Preliminary Ecological Appraisal

Battisford Barns

for

Trustees of T A Harwood

19 January 2024

greenlight
environmental consultancy

Client
Trustees of T A Harwood

Planning authority
Mid Suffolk District Council

Time limit of reliance

Please note that the reported surveys were conducted on the date(s) stated in the report and that it represents site conditions at the time of the visit. The findings and recommended mitigation are based on these conditions. If site conditions change materially after the site survey, the original report cannot be relied upon and will need to be updated. Ecological reports and surveys can typically be relied on for 18 to 24 months from the date of survey.

Surveys supporting European Protected Species Mitigation Licence applications must be within the current or most recent survey season for bats (May to September), or within two survey seasons for great crested newts (March to June).

Document	Preliminary Ecological Appraisal
Version	1.0
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Reference number	3402
Author	Ebonie Lambo-Hills M.Sc, B.Sc (Hons), Natural England licences (Bat level 1 2022-10580-CL17-BAT, Great crested newt level 1 2022-10255-CL08-GCN, Barn owl Level 1 2023-11316-CL29-OWL)
Reviewer	Lucy Reed M.Sc, B.Sc (Hons), Natural England licences (Bat level 1 2019-43094-CLS-CLS, Great crested newt level 1 2020-44647-CLS-CLS, Barn owl level 1 2023-11281-CL29-OWL)

Signed disclosure

The information, data, advice and opinions provided in this report which I have provided is true and has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. I confirm that the opinions expressed are my true and professional bona fide opinions.

Nathan Duszynski, ACIEEM

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Table of Contents

SUMMARY

- Greenlight Environmental Consultancy Ltd. has been commissioned to carry out a Preliminary Ecological Appraisal for a proposed development at Battisford Hall, Battisford, Stowmarket, Suffolk, IP14 2HG (grid reference: TM 05606 54613).
- This report outlines the habitat features on site, the likelihood of protected species being present and any potential effects of the proposed development on such species.
- The ecology report is required in support of a planning application for the demolition and conversion of the existing structures on site into four residential dwellings.
- The survey and assessment were completed by independent, qualified and experienced ecologists with Natural England survey licences for the relevant protected species.
- The findings of the assessment are that the habitats on the site are of **moderate** ecological value and that there are no significant ecological constraints that would prevent the proposed works.
- **Further surveys/licences are required for great crested newts, bats, reptiles and dormice prior to works commencing to inform an ecological impact assessment and appropriate mitigation strategy, or for great crested newts to offset any adverse impacts via financial contributions.**
- If the following mitigation and enhancements are incorporated into the proposed layout, there will be a net gain for biodiversity, as is encouraged by the National Planning Policy Framework.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
Protected sites	Two statutory and seven non-statutory protected sites within 2km.	No significant impacts on protected sites and their qualifying features.	None required.
Protected habitats and habitats subject to conservation designations	Scrub and lowland mixed deciduous woodland (Priority Habitat) will be removed as part of the proposed works.	Low scale of habitat loss predicted for wildlife.	*Mitigation* Soft landscaping scheme to include: • The planting of new native species-rich hedgerows and trees between plots and around site. • At least 0.1ha of lowland mixed deciduous woodland to be planted. • Species-rich flowering lawn mixtures in all lawned areas, being rich in nectar and pollen. Construction work to be carried out in accordance with BSI (2012), BS 5837:2012, to protect trees and their root protection areas. Aquatic habitats adjacent the site to be protected from runoff and pollution from the proposed development.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
			Aquatic habitats will be clearly marked with temporary protective fencing, detailing no work zones.
Bats	Building one (grain store) and three (old mill) have **moderate summer** and **hibernation** bat roosting potential. Building two (open barn) has **high summer** and **moderate hibernation** bat roosting potential. Building four (cart lodge) has **low summer** and **hibernation** bat roosting potential. Buildings 5-10 have **negligible summer** and **hibernation** bat roosting potential. **Moderate** to **high** value commuting and foraging habitat on site. One pipistrelle sp. and one myotis sp. present within building two during survey. Previous surveys conducted by Greenlight Environmental Consultancy in 2019 confirmed the following: Building one: • Common pipistrelle, soprano pipistrelle and brown long-eared day roosts. Building two: • Natterer's maternity roost. • Brown long-eared, barbastelle and common pipistrelle day roosts.	Destruction of bat roosts present in buildings. Low scale loss and potential light disturbance of commuting and foraging habitats on site.	*Further surveys required* EPS mitigation licence required from Natural England prior to any works being conducted. At least three activity surveys will be undertaken on building two (open barn) between May-September, with two conducted between May-August. At least two activity surveys will be undertaken on building one (grain store) and building three (old mill) between May-September, with one conducted between May-August. At least one activity survey will be undertaken on building four (cart lodge) between May-August. At least two hibernation surveys will be undertaken on building one (grain store), two (open barn) and three (old mill) between December-February. *Mitigation (subject to change following nocturnal bat surveys detailed above)* In accordance with the latest survey guidelines (Collins, 2023), buildings assessed as low hibernation potential (building four) must consider alternative approaches to hibernation surveys, which comprises: • Works conducted outside the bat hibernation period between April and October. • Precautionary Working Method Statement to include a toolbox talk and soft roof/wall strip undertaken by hand. • One integrated bat box situated on the north aspect of the new dwelling to provide compensatory habitat. Any lighting schemes will comply with Bat Conservation Trust (GN08/23) and CIE 150:2017 guidance.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
Breeding birds	Nesting habitats for scrub, tree and building nesting birds present on site, including potential breeding habitat for Red and Amber listed species. Two main barn owl roosting locations and potential for nesting barn owls.	Low scale loss of nesting habitat on site. Potential disturbance to breeding birds. Loss of two barn owl roosting location. Potential loss of barn owl nesting location.	*Mitigation* Works to any scrub, trees and buildings on site to be conducted outside bird nesting season or under watching brief of ecologist if during nesting season. Installation of two barn owl nest boxes installed within 200m of site at least 30 days prior to work commencing. Installation of two integrated barn owl boxes, within building one (grain store) and building three (old mill). *Enhancement* Installation of four integrated swift boxes and six small bird boxes, installed on new buildings and trees respectively.
Great crested newts	Suitable terrestrial habitats on site. Five ponds within 250m of the site, four assessed as **average** to **good** suitability and one could not be accessed for detailed assessment. Site falls within Amber risk zone for district level licensing. Three GCN records within 2km. Previous presence/ likely absence surveys conducted by Greenlight Environmental Consultancy (2019) found a small population of GCN within one pond.	Potential harm to GCN if present on site during works. No impacts on potential GCN aquatic habitat.	*Further steps required* This can be in the form of either: • Further GCN surveys (presence/likely absence surveys conducted between mid-March and mid-June). The outcome of the surveys will inform a detailed mitigation strategy and whether an EPS Mitigation Licence will be required from Natural England. • Applying to join a District Level Licensing scheme to determine the required level of financial contribution to GCN mitigation, which can be completed at any time of year.
Reptiles	Habitats on site suitable. Two reptile records within 2km.	Potential harm to reptiles if present on site during works.	*Further surveys required* Further surveys for reptiles required in the form of a presence/absence survey to determine an appropriate mitigation strategy.
Hazel dormice	Habitats on site suitable. No dormouse records within 2km.	No impacts predicted.	*Further surveys required* Further surveys for hazel dormice required in the form of a presence/ absence survey to determine an appropriate mitigation strategy.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
Other animals	N/A	Potential harm to animals.	*Mitigation* If fencing is required, this will be porous and provide openings for hedgehogs. Rough sawn planks will be placed inside any open excavations. Construction materials will be stored off the ground on pallets and waste materials in skips. *Enhancement* Creation of two habitat piles. Installation of four bee bricks.

