSc (Hons) undertook a baseline site survey on 17th July 2023, when the weather was dry and bright.
- 2.3. The survey and report undertaken followed the Bat Conservation Trust (2016) good practice guidelines and are in accordance with our industry standards as set out by the Chartered Institute of Ecology and Environmental Management (CIEEM). The PEA follows the standard JNCC Phase 1 Survey Methodology, extended to assess the potential for the site to support protected species. This consisted of a walkover assessment of the site within the red line boundary provided, using a phase 1 habitat survey methodology (JNCC, 2010, as amended by the Institute of chartered Environmental assessment (IEA, 1995)). This is a standard technique for classifying and mapping British habitats. All areas within the site were successfully surveyed, with main plant species recorded and habitat types mapped. Indications of ecological value were recorded which included any presence or signs of any legally protected or rare species.
- 2.4. The surveyed also included a search to identify the presence of any invasive, non-native plant species (particularly those listed on schedule 9 of the Wildlife & Countryside Act 1981 (as amended) which include Japanese Knotweed (*Reynoutria japonica*) and Himalayan Balsam (*Impatiens glandulifera*). Any existing trees on site were assessed for their potential to support roosting bats and birds.

Ecological Appraisal

- 2.5. The EA survey identified the habitats present and their potential for protected species, particularly bats, birds, hedgehog (*Erinaceus europaeus*), badger, hazel dormouse (*Muscardinus avellanarius*), amphibians, reptiles and invertebrates following the standard guidelines set out by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).
- 2.6. The survey focused upon the land within the red line boundary of the planning application.
- 2.7. The trees and other habitats to be affected within the site were assessed for their potential to support roosting and foraging bats, birds and other protected species.

Bats

- 2.8. Any trees to be affected by the proposed works were assessed visually for evidence of bats and assessed for features which increase the likelihood of bats roosting, such as storm damage, rot holes, ivy cover, flaying bark and splits in the trunk. Linear habitat features, both within and connecting to the site were visually assessed for their likely use as foraging and commuting corridors.
- 2.9. Other habitats on site were visually assessed for their likely use as foraging sites.

Amphibians

- 2.10. Any waterbodies within the site were assessed for their potential for use by amphibians and for features which increase likelihood of use as breeding sites for great crested newts *Triturus cristatus*, such as suitable submergent vegetation, low water turbidity, absence of fish and low levels of use by waterfowl.
- 2.11. Other habitats on site were assessed for their likely use outside of the breeding season for both foraging and shelter purposes.

Reptiles

- 2.13. Open areas of habitat were visually assessed for suitability for reptiles and features which increase likelihood of use by reptiles, including the presence of tussocky vegetation, log and rock piles, basking spots and compost heaps.

Other Mammals

- 2.14. Areas of dense vegetated cover on site and adjacent to the site were assessed for their likely use by badgers, and attention was paid to the presence of any signs of current or historic badger activity such as setts and latrines.
- 2.15. Open areas of habitat were visually assessed for signs of mammal tracks, push throughs and latrines.
- 2.16. Areas of woodland, copse, tree lines, hedgerows and other boundary vegetation were assessed for their likely use by hazel dormice or increased likelihood of use due to presence of hazel and other suitable food species.

Roost Assessment

- 2.17. Ecologist Laura Kahane AMRSB MRes BSc (Hons) undertook a Bat Roost Assessment on the 17th July 2023, when the weather was dry and bright. A bat building inspection was undertaken in accordance with the following methodology.
- 2.18. All roof and wall features were investigated for signs of bats roosting and the access potential of the roof for bats. The surveyor searched for bats, bat droppings, likely access points, signs of feeding, dead bats, scratch marks and staining. A suitability assessment of the structure of the roof is made.
- 2.19. An investigation was carried out of features that may indicate bat presence. For example, gaps under roof and ridge tiles, or behind soffit boards and wooden fascia's. A search for bat droppings was made beneath each potential entry/exit point identified. The surveyor used a powerful, low heat LED torch, binoculars, an endoscope, and a BatLogger M.
- 2.20. The survey and report undertaken followed the Bat Conservation Trust (2016) good practice guidelines and are in accordance with our industry standards as set out by the Chartered Institute of Ecology and Environmental Management (CIEEM).

DNA Analysis

- 2.21. Any bat droppings found were collected and sent to Swift Ecology for species identification the same day as the sample was collected.

Dusk Emergence Surveys

- 2.22. Phase 2 bat emergence surveys were conducted on buildings due to be impacted by the proposed development and had been identified as having potential to support roosting bats. Emergence surveys were conducted to determine likely presence or likely absence from a building as well as to identify species, roost type and number. Surveyors used electronic bat detectors and were positioned around the building to record any bats emerging/re-entering the property as well as local bat activity such as commuting bats. Infrared camera with supplementary lighting and surveyors were positioned to ensure full coverage of the building and any potential emergence

features highlighted within the roost assessment. Surveys began a minimum of 15 minutes before sunset and ended between 1.5-2hrs hours after sunset. Surveyors recorded all bat activity detected from their position as well as emergences/entries. Full details for the emergences surveys including the bat activity recorded, weather, time and date, etc can be found in appendix 3.

Assessment of Commuting & Foraging Habitat

2.23. Other habitats on site were visually assessed for their likely use as foraging sites. An assessment of the value of the Site for both commuting and foraging by bats has been carried out using guidance (Wray *et al*, 2010). This provides a scoring system to assess each bat species at the Site in terms of rarity against multiple factors. This includes the presence and potential presence of bat roosts and habitat types, in order to determine the value of the Site at a geographical scale.

Table 2. Valuing foraging and commuting habitat for bats (adapted from Wray *et al*, 2010)

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 3. Scoring system for valuing habitat features (commuting and foraging habitat) for bats (adapted from Wray *et al*, 2010)

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

Table 4. Categorising bats from distribution and rarity (adapted from Wray *et al*, 2010)

Rarity within range (within England)	Species
Common	Common pipistrelle Soprano pipistrelle Brown long-eared
Rarer	Whiskered Brandt's Daubenton's Natterers Leisler's Noctule Serotine Nathusius Lesser horseshoe
Rearest	Great horseshoe Alcathoe Bechstein's Barbastelle Great mouse-eared Grey long-eared

Surveyor Information

2.24. Table 5 – Surveyor Information

<i>Surveyor</i>	<i>Licences</i>	<i>Ecological Experience or qualification</i>
Laura Kahane	Class licence CL18 (Bats) Licence reference 2020-45059-CLS-CLS	MRes Ecology, Evolution & Conservation BSc (Hons) Wildlife, Ecology & Conservation Certificate in Ecological Consultancy Associate member of The Royal Society of Biology

Limitations and Assumptions

- 2.25. The desk study and field survey will not produce a comprehensive list of plants and animals as this will be limited by factors that influence their presence (e.g., activity and dormancy periods). An assessment can however be made of the habitats within the survey area, their nature conservation value and potential to support protected or priority species.
- 2.26. Bats can utilise buildings seasonally, with frequent movement often caused by fluctuations in weather conditions. Therefore, they may arrive and begin utilising a site after it has been assessed for bats, or roost temporarily somewhere during the assessment. As a result, they're cryptic nature means there is potential for them to be present during the assessment, remaining undetected, especially during the daytime when they are inactive.
- 2.27. Access to part of the roof void to the west was not possible due to the size of the access space over a water tank. No other limitations were observed, or assumptions made during any part of the survey (desk or field study). It is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological value has been made.

3.0 Results

Desk Study

Designated Sites (statutory)

- 3.1. Two statutory designations are present within 2km of the proposed development site; Ladle Hill (SSSI) and Old Burghclere Lime Quarry (SSSI). Ladle Hill (SSSI) is located approximately 1.13km west of the site and Old Burghclere Lime Quarry (SSSI) is sited approximately 1.8km west of the site. The site is further situated within the North Wessex Downs Area of Outstanding Natural Beauty (AONB).
- 3.2. The desk study has revealed that the site is located within an Impact Risk Zone (IRZ) with respect to Ladle Hill (SSSI). IRZ requires Natural England to be contacted for certain development types. Under the current proposals, the development does not fall within these categories, and it will not be necessary to contact Natural England regarding this matter.

SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)	
1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?	2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:
All Planning Applications	
Infrastructure	Airports, helipads and other aviation proposals.
Wind & Solar Energy	
Minerals, Oil & Gas	
Rural Non Residential	
Residential	
Rural Residential	
Air Pollution	Any industrial/agricultural development that could cause AIR POLLUTION (Incl: industrial processes, livestock & poultry units with floorspace > 500m ² , slurry lagoons & digestate stores > 200m ² , manure stores > 250t).
Combustion	General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion.
Waste	Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.
Composting	Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.
Discharges	
Water Supply	
Notes 1	
Notes 2	
GUIDANCE - How to use the Impact Risk Zones	/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf

Designated Sites (non-statutory)

- 3.3. 11 Sites of Importance for Nature Conservation (SINC) exist within 2km of the boundary line which are recognised by Basingstoke & Deane and surrounding Hampshire boroughs as important wildlife sites. The closest of these is Barton Copse, Ecchinswell, Sydmonton and Bishops Green and Davidsons Farm Meadow SINC located adjacent to the eastern and southern red line boundary.

Table 6. Local SINC sites

SINC Name	Central Grid Reference	SINC Criteria	Species supported that meet Section 6 of SINC Selection Criteria	Area (ha)
Barton Copse, Ecchinswell, Sydmonton and Bishops Green	SU48805710	1A		0.09
Davidsons Farm Meadow	SU49005680	2B		0.18
Hare Warren Down	SU47905520	2A		0.16
Ladle Hill Grasslands	SU48005700	2A/2B		0.16
Ashley Warren Down	SU48705620	2A		0.18
Nuthanger Down Copse	SU49305690	1Ci/6A	White Helleborine (<i>Cephalanthera damasonium</i>)	0.13
Watership Down	SU49505710	2A/2B		0.24
Watership Down Tumuli	SU49605680	2D*		0.11
Nuthanger Copse	SU50105860	1A/1B		0.11
Isle Copse	SU50405840	1A/1B		0.12
Combe Hole & adjacent Grasslands	SU51205680	2A/2D*/6A	Small heath butterfly (<i>Coenonympha pamphilus</i>), Bullfinch (<i>Pyrrhula pyrrhula</i>), Chalkhill blue butterfly	0.26

			(Polyommatus (<i>Lysandra</i>) <i>coridon</i>), Common linnet (<i>Linaria cannabina</i>)	
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* Please note SINC criteria 2D is no longer valid, however it is being retained on existing SINC's until they are re-evaluated. 2D SINC's are Grasslands which have become impoverished through inappropriate management, but which retain sufficient elements of relic unimproved grassland to enable recovery.

Priority Habitats and Ancient Woodland

- 3.4. No areas of priority habitat are present on the site. An area of lowland calcareous grassland is located adjacent to the eastern, southern and western boundary (image 1, extracted from defra magic map on 21st July 2023).
- 3.5. A number of priority habitats are present within the wider area, including areas of lowland calcareous grassland, deciduous woodland, wood pasture and parkland and ancient woodland, some of which has been replanted. Four areas of ancient woodlands exist within 2km of the site boundary. The closest area of ancient woodland (ASW) is Barton Copse located approximately 40m south-west of the site boundary. The second and third are named Isle Copse and Nuthanger Copse, located approximately 1.5km to the north-east. A further ASW named Ware Copse which is situated approximately 1.8km north-west of the proposed development.



Image 1. The lowland calcareous grassland (priority habitat shown in olive green) located adjacent to the red line boundary (shown in red).

Impacts and Mitigation

- 3.6. Consideration should be given to priority habitats throughout the development in order to minimise the impacts. The development is only expected to impact priority sites directly and indirectly during the development process and not long term. Given their distance from the site, no designated sites or areas of priority habitat will be directly affected through land take of the development. However a suitable buffer of at least 15m will be required to be maintained between the area of any offsite priority habitats such as grassland to the south, and any development works. This should be established by a suitably qualified ecologist.

Field Survey

Timing and Conditions

3.7. Table 7 – Summary of conditions during survey

<i>Survey Date</i>	17/07/2023
<i>Survey Type</i>	Baseline Assessment
<i>Temperature start</i>	18°C
<i>Temperature finish</i>	18°C
<i>Wind speed (Beaufort Scale)</i>	0
<i>Cloud Cover (Oktas Scale)</i>	2
<i>Precipitation</i>	0
<i>Notes</i>	Conditions were fine and dry

Habitats

- 3.8. During the field survey, areas of improved grassland, amenity planting, dense scrub, individual trees, hard standing and buildings were identified within the site.
- 3.9. Figure 1 illustrates the location and extent of all habitats recorded on site. It should be noted that not all botanical species present could be observed due to the time of year and that the habitat descriptions do not encompass full floral species lists (only dominant native species present within each habitat type) which were observed at the time of survey.

Figure 1. Habitat Map



Improved (modified) grassland

3.10. The associated amenity garden area to the south, east and west of the existing building (B1) is shown in image 2 & 3. The sward is typical of improved grassland that is subjected to regular management mowing. The grassland consists of a single grass species and a number of forbs. Perennial ryegrass (*Lolium perenne*) is dominant to around 85% and forbs present include white clover (*Trifolium repens*), Dandelion (*Taraxacum officinale agg.*), Creeping buttercup (*Ranunculus repens*) and Dock (*Rumex obtusifolius*), which indicate the calcareous nature of the sward. Areas of grassland found within the red line boundary that are due to be impacted were consistent in having a ryegrass and white clover dominant coverage with a non-tussocky sward height of between 3-7cm.

3.11. Overall, this habitat is considered to be of low botanical value.



Image 2. View of improved grassland habitat due to be impacted by the development in the amenity garden from the southern aspect.



Image 3. View of improved grassland habitat due to be impacted by the development from the western aspect.

Amenity planting

3.12. Areas of amenity planting are present to the south and east of the site, as well as immediately surrounding the house building to the west (images 3 & 4), in keeping with its nature as an amenity garden. These areas include a range of common and ornamental species including English Lavender (*Lavandula angustifolia*), willowherb (*Chamaenerion angustifolium*), French rose (*Rosa gallica*), Hollyhock (*Alcea rosea*), Japanese laurel (*Aucuba japonica*), hedgerow cranesbill (*Geranium pyrenaicum*), privet (*Ligustrum sp*), dogwood (*Cornus sp*) and fuchsia's (*fuchsia Magellanica*). These amenity planted areas were recorded to be varied in height and dominated by non-native species that offer negligible inherent botanical value.



Image 4. View of amenity planting within the associated garden to the rear of the building.



Image 4. View of amenity planting within the associated garden to the rear of the building.

- 3.13. A single T-shaped species-poor Beech (*Fagus sylvatica*) hedgerow exists on site bordering the western boundary measuring approximately 5m L x 1m W x 2m H separating the gravel drive to the front from the amenity gardens to the rear (image 5). A minimal understory comprising of areas of common nettle *Urtica dioica* only is present at the western end.
- 3.14. Current plans will impact this section of hedgerow requiring its removal to enable access for the new development footprint. Overall, the hedgerow present is considered to be of no elevated ecological or botanical value due to it being species-poor and offering a minimal understory. The hedgerow was assessed according to criteria set out in the Hedgerow Regulations 1997 and does not meet the criteria for a 'priority hedgerow habitat' or 'important' due to its species poor character. Replacement mixed, native-species hedgerow is recommended to offer replacement habitat on the eastern boundary.



Image 5. View of section of Beech hedgerow on the western boundary.

Dense scrub

- 3.15. Marginal areas of dense scrub habitat can be found on the southern-eastern boundary and corner of the proposed site (image 6) and north-western corner. This dense scrub habitat is dominated by Bramble (*Rubus fruticosus agg*) and ivy (*Hedera helix*), but also includes an understory of common nettle. A further area of semi-mature Hazel (*Corylus avellana*) scrub exists in the south-western corner. A compatible beech hedgerow exists along the extent of the northern boundary separating arable fields.
- 3.16. This area of scrub within the site is species-poor and of limited inherent ecological value, but is likely to provide some foraging, shelter and commuting opportunities for a range of species.

Impacts and Mitigation

- 3.17. It is understood that no areas of scrub on site are due to be impacted under the current development masterplan. These areas offer low potential to support common native reptile species such as basking or hibernating slow worms (*Anguis fragilis*). The scrub habitat on site also offers low-moderate potential to support Hedgehog currently in decline in England, a culturally valued, flagship species commonly found in gardens, hedgerows, and spoil heaps.



Image 6. View of area of dense scrub in the south-eastern corner of the site. Note: The two diseased Ash trees showing in the image have since been felled.

Trees

- 3.18. A total of four individual trees are present within the site boundary ranging from semi-mature to mature (image 7). A single mature tree exists just outside of the northeastern boundary with much of its crown falling within the red line boundary. These trees comprise species consistent with those present within the surrounding site including cherry (*Prunus avium*), beech, sweet horse chestnut (*Castanea sativa*) and weeping willow (*Salix babylonica*).
- 3.19. The mature beech tree to the east and the cherry to the north west of the site have a low understory comprised of ivy. Understory lacks beneath all other trees present as are within closely managed grassland or hardstanding.
- 3.20. Overall, the trees are considered to be of moderate ecological value generally, however of low ecological value in the context of the wider site.

Impacts and Mitigation

- 3.21. It is understood all of the existing trees will remain unimpacted by the development plans. The mature tree habitat to the east and northwest of the site are considered to be of moderate ecological value and could provide roosting and foraging opportunities for a range of species, including bats, nesting birds, badgers and hedgehogs. All trees present on site were assessed for their potential to support roosting bats of which none offered potential. An Arboricultural Impact Assessment has been carried out by Wessex Woodland Management in autumn of 2023 which will inform protection to the retained trees in accordance with British Standards.
- 3.22. Following the PEA survey, permissible tree works were carried out on site primarily to remove diseased Ash. Therefore, some tree's that show within the images attached, are no longer present on site.
- 3.23. All retained trees should be protected throughout the development in accordance with British Standards BS 5837:2012. Root protection areas should be 12x the diameter at breast height (DBH) or the reach of the longest branch (whichever is greater), unless otherwise advised by a qualified arboriculturist. Trees located off site but with their roots on site should also be protected. No materials should be allowed to be stored within these root protection areas and no heavy machinery should run over them. To minimise the impact of the development methods of tree

protection in accordance with the BS5837 2012 are required to be in place. The plan shall include the specification and positioning of temporary tree protective fencing/ground protection (where required) in accordance with the National Planning Policy Framework (March 2012) and Saved Policies E1 and E6 of the Basingstoke and Deane Borough Local Plan 2011-2029.



Image 7. Photographs of individual trees within the red line boundary. Note: The lefthand tree showing in the bottom (right) photograph falls outside of the red line boundary but has been included for purposes of enhancement.

Hard standing

- 3.24. The existing building has a concrete patio to the rear and concrete tiles within an access pathway to the east and west. To the front on the northern boundary the drive is comprised of crushed stone gravel hardstanding which continues to the access track to the east (image 8). A further concrete surround can be found adjacent to the stable stalls. Some grassland species dominated by perennial ryegrass have encroached the hardstanding areas at the edges.



Image 8. Front of house showing area of crushed-stone gravel to the north.

Schedule 9 Species

- 3.25. No schedule 9 (non-native, invasive) plant species were observed at the time of survey such as Cotoneaster (*Cotoneaster sp.*), Cherry Laurel (*Prunus laurocerasus*) or Japanese knotweed (*Reynoutria japonica*). It is illegal to cause the spread of schedule 9 species offsite and should be taken into consideration throughout the development process.

Bat Building Assessment

Shepherds Cottage

- 3.26. This building will be directly impacted under the proposed plans and has been assessed as having high bat potential and a roost confirmed given droppings were found and confirmed by DNA analysis.
- 3.27. The roost assessment survey has considered the context of the site with regards to its geographic location, surrounding habitat and its connectivity to the wider landscape. Shepherds Cottage is sited in an isolated location, surrounded by lowland calcareous grassland to the south, ASW woodland to the west and further agricultural land to the north. These habitats immediately surrounding the site and within the wider area may provide important foraging and commuting habitats for bats. The habitats on site immediately surrounding Shepherds Cottage were considered to have moderate potential to support foraging and commuting bats as they offered sheltered foraging areas within nearby woodland, treelines and hedgerows.

External

- 3.28. Shepherds Cottage is two story building constructed from red brick and roofed with clay tiles with a pitched, half hip roof (image 8-10) and multiple dormer windows and tight-fitting hanging tiles to the rear. The eaves are covered with wooden barge boards on the south-eastern facing elevation with a small flat roof to the east and a conservatory to the west. A series of twenty-seven gaps (suitable potential roost features) are present within roof and ridge tiles that have cracked, slipped or raised on both the front, rear and western roof elevation of which could support crevice-dwelling bat species (image 11-13 with elevation locations shown in images 14-16). This includes six gaps created from missing mortar on the ridge and hip tiles and an area of lifted lead flashing on the easterly, south-

facing dormer window. The building features two separate chimneys, a flue, PVC windows and a porch to the west. Moss dominates the easterly roof elevation. The westerly facing roof elevation over the original section of the building is in poor condition and lack roof felt beneath the clay tiles.

Rarely used opportunities for crevice-dwelling bat species such as the space between the artificial light fittings and meter boxes externally were also checked using an endoscope.