1. METHOD

1.1. A walkover of the site was conducted on 18th December 2023 by Lucy Reed and Ebonie Lambo-Hills – independent, qualified and experienced ecologists. Survey conditions were as follows: 7°C, 6mph wind and intervals of moderate to heavy rain.

1.2. All survey methods were carried out in accordance with the most up to date good practice guidance for the relevant protected species. Please refer to Appendix A for the full methodology and species breakdown.

1.3. The habitats on and directly adjacent the site were considered unsuitable for the following protected species, with no evidence or signs of use observed. No further surveys or mitigation for these species are detailed in this report:

- Water vole *Arvicola amphibius*
- Otter *Lutra lutra*
- White-clawed crayfish *Austropotamobius pallipes*
- Badger *Meles meles* (setts)
- Natterjack toad *Epidalea calamita*

2. SITE CONTEXT

Location

2.1. The general location of the site is shown in Figure 1 below.

2.2. The site is situated on the northern edge of the village of Battisford with the A14 located approximately 3.8km northeast. The closest town is Needham Market located approximately 3km east of the site.

2.3. The site is enclosed by an arable field to the north, residential dwellings with associated gardens, unmanaged grassland and scrub to the east, residential dwellings with associated gardens to the south and deciduous woodland to the west. The wider surroundings are comprised of a mixture of residential dwellings, blocks of woodland and arable fields lined with mature trees and hedgerows.

Figure 1
Satellite image of site surroundings, site indicated by red line.
Image © Google, date accessed 05/01/24

3. DESCRIPTION OF THE DEVELOPMENT

3.1. The proposals are for the demolition and conversion of the existing structures on site into four residential dwellings. Please refer to Appendix K for the proposed plans.

4. PROTECTED SITES

Statutory

4.1. There are two statutory protected sites located within 2km – two Sites of Special Scientific Interest ("SSSI"). Please refer to Appendix C for the full citation.

i. Hascot Hill Pit SSSI, approximately 0.8km southeast.

"This site is of geological interest as it is the only site known to expose a beach facies of the Red Crag, comprising beach cobbles and a littoral fauna."

ii. Combs Wood SSSI, approximately 1.9km north.

"Situated just to the south of Stowmarket, Combs Wood is an ancient woodland with a well-developed coppice with standards structure, on boulder clay overlain with variable amounts of sand and loess."

4.2. The proposed development falls outside of all SSSI Impact Risk Zones relating to rural residential developments.

Non-statutory

4.3. There are seven non-statutory protected sites located within 2km – six County Wildlife Sites ("CWS") and one Roadside Nature Reserve ("RNR"). Please refer to Appendix C for the full citations.

i. Upper Badley Wood CWS, approximately 0.5km north.

"A ditch, woodbank and hedge possibly medieval in origin enclose the entire wood. A large proportion of Upper Badley Wood is dominated by ash standards with abundant hornbeam coppice. The understorey is composed of Midland hawthorn, field maple and hazel. The ground flora is rather impoverished due to the dense shade cast by the hornbeam coppice."

ii. St John's Grove CWS, approximately 0.5km northwest.

"A significant feature of the wood is a ditch and woodbank, probably medieval in origin, which encloses it on all sides. A species-rich hedge mainly hawthorn, with blackthorn, hazel, spindle, dogwood and sallow borders the eastern and western edges."

iii. 48 RNR, approximately 0.9km southeast.

"Boulder clay flora. This site is also a Roadside Nature Reserve."

iv. Great Newton Wood CWS, approximately 1.2km east.

"The dominant species in the dense tree canopy are ash with some oak with smaller amounts of field maple coppice and hornbeam. Hazel coppice and occasional elder forms the shrub layer."

v. Little Newton Wood CWS, approximately 1.5km east.

"Little Newton Wood, together with Great Newton Wood situated close by, are important both as refuges for wildlife and as features in an intensively-farmed landscape. The entire wood is enclosed by a barbed-wire fence and a dense hedge consisting of hawthorn, dogwood and blackthorn."

vi. Muckinger Wood CWS, approximately 1.5km south.

"Muckinger Wood, a large ancient woodland is situated close to the Barking Woods, a number of which have been scheduled as Sites of Special Scientific Interest. The sinuous outline of Muckinger Wood is a characteristic feature of medieval woods. An internal and external ditch and bank system is another indication of the wood's antiquity."

vii. Keyfield Groves CWS, approximately 1.7km northeast.

"This small woodland is divided into two sections by a wide, shrubby track, known as the Badley Walk. This footpath is well-used by local people from Stowmarket and Needham Market. The northern woodland is composed of hazel and hornbeam coppice."

5. HABITATS

Desktop review

5.1. Priority Habitats to occur within 2km (identified using MAGIC – managed by Natural England), include Good Quality Semi-Improved Grassland, Deciduous Woodland, Traditional Orchards and Woodpasture and Parkland BAP Priority Habitat. The closest of which, is Deciduous Woodland located on site.

Field study

5.2. The habitats on the site are of **moderate** ecological value, being mainly bramble scrub, modified grassland and lowland mixed deciduous woodland (Priority Habitat).

5.3. Priority Habitats, as listed under the NERC Act 2006 Section 41 Habitats of Principal Importance found on site include: Lowland mixed deciduous woodland.

5.4. Figure 2 provides a map of the habitats present on the site. NERC Act 2006 Section 41 habitats have been identified where relevant. A full list of plant species recorded on site is attached in Appendix E.

Modified grassland (UK Habitat Classification g4; secondary code: 106 mown)

5.5. The site features several areas of modified grassland surrounding the buildings and used as an access track which have been mown. Species include: annual meadow grass *Poa annua*, common chickweed *Stellaria media*, cock's-foot *Dactylis glomerata*, creeping buttercup *Ranunculus repens*, dandelion *Taraxacum officinale*, ground ivy *Glechoma hederacea*, perennial ryegrass *Lolium perenne*, ribwort plantain *Plantago lanceolata*, white clover *Trifolium repens*, yarrow *Achillea millefolium* and Yorkshire fog *Holcus lanatus*.

Lowland mixed deciduous woodland (UK Habitat Classification w1f) – Primary Habitat

5.6. To the west of the site, there is a small section of lowland mixed deciduous woodland which is connected to the woodland adjacent the site. The section of woodland features a canopy of predominantly English Oak *Quercus robur,* field maple *Acer campestre* and horse Chestnut *Aesculus hippocastanum,* with an understorey of bramble *Rubus fruticosus* and elder *Sambucus nigra*. The ground flora of the section of woodland was dominated by nettle *Urtica dioica.* The woodland adjacent the site features a dense canopy with sparse understorey and ground flora.

Bramble scrub (UK Habitat Classification h3d, secondary code; 32 scattered trees and 519 abandoned)

5.7. The site is dominated by bramble scrub, which features several scattered ash *Fraxinus excelsior* saplings and has had no clear management within the last ten years. Within the bramble scrub, there are several pockets of unmanaged modified grassland which features a tall tussocky sward and is dominated by grasses, including cock's-foot and false-oat grass *Arrhenatherum elatius*.

Buildings (UK Habitat Classification u1b5)

5.8. There are several buildings on site that were originally used for agricultural purposes. Please refer to the bat section detailed below for further information.

Other developed land (UK Habitat Classification u1b6, secondary code; ruderal or ephemeral)

5.9. There are several tracks around the site which are comprised of concrete hardstanding. Within the cracks in the hardstanding, ephemeral vegetation is encroaching. Species include: annual meadow grass, bristly oxtongue *Helminthotheca achioides*, common chickweed, cock's-foot, groundsel *Senecio vulgaris*, hairy bittercress *Cardamine hirsute*, herb-robert *Geranium robertianum*, ragwort *Jacobaea vulgaris* and spear thistle *Cirsium vulgare*.