Image 9. View of rear (south-facing elevation) of building. Image 10. View of west-facing elevation of building.



Image 11. Selection of potential roost features to the front and north facing roof hips within missing mortar, ridge tile gaps and lifted tiles.



Image 12. Selection of photographs showing potential roost features in lifted roof tiles and flashing on the rear elevation.

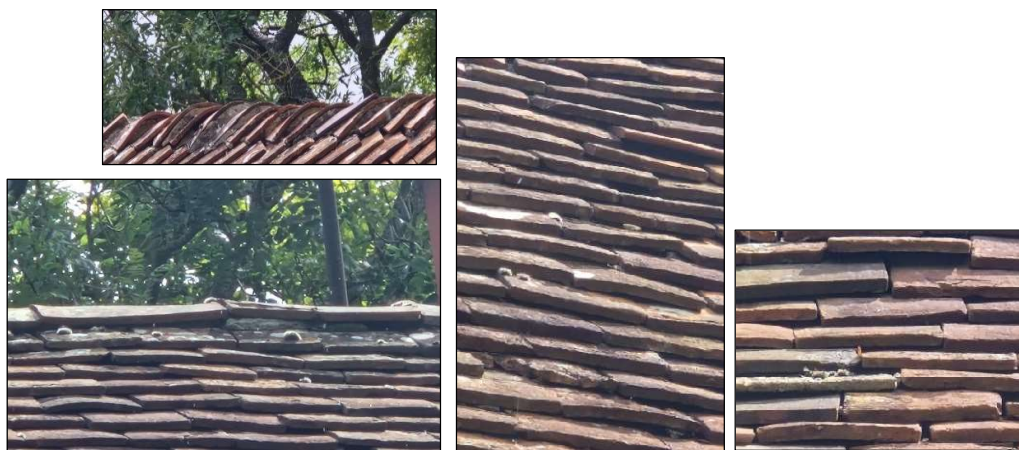


Image 13. Selection of photographs showing potential roost features in gaps under ridge tiles, missing mortar, gaps between and beneath roof tile (lacking felt lining) on the west-facing elevation.



Image 14. Image showing location of each potential roost feature to the front.



Image 15. Image showing location of each potential roost feature to the rear. Emergence points are circled in red.



Image 16. Image showing location of each potential roost feature on the west facing elevation. Emergence points are circled in red.

Internal

3.29. A single T-shaped loft void exists within the building. Over the more recent extension to the east this area measures approximately 3.5m W x 8m L x 1.5m H and is of a trussed construction (image 17), with bitumen felt roof lining, fibreglass insulation and no boarding. A large disused water tank features left of the access hatch denying access to the area of void beyond it to the east. A further void measuring approximately 3.5m W x 8m L x 1.5m H runs north – south over the original section of the building to the west (image 18). Internally the space was uncluttered and could be suitable for void-dwelling bat species. The roof over this section is in very poor condition with a complete lack of bitumen felt lining exposing clay tiles and allowing light and areas of water ingress (image 19). Historical wasp nests and rodent droppings were found across the void. Evidence of bats was found in two areas at the south of the western void (image 20 & 21). Approximately 150 bat droppings characteristics of Brown long-eared bats were found on the insulation immediately beneath the ridge beam in the southwestern area of the void (image 20 & 21). A collection of approx. 20 bat droppings was found on the insulation immediately west of the access hatch indicating use of the void in both directions. An endoscope was used to check suitable crevices that could not otherwise be observed, and a bat detector was used to check for further signs of activity internally. A

subsample of each cluster of droppings was collected and sent for DNA analysis at Swift Ecology who confirmed the species to be brown long-eared.



Image 17. View of main void heading west from the hatch access.



Image 18. View of void heading south over the original section of the building where bat droppings were located.



Image 19. Internal view of exposed clay tiles found throughout the north-south facing roof void.



Image 20. View of cluster of bat droppings location in the far south-western section of the void.



Image 21. View of cluster of bat droppings location in the centre of the void running north-south.

Impacts and Mitigation

- 3.30. As a full demolition is proposed, the buildings entirety will be directly impacted under the proposed plans and the main building has been assessed as having high bat potential and a roost confirmed. Therefore, it is recommended that three emergence / re-entry surveys should be undertaken in line with best practice survey guidelines (Collins, 2016) in order to determine likely presence or likely absence of roosting bats. At least two of these surveys should be carried out during the optimum bat activity season from mid-May to August (inclusive) by a suitably qualified person. A minimum of 4 surveyors (or as many night vision aids) (NVA's) are recommended to observe all aspects of the building externally for 1.5hrs around dusk, during fair weather conditions.
- 3.31. The dusk emergence surveys for Shepherds Cottage were led by a licensed bat during fair weather conditions, and with two surveys within the optimum bat activity period bat (between May to August inclusive). For all surveys two surveyors and 4 NVA's were positioned in order to observe all aspects of the house building (map 4) including coverage of PRF's and commenced a minimum of 15 minutes before sunset and lasted up to 2 hours after sunset. The surveyor used full-spectrum Elekon BatLogger M, Batbox Duet and Echo Meter Touch 2 bat detectors for species identification. Canon XA30 & XA40 camcorders (within built-in infrared capability) and further supplementary infrared lighting (including focused spotlighting on features or flood lighting for whole aspects) to record bat activity. NVA's were utilised either to support surveyor observation of a PRF, or used as an additional surveyor where necessary, determined by the ecologist. Bat calls were subsequently analysed post-survey using BatExplorer and Kaleidoscope software by the lead surveyor. All camera footage was analysed post survey using VLC media player at a maximum of 1.5x playback speed and a software 'motion detect' add on to highlight movement. It should be noted that additional survey types can include capture of bats using static nets in order to determine breeding status and the use of static bat detectors etc. if required. The most appropriate technique has been determined by the ecologist in order to answer the questions required by the British Standards.
- 3.32. Within the phase 2 bat surveys, district/local or parish levels of pipistrelle and negligible importance for Common pipistrelle, Soprano pipistrelle, Noctule, Serotine, Brown long-eared and Myotis species with regards to foraging and commuting activity was observed using the Wray *et al.*, 2010 assessment criteria (appendix 4, table 10). Regional levels of Barbastelle, as annex 2 species were also observed within two emergence surveys.

Outbuilding

- 3.33. A timber-built wood store is located on the eastern boundary of the site comprising a timber frame, wooden cladding and a corrugated asbestos sheet roof. This building measuring approximately 3.5m L x 2m W x 1.5m H presents in poor condition but is in use for storage. Externally the building has tight-fitting timber cladding with no suitable gaps on assessment. Internally, the outbuilding is uncluttered and has heavily cobwebbed across the upper walls and to the roof. Any unobservant gaps were inspected using an endoscope with no limitations and no evidence of bats was found. The outbuilding was assessed as offering negligible potential to support roosting bats due to the lack of suitable access points internally and level of exposure to light and drafts externally. Whilst this building is due to be impacted by the development and will be removed, no further surveys are recommended.



Image 22. View wooden outbuilding from the front.

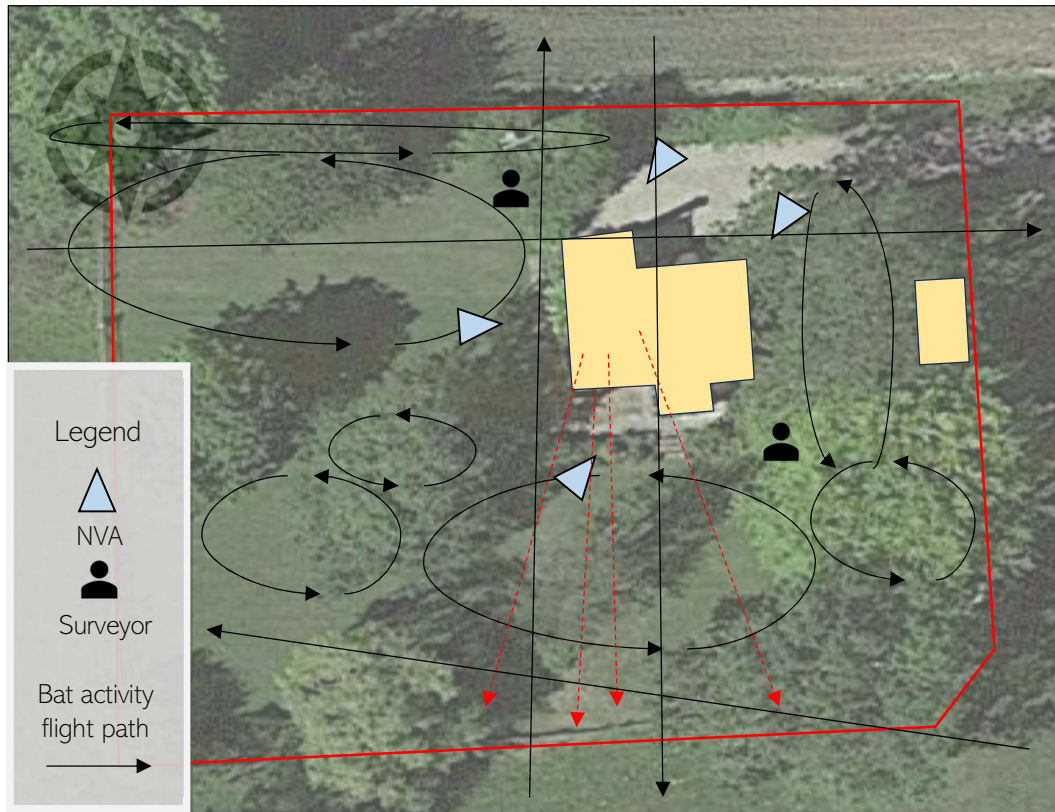


Image 23. View of wooden outbuilding internally.

Table 8 – Emergence Survey Schedule

Survey	Date	Comments	Results
Dusk emergence survey 1	27/07/2023		<p>Common pipistrelle bat emerged from a slipped hanging tile below 1st floor window on the south-facing elevation of building at 21:55 (cam ref SW - 34:56).</p> <p>District/local or parish levels of common pipistrelle and Noctule and County levels of Myotis species and Serotine foraging and commuting activity.</p>
Dusk emergence survey 2	23/08/2023	4x IR cameras used covering all elevations and potential roost features (PRF's) + 2 surveyors (north-west and south east).	<p>Common pipistrelle emerged from a slipped roof tile in between the southern chimney and the roof valley on the south-facing aspect at 20:28 (Cam ref: SW video at 1:36)</p> <p>District/local or parish level of foraging and commuting activity from Common pipistrelle, Serotine, Myotis species, Noctule and regional level for Barbastelle an annex II species.</p>
Dusk emergence survey 3	11/09/2023		<p>Two common pipistrelle bats emerged from: a tile gap in the southern ridge hip roof joint on south-facing aspect of western elevation at 19:36 and;</p> <p>a missing tile gap above the dormer window, near to the ridge on the western elevation at 19:38 (Ref: SW 14:52).</p> <p>District/local or parish level of foraging and commuting activity from Pipistrelle, Noctule, Serotine, Myotis and brown long-eared species and regional level for Barbastelle an annex II species.</p>

full transcript of bat activity observed during the emergence surveys can be found in appendix 3. Map 4 (below) shows the location of each surveyor and NVA.



Map 4. Surveyor and NVA locations. The flightlines of bat are shown in black, and bat emergences (red dashed line). (Copyright Google Maps, 2023).

Protected species

Nesting Birds

3.34. The study returned records of a number of protected, priority or notable bird species within 2km of the site, including the Wildlife & Countryside Act 1981 (as amended) Schedule 1 species including Red kite (*Milvus milvus*), Tawny owl (*Strix aluco*), Barn owl (*Tyto alba*), Buzzard (*Buteo buteo*), stone curlew (*Numenius arquata*), Bullfinch (*Pyrrhula pyrrhula*), Spotted flycatcher (*Muscicapa striata*), Wheatear (*Oenanthe oenanthe*), Grey partridge (*Perdix perdix*), Marsh tit (*Poecile palustris*), Turtle dove (*Streptopelia turtur*), Siskin (*Spinus spinus*), Redwing (*Turdus iliacus*), Field fare (*Turdus pilaris*), Sedge Warbler (*Acrocephalus schoenobaenus*), Long-tailed Tit (*Aegithalos caudatus*), Mandarin Duck (*Aix galericulata*), Skylark (*Alauda arvensis*), Kingfisher (*Alcedo atthis*), Red-legged Partridge (*Alectoris rufa*), Pintail (*Anas acuta*), Teal (*Anas crecca*), Mallard (*Anas platyrhynchos*), Meadow Pipit (*Anthus pratensis*) Tree Pipit (*Anthus trivialis*), Swift (*Apus apus*), Grey Heron (*Ardea cinerea*), Short-eared Owl (*Asio flammeus*), Long-eared Owl (*Asio otus*), Little Owl (*Athene noctua*), Canada Goose (*Branta canadensis*), Goldfinch (*Carduelis carduelis*), Treecreeper (*Certhia familiaris*), Greenfinch (*Chloris chloris*), Black-headed Gull (*Chroicocephalus ridibundus*), Jackdaw (*Coloeus monedula*), Rock Dove (*Columba livia*), Stock Dove (*Columba oenas*), Woodpigeon (*Columba palumbus*), Raven (*Corvus corax*) Carrion Crow (*Corvus corone*) Rook (*Corvus frugilegus*), Quail (*Coturnix coturnix*), Cuckoo (*Cuculus canorus*), Whitethroat (*Curruca communis*), Lesser Whitethroat (*Curruca curruca*), Blue Tit (*Cyanistes*

caeruleus), Mute Swan (*Cygnus olor*), House Martin (*Delichon urbicum*), Great Spotted Woodpecker (*Dendrocopos major*), Corn Bunting (*Emberiza calandra*), Yellowhammer (*Emberiza citrinella*), Reed Bunting (*Emberiza schoeniclus*), Robin (*Erithacus rubecula*), Merlin (*Falco tinnunculus*), Kestrel (*Falco columbarius*), Chaffinch (*Fringilla coelebs*) Brambling (*Fringilla montifringilla*), Snipe (*Gallinago gallinago*), Moorhen (*Gallinula chloropus*), Jay (*Garrulus glandarius*) Black-winged Stilt (*Himantopus Himantopus*), Swallow (*Hirundo rustica*) and Great Grey Shrike (*Lanius excubitor*).

- 3.35. The building has low potential to support other nesting birds in areas of the roof structure. No bird species including evidence of owls was found to be present.

Habitat Assessment

- 3.36. The improved grassland, dense scrub, mature trees and building habitat within the site provide suitable nesting and/or foraging opportunities for a variety of bird species which may be found in the local area. On this basis, recommendations with respect to this species group are set out below to ensure that they are safeguarded throughout the development works.
- 3.37. It is recommended that all trees adjacent to the site are retained where possible and protected sufficiently throughout the development works. If any trees are due to be removed, they should be replaced with suitable native tree planting in order to ensure that opportunities for this species group remain following the completion of the development.

Impacts and Mitigation

- 3.38. All occupied birds' nests have legal protection from damage and destruction under the Wildlife & Countryside Act (1981). All works should therefore be undertaken outside of the nesting bird season (March to September inclusive for most species in the UK). If this is not possible, a nesting bird check will need to be carried out immediately prior to the start of work. If any active nests are present, work must be delayed until the young have fledged.
- 3.39. The proposed re-development should seek to enhance the developed site for breeding birds by selecting planting schemes which aim to provide food, cover and nesting sites for birds. This could mean providing a layered structure through the selection of plants which will grow to different heights, and which provide a dense shrub layer (e.g. holly and hawthorn) and species which attract insects and/or produce berries in order to provide seasonal food resources. Shrubs, trees, and climbers can further disguise bare walls or fencing and create an attractive backdrop for lower-level species planted in front.

Reptiles

Desk Study

- 3.40. The data search returned 6 records of common lizard (*Zootoca vivipara*) within 2km of the site. These were from an area approximately 1.8km north-west of the proposed development site with the latest dated in 2021. A single grass snake (*Natrix natrix*) was recorded approximately 1.5km north-west of the site in 2011.

Habitat Assessment

- 3.41. Areas of improved grassland and dense scrub within the site offer low potential to support basking or hibernating common reptile species, however these habitats are considered sub-optimal due to

the lack of floristic diversity within the grassland and low sward height due to regular management. Additionally, the area of improved grassland due to be impacted by the footprint of the proposed development is reasonably small at approximately 50m².

Impacts and Mitigation

- 3.42. Further to a habitat survey and desktop study of the site, it has been concluded that any reptile population present in adjacent habitats is likely to be limited to low numbers or the possible presence of transient common reptile species, as part of a wider home range. Furthermore, rare reptiles such as smooth snakes (*Coronella austriaca*) or sand lizard (*Lacerta agilis*) are unlikely to occur at the site.
- 3.43. Given that the proposed development will not result in loss of areas of suitable reptile habitat it is not recommended that further survey work with respect to reptiles is carried out. To ensure that the proposed development area remains unfavourable, it is essential that the improved grassland area due to be impacted by the proposed development is maintained as a short sward until and throughout the construction phase. If the sward is maintained, then no further survey or mitigation is required. Any vegetation to be removed should be done so carefully by hand in order to allow any animals which may be present to escape.

Amphibians

Desk Study

- 3.44. Four records for amphibians were returned within a 2km radius of the site. 3 were for common toad (*Bufo bufo*) located approximately 1.6km north-west in 2016 and Pool frog (*Pelophylax lessonae*) approximately 1.4km south in 2020. No records of Great crested newts (*triturus cristatus*) (GCN) were returned within 2km of the search area.

Habitat Assessment

- 3.45. No waterbodies have been identified within 500m of the proposed development site. The nearest waterbody is an unnamed lake at Quarry Copse approximately 950m north of the proposed site. There is a second lake at Ashley Warren Farm approximately 1.5km to the south. The survey area contains potential terrestrial habitat for common amphibian species such as improved grassland and dense scrub, however no potential breeding habitat is present within a suitable range. Of these potential terrestrial habitat only the improved grassland of suboptimal condition is due to be impacted.

Impacts and Mitigation

- 3.46. Amphibian species are unlikely to be displaced and if an individual is displaced it will have minimal impact on this species conservation value. In addition, the area of impact has no suitable habitat for GCN and therefore no further surveys for this species are recommended. However, in the unlikely event that GCN are found during site works, all works must stop immediately, and a suitably qualified ecologist be consulted.
- 3.47. It is considered that the mitigation measures outlined above with respect to reptiles will safeguard any amphibians in the event that they are present within the site during the development works. Any vegetation to be removed should be done so carefully by hand in order to allow any animals which may be present to escape. Any animals remaining in the area should be carefully picked up in a gloved hand and moved to suitable habitat within the boundaries of the site.

Dormice

Desk Study

- 3.48. The data search returned 1 record of Hazel dormouse with a 2km radius of the site. This record was located approximately 1.8km north-west of the site in 1998.

Habitat Assessment

- 3.49. No evidence of dormice was found during the ecological appraisal of the site.
- 3.50. Given the absence of dormice in the local area and the suboptimal nature of the habitat due to be impacted, it is not recommended that further survey work is carried out with respect to this species.

Impacts and Mitigation

- 3.51. Dormice are unlikely to be present and therefore no impacts are anticipated on this species. Furthermore, given the absence of dormice in the local area, it is not recommended that further survey work is carried out with respect to this species.

Hedgehogs

Desk Study

- 3.52. The data search identified a total of 1 record of live hedgehogs *Erinaceus europaeus* with a 2km radius of the site. This record was located approximately 870m north-east of the site and dated 2016.

Habitat Assessment

- 3.53. Areas of improved grassland, amenity planting and dense scrub within the site provide suitable foraging, commuting and hibernating habitat for hedgehogs.

Impacts and Mitigation

- 3.54. Hedgehogs may be present on site and are likely to pass through the site. Hedgehogs are listed as a Priority Species for Conservation Action under the UK Biodiversity Action Plan and protected from harm in the UK under Schedule 6 of the Wildlife and Countryside Act 1981. Under the NERC Act 2006, the hedgehog is categorised as a 'Species of Principal Importance' for biodiversity.
- 3.55. Hedgehogs do not exhibit fight or flight behaviour and will therefore not move out of the way during works. Any areas of dense vegetation to be removed should be cleared carefully by hand and any hedgehogs encountered carefully removed to a safe place.

Badgers

Desk Study

- 3.56. The data search provided 2 records of badgers approximately 1.2km east of the site boundary. The most recent record was from 2016.

Habitat Assessment

- 3.57. No badger setts or evidence of badgers were found on site. However, habitats within the surrounding area such as areas of woodland, treeline and agricultural land do offer foraging opportunities for this species, and it is considered possible that they pass through the site on occasion.

Impacts and Mitigation

- 3.58. It is considered that the mitigation measures outlined above with respect to hedgehogs will safeguard any badgers in the event that they are present within the site during the development works. Where appropriate it is recommended that wildlife access holes suitable for badgers are incorporated into any proposed fence-lines. 25cm by 20cm is suitable for badgers to pass through. In addition, any trenches or ditches created during the development should be covered at night or provide a means of escape for mammals such as badger and brown hare that feature in the surrounding landscape.

Brown Hare

Desk Study

- 3.59. The data search identified nineteen records of Brown hare within 2km of the search radius.