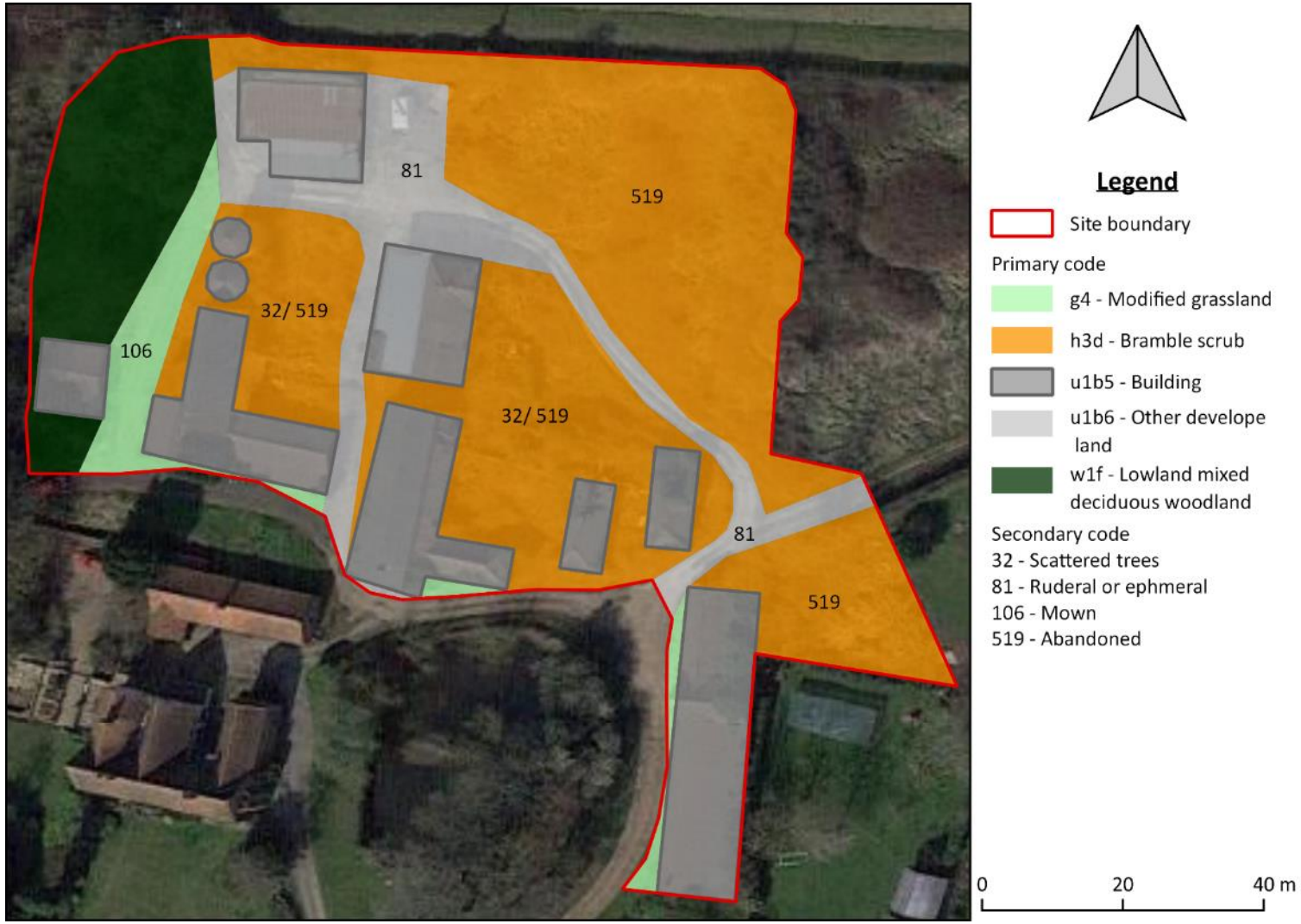

Figure 2
Habitats on site.
Image © QGIS, date accessed 05/01/23.

Photo 1, hardstanding and building four, looking south.

Photo 2, western aspect of building one, mown modified grassland and lowland mixed deciduous woodland, looking north.

Photo 3, lowland mixed deciduous woodland and building nine, looking northeast.

Photo 4, hardstanding, building three, eight and nine, and bramble scrub, looking northeast.

Photo 5, hardstanding, south and east aspects of building one, south aspect of building three and bramble scrub, looking south.

Photo 6, bramble scrub, hardstanding and building three, looking northwest.

Photo 7, bramble scrub and building three, looking west.

Photo 8, bramble scrub, with eastern aspects of building one and three, looking southwest.

6. PROTECTED AND NOTABLE SPECIES

Desktop review

Data search

6.1. The biodiversity data search within 2km of the site indicated 592 records from 122 species.

6.2. Records of note within 2km and relevant to the proposed development works are:

- 11 barn owl *Tyto alba* records, with the most recent from 2021.
- 13 skylark *Alauda arvensis* records, with the most recent from 2022.
- Nine swift *Apus apus* records, with the most recent from 2012.
- Three GCN *Triturus cristatus* records, with the most recent from 2020. The closest record is located adjacent south.
- Two reptile records, with the most recent from 2017. The closest record is located approximately 1.8km northwest. Species include: grass snake *Natrix helvetica*.
- Two badger *Meles meles* records, with the most recent from 2023. The closest record is located approximately 1.5km northeast.
- 17 hedgehog *Erinaceus europaeus* records, with the most recent from 2020.
- 16 bat records, with the most recent from 2022, including common pipistrelles *Pipistrellus pipistrellus*, soprano pipistrelles *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, Natterer's *Myotis nattereri* and barbastelles *Barbastella barbastellus*.

Protected species licences

6.3. A 2km search on http://www.magic.gov.uk/ indicated no records of granted European Protected Species ("EPS") Mitigation Licences.

Bats

6.4. There are 10 buildings located on site, as indicated in Figure 3 and photos 9-42.

Figure 3
Location and numbering of buildings located on site.
Image © QGIS, date accessed 05/01/24.

Building one – grain store

6.5. The grain store is a brick and timber weatherboarding construction which features significant ivy *Hedera helix* ingress on the south, east and west aspects. The roof is comprised of a mixture clay pantiles and corrugated asbestos.

6.6. Internally, the building has a combination of modern and original beams, with mortise and tenon joints, and a ridge beam. The roof is lined with lath and plaster where the pantiles are present, and timber sarking where the corrugated asbestos is present. There are several open doors present, which allow internal access.

6.7. On the eastern aspect, there is a brick and vertical timber weatherboarding extension, which features an unlined clay pantile roof. There are modern beams, a ridge beam and the building is in a bad state of repair, with the walls and roof collapsing on the north aspect.

6.8. Roosting opportunities are present under raised roof tiles, between and within the timber frame, along the ridge and within mortise and tenon joints. Although no bats or evidence of bats were observed, the building is suitable for crevice dwelling bats that typically roost under

roof tiles or between timbers. Therefore, evidence may be obscured by the roofing/wall linings and the lack of evidence cannot be used to confirm the absence of roosting bats.

6.9. Previous surveys conducted by Greenlight Environmental Consultancy Ltd. (2019) identified the building to be used as common pipistrelle, soprano pipistrelle and brown long-eared day roosts.

6.10. The building is assessed as **moderate** summer and **moderate** hibernation roost suitability for bats due to its location, roosting features and signs of bats. The building is classified as a non-classical hibernation site, being a building, which offers suitable cavities which will maintain a consistent microclimate, which is suitable for supporting a number of hibernating bats.

Photo 9, west and south aspects of building one, looking northeast.

Photo 10, north and east aspects of building one, looking northwest.

Photo 11, internal view of building one, looking south.

Photo 12, internal view of building one, looking north.