Habitat Assessment

- 3.60. The areas of improved grassland within the site boundary provide suitable foraging habitat. No evidence of Brown hare was found within the survey area.

Impacts & Mitigation

- 3.61. Even if Brown hare are present on site, the limited size of the development would have minimal impact to this species and the mitigation measures outlined above with respect to hedgehogs and badgers concerning the covering of trenches at night will safeguard them in the event that they are present within the site during the development works.

Bats

Desk Study

- 3.62. The data search returned six records of bat species between 1996-2016 including common pipistrelle, soprano pipistrelle, brown long-eared, within the 4km search area. Of these, the closest record is for an unidentified bat species roosting approximately 1.6km north of the site and dated 1996. An EPS was made for a brown long-eared bat roost located approximately 1.3km north-east in 2016. A further EPS for brown long-eared and common pipistrelle bats was applied for approximately 1.9km north of the current site by the client in 2015.

Habitat Assessment

- 3.63. Habitats within the site boundary, including the dense scrub, species-poor improved grassland and buildings on site provide potential roosting, foraging and commuting opportunities for a range of bat species. On this basis, recommendations with respect to this species group are set out in the Bat Roost Assessment building inspection within this report to ensure that they are safeguarded throughout the development works.

Impacts and Mitigation

- 3.64. It is understood that no further trees on site will be impacted under the current development proposals. Some trees on site are of ecological value to foraging and commuting bats. Should any further trees require removal, they should be replaced with suitable native planting to ensure that the existing biodiversity value of the site is maintained in the long term.
- 3.65. All retained trees should be protected throughout the development in accordance with British Standards BS 5837:2012. Root protection areas should be 12x the diameter at breast height (DBH) or the reach of the longest branch (whichever is greater), unless otherwise advised by a qualified arboriculturist. Trees located off site but with their roots on site should also be protected. No materials should be allowed to be stored within these root protection areas and no heavy machinery should run over them.
- 3.66. Recommendations for any new external lighting which remains sensitive to bats and with respect to species observed during the emergence surveys have been made in section 3.80-3.84 of this report. Recommendations applicable to timber treatment and roofing material have also been made within this section.
- 3.67. Whilst every effort has been taken to ensure the accuracy of this report and its contents, in view of potential ecological constraints to development or the likely presence or absence of species, it must only be viewed as a snapshot in time and therefore not be viewed as definitive. Due to external factors such as seasonality, weather etc., having the potential to affect survey results, no liability can be assumed for omissions or changes that may or may not occur after the date this report was produced.

Overview of Survey Results

Status of bats on site

- 3.68. The entirety of Shepherds Cottage will be directly impacted by the proposed development which comprises demolition and replacement with a new detached residential dwelling. Shepherds Cottage was assessed as offering high potential to support roosting bats, requiring a minimum of three further surveys with a minimum of 4 surveyors or NVA's to observe the identified features.
- 3.69. These surveys should be undertaken in accordance with best practice guidelines detailed by the Bat Conservation Trust (Bat Surveys - Good Practice Guidelines 2016).
- 3.70. The guidelines state that at least two of these surveys (being either dusk emergence or dawn re-entry) must be carried out between May and August, in suitable weather conditions.

- 3.71. Additional survey types can include capture of bats using static nets in order to determine breeding status and the use of static bat detectors etc. if required. The most appropriate technique will be determined by the ecologist in order to answer the questions required by the British Standards.
- 3.72. Surveyors will record bat activity using hand-held bat detectors, such as the Wildlife Acoustics EM Touch 2 or Elekon Batlogger, to confirm species identification. Calls will be analysed post survey to confirm species where necessary, infra-red cameras may be used to supplement surveyor views or as additional surveyors as determined by the ecologist. All footage will be analysed following the surveys to identify any bat activity which may have been recorded.
- 3.73. The emergence surveys were undertaken during the optimal survey season under suitable weather conditions. All aspects of the building could be surveyed, and all previously identified features were fully visible and supplemented using NVA's. On this basis it is considered that the survey was not subject to any limitations with the exception of part of the roof void to the east being inaccessible.
- 3.74. During the emergence surveys a total of four individual Common pipistrelle emerged from gaps under missing, slipped or lifted roof and hanging tiles, on the western and southern facing elevations of the main building. Emergence points are shown in images 15 & 16. The information gathered during emergence surveys spread over 7.5 weeks indicates that the western section of the roof void is likely to be an occasional roost for brown long-eared bats; that the roost type is not a maternity roost and that the building is considered unsuitable as a classic hibernation site with thermally unstable conditions. The emergences were all observed in person and recorded by IR camera. The numbers of bats and levels of activity recorded are considered to be indicative of low-level day roosts for these species. A full-spectrum acoustic logger (Audi Moth) was positioned in the centre of the loft for a 4-week period between 11th Sept -6th Oct 2023 to observe acoustic bat activity internally. The calls were then analysed using Raven Lite software. No bat calls were recorded internally during this time. It should be noted that additional survey types can include capture of bats using static nets in order to determine breeding status and the use of static bat detectors etc. if required.
- 3.75. Crevice-dwelling bats, such as brown long-eared and pipistrelles often use the same buildings during the active season, as they do for winter hibernation. Using the Assessment of hibernation potential for 'non-classic' hibernation sites within the Bat Mitigation Guidelines (2023), the building was further assessed for its potential to support features which bats could utilise for hibernation and recorded a 'moderate' level of 'non-classic' features overall. Within this assessment, roosting potential, foraging and commuting habitat and known roosts have been considered.
- 3.76. Overall, district/local or parish levels of pipistrelle and negligible importance for Common pipistrelle, Soprano pipistrelle, Noctule, Serotine, Brown long-eared and Myotis species with regards to foraging and commuting activity was observed using the Wray *et al.*, 2010 assessment criteria (appendix 4, table 10). Regional levels of Barbastelle, an annex 2 species were also observed within two emergence surveys.
- 3.77. The proposed plans to demolish the existing building and the development of a replacement residential dwelling will directly impact bat roosts for two species, and it is therefore likely that the work will result in an offence under the Conservation of Habitats and Species Regulations (2019). A Bat Mitigation Class Licence (BMCL) or European Protected Species Licence (EPSL) will be required to permit any works to the roost and must be secured following planning approval by the Council, and prior to any planned works. These licences are issued by Natural England, if the three licensing tests are met;

- a. The activity must be for a certain purpose - for example, for scientific research or in the public interest.
 - b. There must be no satisfactory alternative that will cause less harm to the species.
 - c. The activity must not harm the long-term conservation status of the species - you may need to create new habitats to offset any damage.
- 3.78. Given that low conservation status (day and occasional roosts) for a small number of common species has been found to be roosting within the building, the result it is highly likely to meet the criteria for a bat low impact class licence (BLICL) (England only) application which are known to have a significantly faster application process of an average of 10 days.
- 3.79. Within the licence application, mitigation and compensation will be detailed to ensure protection of the species group during works at Shepherds Cottage. This will detail how the risk of killing/injury of the individual bats will be minimised during works. Furthermore, compensatory roosts in the form of bat boxes will need to be provided to replace the existing roosting opportunities that are due to be destroyed. Every mitigation measure must be proportionate to both the species roosting on site and the level of use by the bats present. Mitigation measures are likely to include;

A 'Toolbox Talk'

This should be carried out by a licensed Ecologist (or accredited agent) to ensure that contractors are aware of the risks to bats and other wildlife on site including specific working practices to avoid harm.

Timing of works

Given a day roost for common pipistrelle and occasional roost for brown long-eared is present that carries moderate potential for hibernation activity, there are likely to be recommendations on appropriate timing of works in order to minimise potential impacts on bats.

Ecological Supervision

Immediately prior to any works commencing on site, an internal and external inspection of Shepherds Cottage must be carried out by a Licensed Bat Ecologist to ensure no bats are present within the features highlighted.

Soft-strip

Given that the roof is in very poor condition (non-tight fitting) and offers significant opportunity for crevice-dwelling and void dwelling species to roost within, either a 'soft strip' or 'hand removal' of the roof coverings, must be carried out carefully and under Bat Licensed ecological supervision.

Compensatory Roosts

Prior to any works commencing, to provide alternative roosting sites for bats during works, it is recommended that two bat boxes (that meet a required specification) should be installed nearby to the development. Suitable bat boxes for the species found roosting within Shepherds Cottage include a 2F Schwegler bat box with Double Front Panel and 3FN Schwegler Bat Boxes (equivalent box types if unavailable). The location of each box should be determined by a Licensed

Bat Ecologist to ensure the uptake is optimised. The bat box should ideally be made of woodcrete, and be positioned at least 3-5m high, in a south or south-west facing direction with a clear flight path to and from the entrance (free from obstruction), with good connectivity to habitat such as mature hedgerows or trees and away from artificial light such as sensor operated flood lights. The boxes must remain on site permanently post-development to ensure that roosting opportunities remain available before and after development. A suitable location for these compensatory roosts are on the mature Beech and Ash tree's in the south eastern corner of the site (see appendix 4).

Integrated bat boxes

Within the new development, integrated bat roost features offer suitable, permanent compensation for the loss of day roosts and are easy to integrate into the design of most buildings. Integrated features such as the following are generally more favourable by the local planning authority given they provide longer-term, or permanent roosting opportunities. Integrated features can also include 'raised access tiles' which can provide a more permanent integrated opportunity for an individual or small number of "crevice dweller" species that requires tight gaps to roost. Brown long-eared bats prefer raised access tiles on the ridge, offering access to a roof void of a suitable size to warm up before flight. Other examples include;

<https://www.nhbs.com/habat-bat-access-slate>,

or

https://www.wildcare.co.uk/wildlife-nest-boxes/bat-boxes/access-tiles-and-indoor-roosts/bat-access-tile.html?gclid=EAAlaQobChMI3Yr4wZb2ggMVVpCDBx0-fwloEAQYCCABEgKrbvD_BwE

(many other designs are available). These can be selected to match the aesthetic of the building. The most suitable location for these tile types (2 are recommended based on the existing roost types and location) are on the westerly end of the south-facing roof elevation. Alternatively, the Integrated Eco Bat Box (see link below) is made from lightweight, long-lasting woodcrete and can be bolted to supporting timbers or brickwork beneath, with horizontal timber cladding fitted around it:

https://www.nhbs.com/integrated-eco-bat-box?fbclid=IwAR1Oj21BUzGJni9wXni-wWpvLa2nKKgn8lJzS1SoUWPTt2ytfX_gb7ZRZs

An integrated box could be fitted at the highest point (just below the eaves) of the the easterly south-facing aspect, within the apex. This bat box can be fitted within the external cladding. Alternatively, these boxes can also be fixed externally. Further advice on location or specification can be sought at any time from the author. The models suggested above have been suggested based on the building design and specification.