Photo 13, mortis and tenon joint and crack in beam highlighted in red which offers suitable roosting locations.

Photo 14, internal view of building one extension, looking east.

Building two – Open barn

6.11. The open barn is a timber framed structure, with timber weatherboard cladding and a large open doorway on the southern aspect. The roof is comprised of corrugated asbestos and clay pantiles.

6.12. Internally, the open barn features a mixture of modern and original beams, with mortise and tenon joints and a ridge beam. The asbestos roof is unlined whilst the tiled sections are lined with lath and plaster which is in poor condition. The weatherboard cladding has been rendered in some sections.

6.13. On the eastern aspect, the building has a brick extension, which features an unlined clay pantile roof which has partially collapsed. The building has modern beams, a ridge beam and significant ivy ingress.

6.14. Roosting opportunities are present between and within the timber frame, within mortise and tenon joints and under lifted tiles. One pipistrelle sp. *Pipistrellus sp.* was identified within a crack in a beam located on the eastern aspect of the barn. The bat was active and considered to be within a transitional/occasional roost. Furthermore, a myotis sp. *Myotis sp.* was identified within a mortise and tenon joint on the western aspect of the barn. Scattered droppings were present throughout the barn, consistent in size, structure and appearance with pipistrelle sp. and brown long-eared.

6.15. Previous surveys conducted by Greenlight Environmental Consultancy Ltd. (2016) identified a single barbastelle roosting behind a support pillar in the northern section of the barn during the initial inspection. Further nocturnal surveys conducted by Greenlight Environmental Consultancy Ltd. (2019) confirmed the building to be used as a Natterer's maternity roost and brown long-eared, barbastelle and common pipistrelle day roosts.

6.16. The building is assessed as **high** summer and **moderate** hibernation roost suitability for bats due to its location, roosting features and signs of bats. The building is classified as a non-classical hibernation site, being a building, which offers suitable cavities which will maintain a consistent microclimate, which is suitable for supporting a number of hibernating bats.

Photo 15, southern aspect of building two, looking north.

Photo 16, north and west aspects of building two, looking southeast.

Photo 17, eastern aspect of building two, looking west.

Photo 17, internal view of building two, looking north.

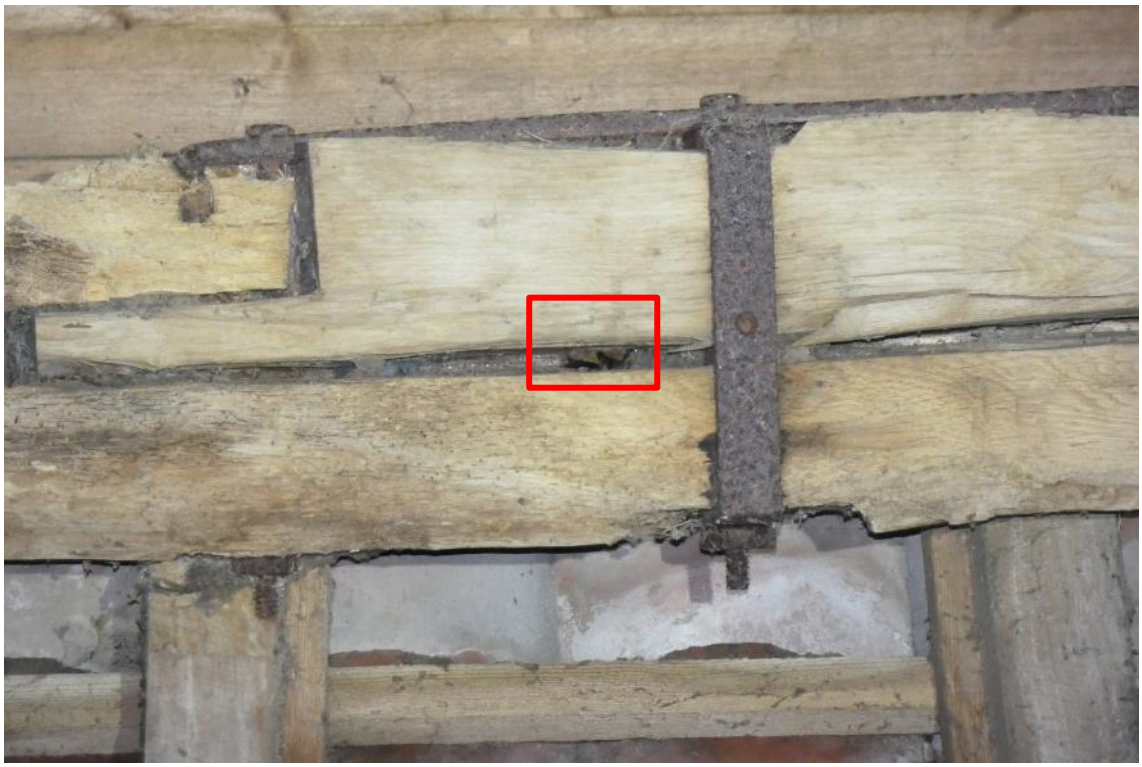

Photo 18, Pipistrelle sp. highlighted in red roosting within a crack in a beam in building two.

Photo 19, roosting location of Pipistrelle sp., highlighted in red along the eastern aspect of building two.

Photo 20, Myotis sp., roosting within a mortise and tenon joint highlighted in red.

Photo 21, roosting location of the Myotis sp., within a mortise and tenon joint along the western aspect of building two, highlighted in red.

Photo 22, north and east aspects of building two extension, looking southwest.

Photo 23, internal view of building two extension, looking east.

Building three – Old mill

6.17. The old mill is a brick and timber framed construction which features areas of timber weatherboarding and plastic sheeting where timbers have been lost. The roof is comprised of clay pantiles with open doorways allowing internal access within.

6.18. Internally, the building has modern beams, a ridge beam and is lined with lath and plaster, which is in poor condition. The building is split over two levels, with a ground floor and first level. The ground floor features unlined walls and an unlined timber ceiling. The first-floor walls are comprised of unlined timber weatherboarding and brick and weatherboard lined with timber sarking.

6.19. On the western aspect, the building features an open sided, lean-to extension, which features an unlined corrugated metal roof and timber supports.

6.20. Roosting opportunities are present under raised roof tiles, between and within the timber frame, under lifted areas of weatherboard, along the ridge and within gaps in the brickwork. Although no bats or evidence of bats were observed, the building is suitable for crevice dwelling bats that typically roost under roof tiles or behind weatherboarding. Therefore, evidence may be obscured by the roofing/wall linings and the lack of evidence cannot be used to confirm the absence of roosting bats.

6.21. The building is assessed as **moderate** summer and **moderate** hibernation roost suitability for bats due to its location, roosting features and signs of bats. The building is considered to be a

non-classical hibernation site, being able to maintain a consistent temperature and humidity, which is suitable for hibernating bats.

Photo 24, north and west aspects of building three, looking southeast.

Photo 25, south and west aspects of building three, looking north.

Photo 26, internal view of building threes first level, looking west.

Photo 27, internal view of building threes ground level, looking south.

Photo 28, gaps in brickwork which could offer suitable roosting opportunities on the western external wall of building three, looking east.

Building four – cart lodge

6.22. The cart lodge is a combination of brick, flint and timber construction which is open sided on the western aspect. The building has a mixture of clay pantiles on the western aspect and corrugated metal on the eastern aspect of the roof, which is in a bad state of repair.

6.23. Internally, the building is split into three sections which are of similar composition, with the end two sections being used as storage. The roof of the central section has partially collapsed. The walls and roofs are unlined and the building features modern timbers with a ridge beam present. The building is light and draughty throughout due to the open sides and collapsed roof.