Wildlife friendly landscaping

- 3.80. Any landscaping planned for the new development should be designed to enhance the site for biodiversity. This could include nectar or fruit producing wildlife beneficial plants (not necessarily native) to offer varied food sources and shelter for a wide ranges of species including bats, birds, mammals and invertebrates. Any planting should also aim to improve connectivity to the surrounding habitats and should avoid the use of non-native, invasive species. The ecological enhancements recommended within this report have been designed to achieve this.

Bat Sensitive Lighting

- 3.81. As a rarer or light sensitive species have been recorded in the local area and utilising important nearby habitat features such as commuting flight lines, such as the mature hedgerow and treeline on the northern boundary, it is recommended that any new external lighting be directed to avoid light spillage onto vegetation or foraging features. During emergence surveys rarer Myotis species, and rare annex 2 listed Barbastelle species were observed to be foraging up and down this hedgerow to the west and north. Inappropriate lighting used within the foraging habitat of this bat species is known to place them at a competitive disadvantage as they are less able to forage successfully and efficiently. This may have an impact upon fitness and breeding success. It is noticeable that most of Britain's rarest bats are among those species recorded as avoiding artificial lighting at night. Therefore, it has potentially devastating conservation consequences for these species. Any lighting on the building should be directed onto the intended areas only with no spillage. Bats are sensitive to light and could potentially avoid the area if access points or the surrounding areas become further lit. Minimising upward lighting by fitting lights with downward facing baffles, hoods cowls or shields will further prevent light pollution and mitigate the impact of any new lighting on bat species. These hoods should direct the light below the horizontal plane, at an angle less than seventy degrees. Limiting the height of lighting columns and directing light at a low level away from vegetation will further reduce the ecological impact of the light.
- 3.82. Any potential impact on bats can be minimised through the use of "warmer" lights as these are less penetrating than bright white lights (such as LEDs), as well as maintaining the brightness as low as possible (with settings which allow for a short illumination time) to provide some dark periods. Infrared motion sensors are strongly recommended, using a short timer to reduce the duration of lighting (triggered by larger objects or movement where possible) and reduce disturbance to bats. Additional fixed security or wall lights should be 'dimnable' with low light intensity which are readily available. Appropriate lighting options will prevent a negative impact on bats potentially using the habitats on site and should be approved by a suitably qualified Licensed Bat Ecologist.

Timber Treatment

- 3.83. Any use of timber-treatment or pest control treatment should be from the approved lists for safe use in or near bat roosts which can be found at:

<https://www.gov.uk/government/publications/bat-roosts-insecticides-and-timber-treatments/timber-treatment-products-suitable-for-use-in-or-near-bat-roosts>.

Other approved brands are also available and can be provided on request.

Roofing Materials

- 3.84. It is recommended that bitumen roof felt type 1F is used as lining in any new residential buildings, which meets building regulations. If the proposed new tile type, (if applicable) is one that will allow access to bats then breathable roofing membrane should be avoided as it is proven to cause entanglement and will lead to fatalities within bat roosts for a prolonged period.
- 3.85. Comprehensive details of all necessary mitigation and compensatory recommendations will be provided within the BMCL / EPSL or BLICL application which will contain a method statement.

Impacts of Proposed Development

3.86. Table 9 – Summary of potential impacts of the proposed development on protected species

Species	Ecological Evaluation (including scale and nature of impact*)	Recommendations
Bats	Shepherds Cottage: High potential to support roosting bats Confirmed Roost	Shepherds Cottage is a confirmed roost for common pipistrelle (day roost) and brown long-eared bats (occasional roost). To facilitate proposed works a Mitigation Licence should be acquired from Natural England prior to any works commencing on site.
Nesting birds	Moderate	Works to be undertaken outside of the nesting bird season (March to September). If this is not possible, a nesting bird check will need to be carried out immediately prior to the start of work.
Reptiles	Negligible	Any vegetation to be removed should be done so carefully by hand in order to allow any animals which may be present to escape.
Amphibians	Low	
Hazel Dormouse	Negligible	No further surveys
Great Crested Newt	Negligible	
European Badger	Low	
West European Hedgehog	Moderate	
Brown hare	Low	

*Ultimate assessment of the scale and nature of impacts is dependent on the final design of the proposed development and exact habitats affected.

4.0. Enhancement recommendations

4.1. Below is a summary of measures, which should be implemented on site to firstly achieve a minimum no net loss of functional habitat from those areas due to be impacted. Beyond this, recommendations aim to achieve a minimum habitat enhancement of a 10% net gain for biodiversity for long term wildlife benefits both on and off-site. Please note that a biodiversity net gain calculation does not apply to this project and its timescale, however agreed enhancement recommendations have been designed to meet the same standards in terms of gains to wildlife. An up-to-date aerial map showing the surrounding landscape and location of the retrospective and recommended enhancement features can be found in appendix 3.

- Planting of at least 5 native trees either on the eastern and southern boundary to replace mature Ash impacted by dieback (*Hymenoscyphus fraxineus*). Alternatively, (or ideally in addition to the above) a new mixed, native hedgerow could be planted on-site along the eastern and southern boundary to fill existing gaps, replace habitat and improve connectivity on site. Current plans propose the planting of 7 new trees across each aspect of the development. Hedgerows should be notch-planted in double staggered rows (45cm using 5 plants per linear metre), with plants

at 60-80cm height (except for holly), be individually staked with bamboo and spiral guards for protection while establishing, grown and managed to a 3m height include species of the following composition where possible; hawthorn 40%, hazel 30%, blackthorn 10%, spindle 5%, field maple 5%, holly 2.5%, wayfaring tree 5% and guelder rose 2.5%.

- Planting of a wildflower meadow area or margin

Wildflower margin

- 4.2. A wildflower area of at least seeded within the retained grassland would help enhance the existing species-poor, improved grassland and provide food for birds and invertebrates across the year. Suitable locations could include the south-western corner of the plot or a strip along the western fence line. This should also help to indirectly support breeding bird populations that have suffered long term population declines. This should aim to be a minimum of 240sqm² in size and use a wildflower meadow (species-rich) mix suitable for the soil type and could be supplemented with yellow rattle (*Rhinanthus minor*) to reduce the vigour of the grasses and maintain floristic diversity. Management should include;
- a. Annual cutting within, and along any grassland margins (around stock fencing will help maintain floristic diversity and minimise succession to scrub).
 - b. Most sown meadow wildflower and grass species are perennial and are very slow to germinate. They will not usually flower in their first growing season. Instead, a flush of annual weeds may grow up and obscure the meadow seedlings beneath initially. This annual weed growth is easily controlled by topping or mowing;
 - c. Mow newly sown meadows regularly throughout the first year of establishment to a height of 40- 60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wildflowers; Avoid cutting in the spring and early summer if the mixture has been sown with a nurse cover of cornfield annuals, or is autumn sown and contains yellow rattle. These sown annuals should be allowed to flower, then in mid- summer cut back; this cut will reveal the developing meadow mixture and give it the space it needs to develop; and
 - d. Dig out or spot treat any residual perennial weeds such as docks, especially in areas where they are very dominant/invasive.
 - e. After the first year, the wildflower area should ideally be managed via annual hay cuts in July/August, it is crucial to remove any cuttings after 1-7 days, with autumn and possibly spring mowing or grazing, to reduce nutrient enrichment issues. If cuttings cannot be removed after cutting, where diversity generally remains high, a flail mower can also be used. Yellow rattle will be sown at landowners' discretion to reduce the vigour of grasses.

Tree planting

- 4.3. Any new native species trees should be planted in accordance with following standard specifications and maintenance advice in order to achieve the optimal benefits. Site specific species choices should be advised by the appointed woodlands management advisor;

- a. Native species could include species such as English oak (*Quercus Robur*), Sweet cherry (*Prunus avium*), Silver Birch, (*Betula pendula*), Whitebeam (*Sorbus aria*) and should be 425mm – 600mm in height, with a girth of 14-16mm (size EHS) with a specification of; RB, clear stem 175-200mm.
- b. Bark mulch can be used to surround the base of the tree at an average depth of 75cm. Mulching will help protect the tree from competing weeds, shade the soil and trap necessary water to sustain root growth.
- c. Any dead, damaged (vandalism or otherwise) or dying specimens should be removed and replaced with the same species and age of plant to ensure continuity of habitat and connectivity.
- d. Water regularly and particularly throughout periods of warm, sunny weather.
- e. If tree stakes and ties are used when initially planted, these should be checked twice annually for damage and repaired as required.
- f. If used, bark mulch, should be topped up annually to an average of 75cm depth. The surrounding soil should also be forked over annual to aerate the soil.
- g. Hand weeding around the base of the tree to aid weed control. Non-residual herbicides should only be used when necessary.
- h. Once established or settled, trimming or pruning can be undertaken annually (outside of the bird breeding season as is application hedgerow management e.g. avoiding Mar – Aug inclusive).
- i. Replacement of any dead, dying or damaged tree's within the five years of planting will also help improve the appearance of the site in the interests of visual amenity in accordance with Policies EM1, EM10 and EM11 of the Basingstoke and Deane Local Plan 2011-2029.

Bat & Bird boxes

- 4.4. As records of a range of bat and bird species, including WaCA 1981 (as amended) and UK BAP priority species, have been returned from within the habitats surrounding the site, it is recommended that a number of roost/nest boxes are incorporated into the proposed development in order to improve the availability of roosting and nesting opportunities for these species group. However, full and proportionate enhancement recommendations for bats will be made following emergence survey completion.
- 4.5. It is recommended that two 2FN Schwegler Bat Box or equivalent (dependent on product availability, e.g., Beaumaris Bat Box, Vivara Pro Woodstone Bat Box) are installed on suitable retained trees or on other surrounding buildings nearby. The mature beech tree on the eastern boundary and the mature sweet horse chestnut on the western boundary of the plot would be a suitable locations. To maximise opportunity, multiple bat boxes can also be placed on the trunk of the same tree at a similar heights facing in different directions (south to southwest) to offer a choice between thermal conditions. The bat box should ideally be made of woodcrete, and be positioned at least 3-5m high, in a south or south-west facing direction with a clear flight path to and from the entrance (free from obstructions like branches or vegetation) and away from artificial light such as sensor operated flood lights. The bat box used as a 'provisional opportunity' during works can be kept in the same location as ecological enhancement. Please note that the inclusion of a bat box on a building, does not mean that bats will be attracted to roosting within the building itself. The installation of bat boxes within the vicinity of the buildings will provide additional roosting

habitat for bats. Bats often require time to locate new roosting sites, and it may be several years before a box is colonised.