6.24. Roosting opportunities are present between the brick and timber, and within cracks in brickwork. Although no bats or evidence of bats were observed, the building is suitable for crevice dwelling bats that typically roost under between timbers or within cracks in brickwork. Therefore, evidence may be obscured by the wall linings and the lack of evidence cannot be used to confirm the absence of roosting bats.

6.25. The building is assessed as **low** summer and **low** hibernation roost suitability for bats due to its location, roosting features and signs of bats. The building is classified as a non-classical hibernation site and is unlikely to be utilised by bats over winter, with limited hibernation roosting features. However, due to the uncertain nature of hibernation occurring with the Pipistrellus genus, unexpected incidents of hibernation could occur (Korsten *et al.*, 2016).

Photo 29, western aspect of building one, looking southeast.

Photo 30, internal view of the southern section of the cart lodge, looking north.

Photo 31, internal view of the central section of the cart lodge with a collapsed roof, looking east.

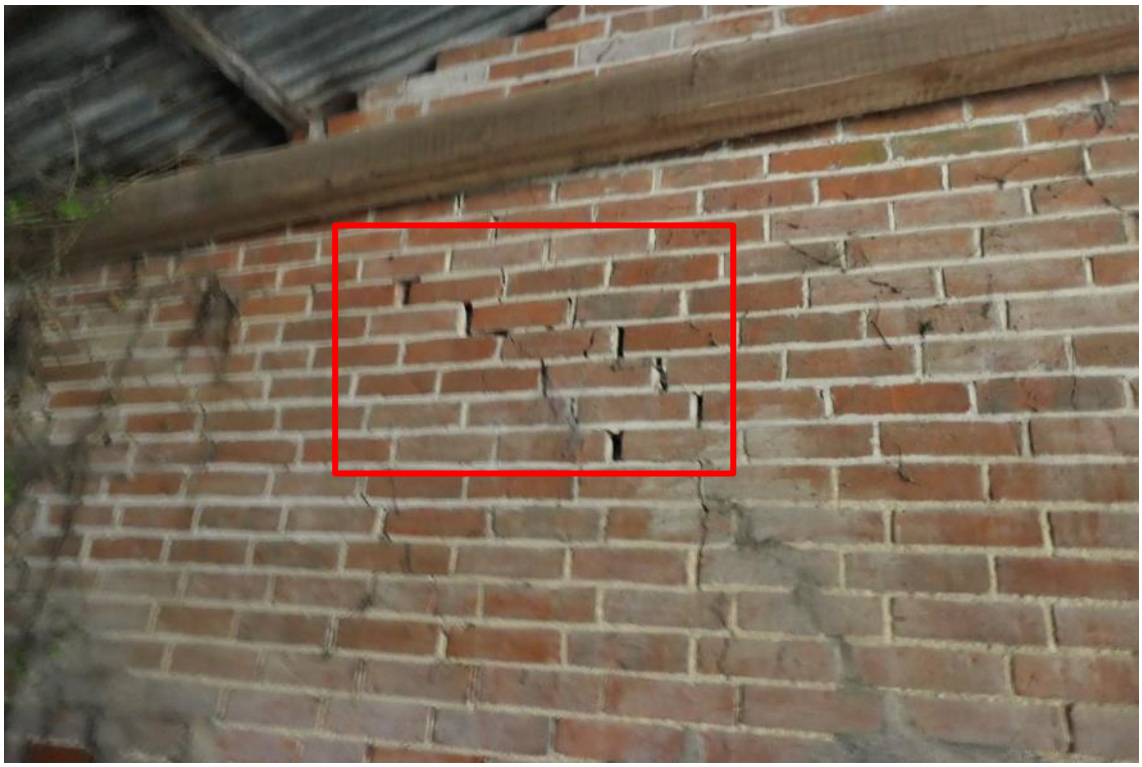

Photo 32, cracks in brickwork which could offer suitable roosting opportunities, highlighted in red and looking south.

Buildings 5-10

6.26. The buildings vary in construction and are comprised of:

- Building five – a brick, render and timber construction, which features an unlined clay pantile roof. The building has modern beams, a ridge beam and has collapsed on the northern aspect.
- Building six – a brick construction, which features an unlined clay pantile roof. The building has modern beams, a ridge beam and has collapsed on the northern aspect.
- Building seven – a timber-framed, open sided structure with timber weatherboarding on the north and south aspects and vertical timber cladding on the east as west aspects. The roof is comprised of unlined corrugated metal, with modern beams and a ridge beam present.
- Building eight – a timber framed construction which is open fronted on the south aspect and features a mixture of vertical cladding and corrugated metal walls which are unlined. The building has a flat unlined corrugated metal roof and modern beams.
- Buildings nine & ten – silos with metal walls and roof.

6.27. There were no signs of use by bats on the building exteriors or interiors and the structures provide unsuitable roost environments, with no suitable cavities for roosting bats. The buildings are assessed as **negligible** (summer and hibernation) roost suitability for bats.

Photo 33, eastern aspect of building five, looking east.

Photo 34, internal view of building five, looking east.

Photo 35, south and east aspect of building six, looking northeast.

Photo 36, internal view building six, looking southeast.

Photo 37, east aspect of building seven, looking west.

Photo 38, internal view of building seven, looking west.

Photo 39, west and south aspects of building eight, looking northeast.

Photo 40, internal view of building eight, looking south.

Photo 41, buildings nine and ten, looking northeast.

Trees

6.28. The trees around the site boundary were assessed for bat roosting potential and were considered unsuitable due to their age and/or lack of features.

Foraging and commuting links

6.29. The site itself provides **moderate** to **high** value foraging habitat for bats, with the woodland offering high value habitat, and the scrub and buildings providing connected flightpaths, which offer moderate value habitat.

6.30. The landscape immediately adjacent to the site is considered of **low** to **high** value for foraging and commuting bats, with the adjacent deciduous woodland offering high value habitat, the hedgerows and ponds offering moderate value habitat, and the arable fields offering low value habitat. Residential dwellings adjacent the site and within Battisford have the potential to provide roosting opportunities for bats.

Birds

6.31. Birds in the UK are classified into three categories of conservation importance - red, amber and green. Factors such as global threat level, population decline, breeding population decline and contraction of breeding range are taken into account to determine classification.

6.32. The following bird species were observed during the site visit:

Amber listed:

Black-headed gull	*Chroicocephalus ridibundus*
Moorhen	*Gallinula chloropus*
Woodpigeon	*Columba palumbus*

Green listed:

Blackbird	*Turdus merula*
Blue tit	*Cyanistes caeruleus*
Magpie	*Pica pica*
Robin	*Erithacus rubecula*

Introduced:

Pheasant	*Phasianus colchicus*
Red-legged partridge	*Alectoris rufa*

6.33. The site provides suitable nesting habitats for scrub, tree and building nesting species.

6.34. The site has the potential to support nests for the following Red listed species: linnet *Linaria cannabina* and yellowhammer *Emberiza citrinella*.

6.35. The site has the potential support nests for the following Amber listed species: bullfinch *Pyrrhula pyrrhula*, dunnock *Prunella modularis*, woodpigeon and wren *Troglodytes troglodytes*.

6.36. Please note, the species listed in the paragraphs above are not exhaustive, as birds can nest in unexpected locations. Additionally nesting parameters may change between years and following building/habitat management.

6.37. Although no barn owl nests were identified on site, approximately 10 barn owl pellets were present within building one and approximately 25 pellets were present within the first floor of building three. Both buildings are considered to be main barn owl roost locations due to the number of pellets present. Building one is also considered to offer suitable nesting locations with several raised platforms within the building. The site provides predominantly unsuitable foraging habitat, however pockets of unmanaged grassland present within the scrub offer suitable foraging habitat, providing a litter layer >7cm.

Photo 42, barn owl pellets within the first floor of building three highlighted in red.

Great crested newts

6.38. There are no ponds within the survey site and five further ponds within 250m, which for the size of the development and nature of terrestrial habitat on the site, is a sufficient distance to consider for assessment (Figure 4). GCN are most likely to occupy good quality terrestrial habitat within 250m of a breeding pond (English Nature, 2001).

6.39. The terrestrial habitats on the site are considered predominantly suitable for GCN, consisting of deciduous woodland and scrub, with areas of unsuitable hardstanding.

6.40. Terrestrial habitats adjacent the site include a mixture of unsuitable (arable fields and residential dwellings with associated gardens and hardstanding) and suitable (unmanaged grassland, scrub, hedgerows and deciduous woodland) GCN foraging, commuting and hibernating habitats.

6.41. Ponds 1-4 were assessed as **average** to **good** suitability for GCN (Table 3). Pond five was not assessed in detail, as authorised access to the pond was not available.

6.42. Previous presence/likely absence surveys consisting of bottle trapping, netting, an egg search and torching conducted by Greenlight Environmental Consultancy in 2019 identified a small breeding population of GCN within pond one, with a peak count of one induvial.

6.43. The site falls within the Amber risk zone for GCN district level licensing, which is classified as "*containing main population centres for GCN and comprise important connecting habitat that aids natural dispersal*" (Natural England, 2021).

Pond	1	2	3	4	5*
Geographic location	Zone A	Zone A	Zone A	Zone A	Zone A
	1.00	1.00	1.00	1.00	1.00
Pond surface area (m^2)	$800m^2$	$200m^2$	$400m^2$	$100m^2$	$<50m^2$
	0.99	0.40	0.80	0.50	0.05
Desiccation rate	Never	Never	Annually	Never	>2 years in 10
	0.90	0.90	0.10	0.90	0.50
Water quality/ invert density	Moderate	Moderate	Moderate	Moderate	Moderate
	0.67	0.67	0.67	0.67	0.67
Shoreline shade (%)	20%	30%	80%	30%	0%
	1.00	1.00	0.60	1.00	1.00
Waterfowl impacts	Minor	Minor	Absent	Minor	Absent
	0.67	0.67	1.00	0.67	1.00
Fish impacts	Possible	Possible	Absent	Possible	Absent
	0.67	0.67	1.00	0.67	1.00
Ponds within 1km	13+	13+	13+	13+	13+
	1.00	1.00	1.00	1.00	1.00
Terrestrial habitat quality	Moderate	Moderate	Moderate	Moderate	Moderate
	0.67	0.67	0.67	0.67	0.67
Macrophyte cover (%)	20%	10%	0%	10%	90%
	0.50	0.40	0.30	0.40	0.90
HSI Score	**Good**	**Good**	**Average**	**Average**	**Average**
	0.79	0.70	0.60	0.65	0.67
Presence/absence survey (2019)	Present	Absent	N/A	Absent	Absent

Table 3, HSI score for ponds within 250m of the proposed site. * Indicates HSI score from previous survey conducted by Greenlight Environmental Consultancy (2019).

Photo 43, pond one, looking north.

Photo 44, pond two, looking east.

Photo 45, pond three, looking southwest.

Photo 46, pond four, looking west.

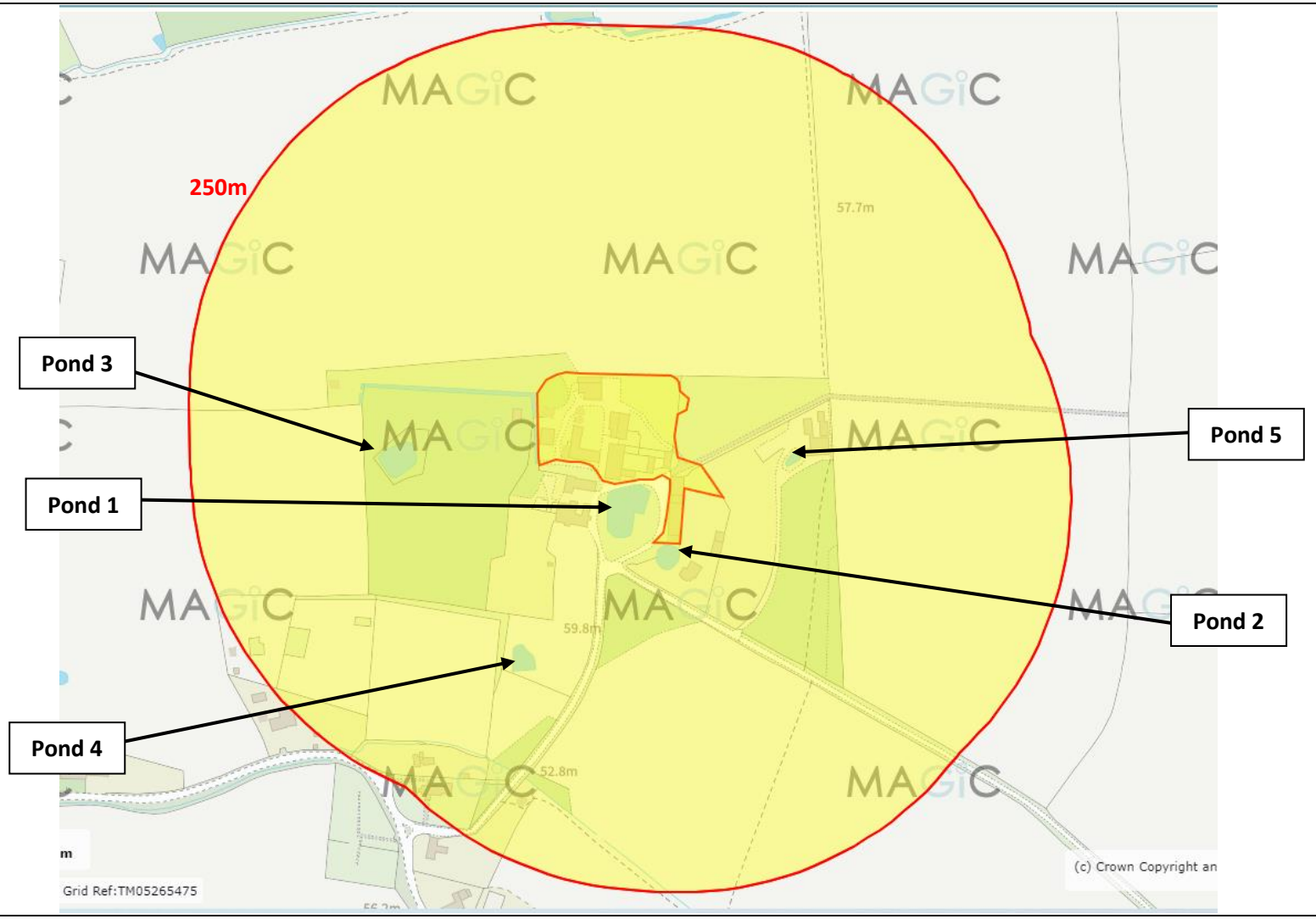

Figure 4
Ponds within 250m of the proposed site.
Image © MAGIC, date accessed 08/01/24.

Reptiles

6.44. The habitats on the site are considered predominantly suitable for reptiles, consisting of scrub with pockets of unmanaged grassland, and deciduous woodland.

6.45. Habitats located on the site boundaries including the base of the ditches could be used as commuting habitats by reptiles if they were present in the area.

6.46. Terrestrial habitats adjacent the site include a mixture of unsuitable (arable fields and residential dwellings with associated gardens and hardstanding) and suitable (unmanaged grassland, scrub, hedgerows and deciduous woodland) reptile foraging, commuting and hibernating habitats.

6.47. Previous presence/likely absence surveys conducted by Greenlight Environmental Consultancy in 2019 did not find any reptiles present during the surveys.