- 4.6. It is recommended that the bird boxes to be installed within the completed development comprise one Schwegler 1B Nest Box (32mm entrance hole) and a barn swallow nest cup. The Schwegler 1B nest box will provide opportunities for birds such as house sparrow, blue tit, great tit, and nuthatch, and should be installed on suitable retained tree on the north-western boundary. The swallow nest cup could be installed on the new building where there is a suitable overhang or covered area within the eaves. Swallows prefer to nest high up inside of buildings, or where there is cover and should be encouraged to nest by attaching nest cups (to beams or rafters) or overhang boxes (to eaves/ridges) with an open bottom. These should be sited in an elevated location, with easy access through an open section, such as a covered entrance of a porch or other overhanging structures on a building. At least one swallow nest cup should be fitted in an attempt to attract this species to the site following development. A suitable location for this nest cup would be under the eaves which offer a deep overhang on the westerly end of the north-facing elevation. Alternatively, it could be fitted at the highest point, immediately beneath the eaves of any apex on the building (that does not already feature a bat box).

Other considerations

Biodiversity Net Gain

The environment Act for small-sites will be legally applicable from April 2024, requiring all developments in England to incorporate a mandatory 10% biodiversity net gain (BNG) with the inclusion of ensuring maintenance of these habitats for a minimum of 30 years. The original concept is set out in policy and operates in parallel to the Environmental Impact Assessment (EIA) process required by legislation. The NPPF states that a. planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity and b. should protect and enhance biodiversity and geodiversity as well as identify and pursue opportunities for securing measurable net gains for biodiversity. Whilst it is understood that this development and application type is not one which requires a biodiversity net gain statement prior to secondary legislation being implemented, all efforts have been made within the planning stages to incorporate biodiversity net gain, where possible to remain in line with local policy.

Connectivity is an important facet of habitats within BNG, as well as the proximity of replacement habitats to those lost. Further recommendations for any native landscaping of the area should include the use of;

- 'Wildlife-friendly' planting which should offer both food resources and shelter (where possible) for animals;
- Species which are native to the UK (e.g. Field maple, Rowan, hazel, oak, wild cherry, rowan, crab apple, hawthorn, blackthorn, Yew, Box).
- Wider-canopy or broadleaved tree species to replace those lost (e.g. maple, rowan, beech, silver birch, downy birch, hazel, oak).
- Species which are flowering/fruitletting (e.g. Elder, cherry, silver birch, holly, blueberries, Yew)
- Species which are attractive to native invertebrates and pollinators, including those that are overwintering (e.g., winter cherry, native oaks, jasmine, plums, poplars, willows and honeysuckle). A bloom calendar can be utilised within a tree planting scheme to ensure that there is a succession of pollen and nectar availability throughout the seasons. (E.g. Pussy willow and blackthorn blooms

early offering vital food sources for emerging mining bee's. Species such as Whitebeam or Rowan offer nectar sources at the end of the season.

- Connectivity for wildlife to use as sheltered corridors – this could include planting in a line and/or near within the proximity of other nearby tree's, hedgerows or densely vegetated areas. This can include structural and spatial planting so that the so that the canopies of trees on adjoining properties connect.
- Locally successful and climate change resilience species to optimise the chances of survival in local soil types, into the future. These species will typically have strong roots and be lower maintenance having adapted to flourish regionally or locally.
- No non-native, invasive species (e.g., rhododendron).

In preparation for upcoming mandatory BNG requirements, developers should be aware of the CIEEM recommended good practice principles to be followed, in conjunction with the mitigation hierarchy

Mandatory BNG principles

- Utilise the mitigation hierarchy to minimise impact on biodiversity
- Eliminate negative impacts on biodiversity that cannot be offset elsewhere
- Involve all pre-development and post-development stakeholders in forming mandatory net gain solutions
- Understand the potential risks and variable factors to achieving biodiversity net gain
- Determine a suitable method to secure measurable net gains for biodiversity
- Ensure the best possible outcomes from biodiversity net gain
- Offer nature conservation that exceed the BNG requirements
- Focus on generating long-term environmental benefits from biodiversity net gain
- Cover all areas of sustainability, incorporating economical and societal factors
- Communicate all biodiversity net gain outcomes with complete transparency

5.0. References

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6.0 Appendix

Appendix 1 – Protected Species Legislation

Bats

In England and Wales, all bat species and their roosts are legally protected under the Wildlife and Countryside Act (1981) (as amended); the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act (NERC, 2006); and by the Conservation of Habitats and Species Regulations (2019) (as amended). You will be committing a criminal offence if you

- Deliberately capture, injure or kill a bat
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat
- Intentionally or recklessly obstruct access to a bat roost

Barbastelle, Bechstein's, greater horseshoe, lesser horseshoe, brown long-eared, soprano pipistrelle, and noctule bats are all priority species under the UK Biodiversity Action Plan (UK BAP) and have also been adopted as species of principal importance in England under Section 41 of the NERC Act 2006.

Badgers

Badgers and their setts are afforded strict protection under the Protection of Badgers Act 1992. This Act consolidates past badger legislation and, in addition to protecting the badger itself, makes it an offence to damage, destroy or obstruct badger setts. Badgers are also protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended), and listed under Appendix III of the Bern Convention, as a species that is in need of protection but may be hunted in exceptional instances. Only badger setts that are currently in use are covered by wildlife legislation.

Birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy the nest or its eggs. Some bird species, such as the barn owl (*Tyto alba*), are listed in Schedule 1 of the 1981 Act and receive further protection, making it an offence to intentionally or recklessly disturb these birds whilst building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird. The NERC Act (2006) inserts a new schedule into the Wildlife and Countryside Act (1981) to protect the nests of some bird species that regularly re-use their nests, even when the nests are not in use. This protection currently applies to golden eagle, white-tailed eagle and osprey.

Reptiles

All British reptiles are listed under schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are therefore protected from intentional killing or injury. This is largely as a consequence of a national decline in numbers associated with habitat loss. Two scarcer native British reptiles (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*), are afforded 'full' protection. This legislation makes it an offence to intentionally or recklessly kill, injure, disturb, take, possess or sell these species (in all life stages). It is also illegal to damage, destroy or obstruct access to places they use for breeding, resting, shelter and protection. All species of reptile are priority species in the UKBAP and have been adopted as Species of Principal Importance under Section 41 of the NERC Act (2006) in England (Section 42 in Wales).

Amphibians

Great crested newts (GCN's) *Triturus cristatus* and their habitats are fully protected by the Conservation of Habitats and Species Regulations (2019) and partially protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to kill, injure or capture GCN's, their young or eggs, or destroy / damage their ponds or places of shelter used for breeding or protection. The great crested newt is also a Priority species in the UK Biodiversity Action Plan (UKBAP), and had been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act 2006. The natterjack toad *Epidalea calamita* is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2019 making it a European Protected Species. The natterjack toad is also a priority species under the UK Biodiversity Action Plan. The pool frog *Rana lessonae* is protected under the Conservation (Natural Habitats & C.) Regulations 1994 (as amended). As a European protected species the deliberate capturing, disturbing, injuring or killing of this species is prohibited, as is damage or destruction of its breeding sites or resting places. The pool frog is also a priority species under the UK Biodiversity Action Plan due to a 100% decline over 25 years (1980-2005). Common toads *Bufo bufo* are also designated UKBAP species due to a serious decline of populations across large areas of southern, eastern and central England, thought to be mainly due to changes in habitat management, mortalities on the roads, and climate change.

Dormice

Common dormice *Muscardinus avellanarius* and their habitats are fully protected by both the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations (2019). This legislation makes it an offence to kill, injure, disturb or capture dormice, or destroy or obstruct their resting or breeding places. The dormouse is also a priority species under the UK Biodiversity Action Plan and has been adopted as a species of Principal Importance in England under Section 41 of the NERC Act 2006 (section 42 in Wales) and so is protected from any adverse effects as a result of development.

Otters

Otters *Lutra lutra* are protected by both the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2019. This legislation makes it illegal to; deliberately or recklessly kill, injure or capture an otter, deliberately or recklessly disturb or harass an otter, damage, destroy or obstruct access to a breeding site or resting place of an otter.

The otter is also a UK BAP Priority Species and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act 2006 (Section 42 in Wales) and the Conservation (Scotland) Act in Scotland.

Water Voles

Water voles *Arvicola terrestris* are fully protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to kill or injure water voles, and to damage, destroy or obstruct access to places used for protection or shelter, and to disturb water voles whilst they occupy such a place. The water vole is also a Priority species in the UK Biodiversity Action Plan, and had been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act 2006.

White-clawed Crayfish

The white-clawed crayfish *Austropotamobius pallipes* is protected under the Wildlife and Countryside Act 1981 (as amended), making it a criminal offence to; intentionally or recklessly kill or injure a white-clawed crayfish, or sell or attempt to sell any part of this species. The Habitats Regulations (2019) provide further protection through the declaration of Special Areas of Conservation (SAC). This protection aims to prevent commercial harvesting of white clawed crayfish and prohibits their capture without a licence. The white-clawed crayfish is also a Priority species in the UK Biodiversity Action Plan (BAP), and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act 2006.

Hedgehogs

Hedgehogs are UK Biodiversity Action Plan (BAP) species, and therefore must be taken into consideration as part of development planning. A recent report (Wembridge, 2011) shows that hedgehog numbers have declined by 25% in the last ten years.

Stag Beetles

Stag Beetles *Lucanus cervus* are protected under section 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation prohibits The killing, injuring or taking of Stag Beetles; the damage, destruction, or obstruction of access to any structure or place which Stag Beetles use for shelter or protection; or the disturbance of Stag Beetles while they are occupying a structure or place which they use for that purpose.

Appendix 2 - Planning Policy and Legislation

Planning and Biodiversity

The biodiversity policies which are most relevant are the National Planning Policy Framework (NPPF, 2012), Biodiversity 2020, the Biodiversity Action Plan for Hampshire and the Basingstoke & Deane Local Plan (2011-2029).

National Planning Policy Framework (NPPF) 2019

NPPF aims to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Chapter 15 'Conserving and enhancing the natural environment' details what local planning policies should seek to consider with regard to planning applications.

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

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

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

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.

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

UK Biodiversity Action Plan & Habitats and Species of Principal Importance.

The UK Biodiversity Plan (BAP) was a programme designed to help conserve the UK's biodiversity. It led to the production of 436 action plans between 1995 and 1999 to help many of the UK's most threatened species and habitats to recover. A review of the UK BAP priority list in 2007 led to the identification of 1,150 species and 65 habitats that met the BAP criteria at UK level. Currently 56 Habitats of Principal Importance and 943 Species of Principal Importance are included within Schedule 41 of the NERC Act and these include species and habitats which were identified in the UK BAP and which continue to be considered to represent the conservation priorities of England in the UK Post-2010 Biodiversity Framework.