Dormice

6.48. The scrub onsite provides suitable habitat for dormice, being predominantly dense bramble scrub, which is connected to other suitable habitats adjacent the site including bramble scrub and hedgerows. The lowland deciduous woodland on and adjacent the site provides suboptimal habitat for dormice as it features a sparse understory and a large number of game birds.

6.49. The next closest deciduous woodland (identified using MAGIC) to the woodland onsite is 250m north of the site, greater than a hazel dormouse home range (≈70m, Bright *et al.*, 2006) and is ecologically separated by the arable field with no connecting hedgerows.

Other animals

6.50. The site is considered suitable for stag beetles *Lucanus cervus*, with deadwood present within the lowland mixed deciduous woodland offering suitable habitat.

6.51. The site offers nectar-rich pollen sources for a range of species from the scrub, deciduous woodland and pockets of unmanaged grassland.

7. DISCUSSION AND CONCLUSIONS

Protected sites

7.1. The development footprint falls outside all identified protected sites (statutory and non-statutory). There are two statutory protected sites and seven non-statutory protected sites located within 2km of the site.

- The closest statutory protected site (Hascot Hill Pit SSSI) is located approximately 0.8km southeast and designated for its plant and geology composition.
- The closest non-statutory protected site (Upper Badley Wood CWS) is located approximately 0.5km north of the site and designated for its ancient woodland.

7.2. The proposed development falls outside of any SSSI Impact Risk Zones relating to rural residential developments.

7.3. The proposed development is expected to have no effects on statutory or non-statutory protected sites or their qualifying features, owing to its relatively small scale, distance to protected sites and limited predicted impacts beyond the area of works.

Habitats

7.4. The proposed works will require the clearance of vegetated habitats on site, including ≈0.4ha of bramble scrub, ≈0.1ha of lowland mixed deciduous woodland (Priority Habitat) and <0.1ha of modified grassland. This is expected to result in a low scale loss of nesting habitat for scrub and tree nesting birds, and a low scale loss of foraging features for bats. Please refer to the bat section below for predicted impacts on buildings with potential bat roosts.

7.5. As a precautionary measure, the following mitigation will be implemented to avoid impacts on habitats from the proposed works:

i. A soft landscaping scheme to include:
   a. The planting of new native species-rich (≥5 species), hedgerows and trees between plots and around the site (see Appendix F for suggested species).
   b. The planting of at least 0.1ha of lowland mixed deciduous woodland (Priority Habitat) to compensate for the removal of the existing woodland.
   c. The planting of species-rich native flowering lawn mixtures in lawned areas of gardens, which are rich in nectar and pollen (see Appendix F for suggested seed mix).
ii. Construction works carried out in accordance with British Standards Institution (2012), BS 5837:2012, Trees in relation to design, demolition and construction – recommendations, to protect trees which are to be retained and their root protection areas.

iii. Aquatic habitats adjacent the site to be protected from runoff and pollution from the proposed development. This will include the production of environmental management systems and/or permits (where applicable), pollution incident response plans, the use of spill kits, plant nappies, designated refuelling stations and storage of machinery, materials and site compounds ≥10m from aquatic habitats.

iv. Aquatic habitats will be clearly marked with temporary protective fencing, detailing no work zones (including storage of materials and soil).

Bats

7.6. The proposed works will require the demolition and conversion of all the buildings on site, which will materially modify and destroy bat roosting locations.

7.7. The following surveys/mitigation are required to determine bat species are present, the nature of their use of the buildings and any roosting locations:

i. In order to be able to proceed with the proposed works and to ensure that no detrimental impacts will result on the species, a European Protected Species mitigation licence from Natural England will be required.

ii. At least three bat activity surveys will be conducted on building two (open barn) between May and September. Please note, at least two surveys must be conducted between May and August.

iii. At least two bat activity surveys will be conducted on buildings one (grain store) and three (old mill) between May and September. Please note, at least one survey must be conducted between May and August.

iv. At least one bat activity survey will be conducted on building four (cart lodge) between May and August.

v. At least two bat hibernation surveys will be conducted on the building one (grain store), two (open barn) and three (old mill) between December and February.

vi. If bats are found to be present and roosting within any building(s), further activity surveys and a European Protected Species Mitigation Licence may be required for the development.

vii. Building four (cart lodge) is assessed as low hibernation potential and classified as a non-classical hibernation site. In accordance with the latest survey guidelines (Collins, 2023), buildings assessed as low hibernation potential must consider alternative approaches to hibernation surveys, which have been outlined below (subject to change, following completion of the nocturnal bat surveys detailed above):

a. Works will be undertaken outside the main bat hibernation season between April and September. If work is planned during the bat hibernation season (November-March), at least two bat hibernation surveys will be conducted on the building one (barn) between December and February.
b. Precautionary Working Method Statement to include a toolbox talk prior to works commencing (detailing bat signs, potential roosts/access points, what to do if bats are found and activities to avoid that might cause high vibrations or noise) and a soft roof strip and demolition of the walls undertaken by hand.
c. One integrated bat box situated on the north aspect of the new dwelling to provide compensatory habitat (Bat Block – Appendix G).

viii. Any lighting schemes will follow guidance from the Bat Conservation Trust (GN08/23) and CIE 150:2017. Warm-white (<3,000K) lights with UV filters (where necessary) will be installed away from roosting locations and linear features. Lighting units will feature a beam angle <70°, connected to movement sensors and feature baffles, hoods, louvres and horizontal cut off units at 90° where necessary.

7.8. The outcomes of further activity surveys will inform the detailed recommended mitigation for bats. We consider that the proposed development will be able to accommodate this in the form of alternative roosting opportunities, as required.

7.9. Building Regulations state that the energy efficiency of buildings must be improved where possible and that contractors must assess the condensation risk within the roof space and make appropriate provisions in line with BS 5250:2011. This British Standard states that both High Resistance (bitumen type 1F) and Low Resistance (non-bitumen coated roofing membranes (NBCRM)) underlays are acceptable as long as appropriate ventilation is provided. As NBCRM are proven to entangle bats through regular contact, which also compromises the integrity of the membrane, the Bat Conservation Trust recommend only NBCRM that have passed the snagging propensity test (must be supplied/installed with the necessary certification) or traditional type 1F bitumen are used.

Birds

7.10. The proposed works are expected to result in a low scale loss of bird nesting habitat, including potential barn owl roosting location through the conversion and demolition of all the buildings and clearance of vegetation, including scrub and deciduous woodland.

7.11. As a precautionary measure, the following mitigation will be implemented to avoid impacts on birds from the proposed works:

i. Any works affecting bird nesting habitat such as management of scrub, trees or buildings would ideally need to be conducted outside the main nesting season. If work is planned during the bird nesting season (between 1st March and 31st July), then a precautionary check of all habitats will be conducted by a qualified ecologist immediately prior to starting any work. If any nesting birds are found, an appropriate protection zone from the nest will be required and will be maintained until the young have fledged.
ii. Installation of two barn owl nest boxes (External Barn Owl Box - Appendix G), installed on suitable trees within 200m of the existing building at least 30 days prior to work commencing.
iii. Installation of two integrated owl boxes, to installed within the converted mill and grain barn (Appendix G for design).

7.12. As enhancements, the following will be implemented:

i. Four integrated swift boxes (Swift Block – Appendix G).
ii. Six small bird boxes (Schwegler 1B or 2H Nest Box – Appendix G).

7.13. Natural England and Local Planning Authorities ("LPA") have recognised a significant decline in swift populations across the country, and are actively endorsing integrated swift boxes to provide a net gain in biodiversity, as is encouraged by National Planning Policy Framework (NPPF) 2023.

Great crested newts

7.14. The proposed works are expected to result in a loss of ≈0.9ha terrestrial habitat (≈0.4ha of bramble scrub, ≈0.1ha of lowland mixed deciduous woodland, <0.1ha of modified grassland and 0.4ha of buildings and hardstanding), with aquatic habitats unaffected.