Species of Principal Importance and Habitats of Principal Importance are those identified as the most threatened and requiring conservation action under the Schedule 41 of the UK Biodiversity Action Plan & Habitats and Species of Principal Importance. Species include West European hedgehog *Erinaceus europaeus*, great crested newt *Triturus cristatus*, dormouse *Muscardinus avellanarius*, and common toad *Bufo bufo*.

Basingstoke & Deane Borough Local Plan (2011-2029)

Policy EM4 – Biodiversity, Geodiversity and Nature Conservation

1. Development proposals will only be permitted if significant harm to biodiversity and/ or geodiversity resulting from a development can be avoided or, if that is not possible, adequately mitigated and where it can be clearly demonstrated that:

- a) There will be no adverse impact on the conservation status of key species; and
- b) There will be no adverse impact on the integrity of designated and proposed European designated sites; and
- c) There will be no harm to nationally designated sites; and
- d) There will be no harm to locally designated sites including Sites of Importance for Nature Conservation (SINCs) and Local Nature Reserves (LNRs); and
- e) There will be no loss or deterioration of a key habitat type, including irreplaceable habitats; and
- f) There will be no harm to the integrity of linkages between designated sites and key habitats. The weight given to the protection of nature conservation interests will depend on the national or local significance and any designation or protection applying to the site, habitat or species concerned.

2. Where development proposals do not comply with the above they will only be permitted if it has been clearly demonstrated that there is an overriding public need for the proposal which outweighs the need to safeguard biodiversity and/ or geodiversity and there is no satisfactory alternative with less or no harmful impacts. In such cases, as a last resort, compensatory measures will be secured to ensure no net loss of biodiversity and, where possible, provide a net gain.

3. Applications for development must include adequate and proportionate information to enable a proper assessment of the implications for biodiversity and geodiversity.

4. In order to secure opportunities for biodiversity improvement, relevant development proposals will be required to include proportionate measures to contribute, where possible, to a net gain in biodiversity, through creation, restoration, enhancement and management of habitats and features including measures that help to link key habitats. Approaches to secure improvements could be achieved through:

a) A focus on identified Biodiversity Opportunity Areas and Biodiversity Priority Areas as identified in the councils Green Infrastructure Strategy (and subsequent updates) where appropriate; and through b) On-site and/ or off-site provision linked to new development in accordance with the council's adopted green space standards.

Implementation and Monitoring

The policy will be implemented through:

- Advice on and the determination of relevant planning applications; and
- Working in partnership with Natural England, the Hampshire and Isle of Wight Local Nature Partnership and Hampshire Biodiversity Information Centre.

The policy will be monitored against:

- The condition and extent of SSSIs and extent of council-owned SINCs in the borough
- Key semi-natural habitat lost to development
- Area of habitat creation/restoration associated with new development or on private land through council initiatives
- Increase in the area of council open spaces managed for biodiversity interest.

This monitoring will be reported through an annual Living Landscape Update, incorporating outputs from the relevant strategies/action plans above and relevant indicators arising from Biodiversity 2020 (when available).

Appendix 3 - Bat emergence survey results

Emergences are shown in orange.

Survey 1 27/07/2023				
Start: 20:48 Sunset: 21:01 End: 22:46				
Lead surveyor: Laura Kahane (level 2 bat licence, AMRSB) & Martin Stanley-Jones				
20°C, Cloud 1 (Oktas), Rain 0, Wind 1.				
Time	Species	Emergence	Foraging (F)/ Commuting (C)	Comments
21:24	Common pipistrelle	N	F	Bat flew close to the house from north on western elevation and headed south
21:26	Common pipistrelle	N	F	Bat flew past the south eaves of the house and close to the roof.
21:30	Myotis species	N	F	A myotis was seen foraging around the mature trees to the south of the site and adjacent treeline.
21:32	Common pipistrelle	N	F	Bat foraged around the eastern gable end of the house and the garden to the south.
21:34	Common pipistrelle	N	C	Bat flew from the east and headed west.
21:34	Common pipistrelle	N	F	2x pipistrelles foraged in the rear garden and circled the house clockwise for several minutes.
21:37	Common pipistrelle	N	F	Bat foraged in the garden and to east until 21:40.
21:39	Serotine	N	C	Commutated over head from the east to the west.
21:42	Myotis species	N	F	Seen flying around the western chimney and ridge momentarily and then within the treeline to the east.
21:44	Common pipistrelle	N	F	Bat foraged to the east of the garden for several minutes.
21:46	Myotis species	N	C	Bat flew from the south to the north.
21:49	Common pipistrelle	N	F	Foraging over the garden and grounds until 22:11.
21:55	Common pipistrelle	Y	E	Bat emerges from lifted hanging tile below upper window on western facing elevation of building (cam ref SW - 34:56)
22:11	Serotine	N	C	Commutated from the west to the east.
22:12	Common pipistrelle	N	F	HNS
22:13	Noctule	N	F	HNS
22:14	Serotine	N	F	HNS
22:17	Myotis	N	F	HNS
District/local or parish levels of common pipistrelle and Noctule and County levels of Myotis species and Serotine foraging and commuting activity.				

2 nd survey 23/08/2023 Start: 19:57 Sunset 20:11 End: 21:42 Lead surveyor: Laura Kahane (level 2 bat licence, AMRSB) and Martin Stanley-Jones 24°C, Cloud 3 (Oktas), Rain 0, Wind 0,				
20:01	Noctule	N	C	HNS
20:13	Myotis species	N	C	HNS
20:16	Noctule	N	C	Seen foraging to the west of the garden and around the mature trees until 20:31
20:27	Common pipistrelle	N	C	Bat flew from the eastern end of the building over western ridge and headed to the west.
20:28	Common pipistrelle	Y	E	Bat emerges from a lifted tile left of the chimney, near to the valley on south-facing aspect, 1ft down from ridge (observed in person) (Camera evidence ref: SW video at 1:36)
20:34	Common pipistrelle	N	C	2x pipistrelles flew over the ridge and towards the west.
20:43	Noctule	N	C	HNS
20:46	Common pipistrelle	N	F	A pipistrelle flew from an area in front of the house, then to the west and down the treeline. Heard until 20:54
20:49	Common pipistrelle	N		Bat seen flying up and down the eastern side of the building over the oil tank.
20:51	Common pipistrelle	N	F	Bat foraged over the rear garden and around the Beech tree.
20:58	Serotine	N	C	Bat passed from the north to the south. Tawny owl (<i>Strix aluco</i>) heard to the west.
20:58	Serotine	N	F	Committed over the garden from the north to the south. Heard until 21:13
21:01	Common pipistrelle	N	C	2x bats flew from the east to the west.
21:04	Noctule	N	F	HNS
21:07	Common pipistrelle	N	F	Heard until 21:21
21:16	Common pipistrelle	N	F	Present foraging in rear garden until 21:55
21:24	Barbastelle (call verified by county recorded)	N	F	Seen foraging up and down mature hedgerow on the northern boundary. Heard again in the rear garden to the south at 21:40 and 21:50.
21:35	Noctule	N	F	Foraged to the west over the grassland between the field to the west and the garden.

3rd survey 11/09/2023 Start: 19:15 Sunset 19:29 End: 21:14 Lead surveyor: Laura Kahane (level 2 bat licence, AMRSB), Martin Stanley-Jones 21°C, Cloud 3 (Oktas), Rain 0, Wind 0				
19:18	Noctule	N	C	Commuting from the north to the south.
19:36	Common pipistrelle	Y	E	Common pipistrelle emerged from the hip/ridge joint tile on the south-facing aspect of western elevation at 19:36.
19:38	Common pipistrelle	Y	E	14:52. Bat emerges from a tile gap on the right of the western elevation above the dormer window (Ref: SW 14:52).
19:41	Noctule	N	F	Eastern side of building and over garden.
19:46	Common pipistrelle	N	F	Bat foraged in the rear garden for several minutes.
19:48	Common pipistrelle	N	C	Bat travelled from the east to the west.
19:50	Myotis species	N	F	HNS
19:51	Common pipistrelle	N	F	Bat flew close to hanging tiles on the southern elevation.
19:52	Common pipistrelle	N	F	HNS Barn owl (<i>Tyto alba</i>) flew from the grassland to the east and then changed direction on seeing the surveyor and headed to the north.
19:52	Common pipistrelle	N		2x pipistrelles foraging in the eastern part of garden.
19:54	Common pipistrelle	N	C	Commuted north to southwest over garden.
19:58	Brown long-eared	N	F	Foraging over the rear garden for 4 mins.
19:58	Soprano pipistrelle	N	F	Soprano foraging up and down eastern side of building
20:00	Common pipistrelle	N	C	Travelled from the west to the east.
20:04	Common Pipistrelle	N	F	Circled the building for several minutes.
20:06	Serotine	N	F	Observed foraging in the rear garden and to the west.
20:06	Common pipistrelle	N	F	HNS.
20:10	Common pipistrelle	N	F	Seen foraging in the rear garden for 8 mins.
20:23	Barbastelle (call verified by county recorded)	N	F	Clear calls verified by two others. Foraged in the northern section of garden and treeline on the northern boundary for 4 mins.

20:30	Common pipistrelle	N	F	HNS
20:38	Common pipistrelle	N	F	Bat foraged around the house to the east for 2 mins.
20:47	Noctule	N	F	2x individual bats heard with social calls but HNS. Light rain lasted for 1 min.
20:48	Common pipistrelle	N	F	HNS
20:53	Common pipistrelle	N	F	HNS
21:00	Noctule	N	F	HNS – Bat foraged for several minutes. Social calls heard.
21:04	Common pipistrelle	N	F	HNS

District/local or parish level of foraging and commuting activity from Pipistrelle, Noctule, Serotine, Myotis and brown long-eared species and regional level for Barbastelle an annex II species.

Abbreviations: Heard not seen (HNS), Yes (Y), No (N), Foraging (F), Commuting (C)

Table 10. Results of value of commuting and foraging habitat for bats (adapted from Wray *et al.*, 2010).

<i>Species</i>	<i>Number of Bats</i>	<i>Roosts/potential roosts nearby</i>	<i>Type and complexity of linear features</i>	<i>Score</i>	<i>Geographic Frame of reference</i>
Common pipistrelle (2)	Small number of bats (10)	Small number (3)	Isolated woodland patches, less intensive arable and/or small towns & villages (3)	18	District/local or parish
Soprano pipistrelle (2)	Individual (5)	Small number (3)		13	
Myotis species (5)	Individual (5)	Small number (3)		16	
Brown long-eared (2)	Individual (5)	Small number (3)		13	
Serotine (5)	Individual (5)	Small number (3)		16	
Noctule (5)	Individual (5)	Small number (3)		16	County
Barbastelle (20)	Individual (5)	Small number (3)		31	Regional

Appendix 4 - Ecological Enhancement Recommendation Site Plan