7.15. Taking a worst-case scenario of 0.5-1ha of land being lost or damaged within 100m of a breeding pond (pond one), the risk assessment calculation (set out in the GCN method statement template provided by Natural England) indicates an "*offence highly likely*".

7.16. As GCN may commute across the site to reach ponds in the local vicinity, further steps are required to inform the planning application. This can be in the form of the following methods:

i. Further GCN surveys:
    a. Presence/likely absence surveys on ponds within 250m of the site which contain sufficient levels of water during the GCN breeding season (can only be conducted between mid-March and mid-June). Please note, a number of visits are required in the peak season (mid-April to mid-May).

b. The outcomes of the presence/likely absence will inform a detailed mitigation strategy for GCN and whether a district level license or EPS Mitigation Licence will be required from Natural England for the proposed development to proceed.

ii. Apply to join a district level licensing (''DLL'') scheme (can be completed all year round). Please note, all ponds will be assumed to contain GCN unless presence/likely absence surveys or eDNA tests have confirmed likely absence.

Reptiles

7.17. The proposed works are expected to result in a low scale loss of terrestrial habitats, through the clearance of ≈0.4ha of bramble scrub, ≈0.1ha of lowland mixed deciduous woodland and <0.1ha of modified grassland. This involves a risk of injuring or killing individual reptiles potentially present within the site.

7.18. The following surveys are required to determine if any reptile species are present and their population size:

i. A reptile presence/absence survey to be conducted in the appropriate season (optimally in April, May or September) to determine an appropriate mitigation strategy, which could include trapping and translocation of animals on site, and creation of reptile hibernacula.

7.19. The outcomes of the presence/likely absence surveys will inform the detailed mitigation for reptiles. We consider that the development will be able to accommodate this in the form of habitat creation, hibernacula construction and translocations, if required.

Dormice

7.20. The proposed works will require the clearance of suitable and suboptimal habitats, including ≈0.4ha of bramble scrub and ≈0.1ha of lowland mixed deciduous woodland. As hazel dormouse may disperse from the scrub and woodland on and adjacent the site, proposed works have the potential to injure, kill or destroy hazel dormice and their nests/habitats.

7.21. The following surveys are required to determine whether dormice are present onsite:

i. Dormouse presence/absence survey to be conducted in the appropriate season (April-November) to determine an appropriate mitigation strategy.

7.22. The outcomes of the presence/likely absence surveys will inform the detailed mitigation for hazel dormice. We consider that the development will be able to accommodate this in the form of habitat creation if required.

Other animals

7.23. The surrounding habitat of the site is considered suitable for hedgehogs. To maintain potential hedgehog routes within the site and between the site and further habitats, any fencing installed will be porous and provide access openings for hedgehogs (see Appendix H for examples).

7.24. General mitigation to protect wildlife during the construction period are as follows:

i. Any excavations will have a rough sawn plank placed inside to act as a ramp to allow any animals that have fallen in to escape. The excavations will be checked each morning works are scheduled for, to remove any animals trapped.

ii. Construction materials will be stored off the ground on pallets and waste materials in skips, to prevent providing shelter for animals and subsequent harm when materials are moved.

7.25. As enhancements, the following will be implemented:

i. Two log piles will be created on site using the remains of the felled trees (Appendix I). Once the wood has begun to decay/rot, it will become suitable for a wide variety of wildlife, including stag beetles.

ii. The installation of four bee bricks on converted buildings (Bee brick – Appendix J).

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Appendix A
Methods

Desktop Review

A desktop review of published data, such as records of protected sites and species, OS maps and satellite images has been carried out. A data search was carried out with the Suffolk Biodiversity Information Service ("SBIS").

A field survey visit was conducted to confirm the findings of the desktop review and to record habitats and species located on site.

Equipment available for use during the survey were binoculars, ladders, torches, endoscope and a digital camera.

Habitats

The habitats on site have been defined using the UK Habitat Classification Version 2.0 (UKHab Ltd, 2023). Natural Environment and Rural Communities (NERC) Act (2006) habitats listed under section 41 have been identified where appropriate.

Bats

An assessment of the habitats on and surrounding the site for bat interest was made, in accordance with latest bat survey guidelines (Collins, 2023).

The buildings on site was assessed for its potential to support roosting bats and involved a thorough internal and external search of all suitable cavities, holes and crevices. All suitable areas, including objects, ledges and floors were inspected for the following signs:

- Bat droppings
- Stains around roosting places and entrance points
- Urine marks
- Prey remains
- Areas devoid of cobwebs
- Live or dead bats
- Suitable cracks and crevices for bats to enter

In exposed conditions, the signs of bat usage such as droppings and urine marks can be obliterated by heavy rain.

An evaluation system was applied to the building(s) using the following criteria:

- **Suitability – none.** No habitat features on site likely to be used by any roosting bats at any time of year i.e. a complete absence of crevices/suitable shelter at all ground/underground levels.
- **Negligible roost suitability for bats.** These buildings have no obvious potential roosting features for bats, or minor features in an isolated or unsuitable location such that the presence of a bat roost is considered highly unlikely. However, a small element of uncertainty remains as bats can use small and

apparently unsuitable features on occasions. Such buildings usually fall into two main types: generally, well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall, or without an attic space; or those which contain some or all of the above features, but are both draughty and thick in cobwebs or contain strong odours such as solvents, diesel etc. It must be borne in mind that a building from this latter group can become suitable for bats following refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment. When no suitable habitats for bats are found, no further surveys or European Protected Species ("EPS") mitigation licence are required.

- **Low roost suitability for bats.** Buildings in this category have one or more potential roost sites that could be used by individual bat opportunistically. These buildings do not however provide suitable conditions (such as space, shelter, temperature, humidity, or light and noise disturbance) to be used on a regular basis by a large number of bats. Structures with low roost suitability for bats will require **one dusk emergence survey** conducted between May and August to assess their current use by bats.
- **Moderate roost suitability for bats.** These buildings contain one or more potential roosting sites which could be regularly used by bats owing to their size, shelter, protection and conditions. These buildings are however unlikely to support a roost of high conservation status (maternity roost or hibernation roost). Structures with moderate roost suitability for bats will require two surveys, **two dusk emergence surveys** conducted between May and September with at least one of the surveys undertaken between May and August, to assess their current use by bats.
- **High roost suitability for bats.** This group includes buildings with one or more potential roost sites which are obviously suitable for use by a larger number of bats on a regular basis and potentially for longer periods of time owing to their size, shelter, protection and conditions. These buildings may support a roost of high conservation status (maternity roost or hibernation roost) and will require three activity surveys to assess their current use by bats. The surveys should include at least **three dusk emergence surveys** conducted between May and September with at least two of surveys undertaken between May and August.

Trees on and around the site were assessed for their suitability to support roosting bats. The assessment involved a ground level inspection of the exterior of the trees to search for features offering roosting potential to bats such as split limbs, woodpecker holes, cavities, lifted bark, dense thick-stemmed ivy, etc.
An evaluation system was applied to the trees using the following criteria:

- **Suitability - none.** Either no potential roosting features in the tree or highly unlikely to be any. Trees highly unlikely to be used by roosting bats.
- **Further Assessment Required.** Further assessment required to establish if potential roosting features are present in the tree.
- **Potential Roosting Feature – Individual ("PRF-I").** Potential roosting features only suitable for individual bats or very small numbers of bats, either due to the size of lack of suitable surrounding habitats i.e. trees with limited roosting potential.

- **Potential Roosting Feature – Multiple ("PRF-M").** Potential roosting features suitable for multiple bats and may therefore be used by a maternity colony.

The habitats on and around the site were assessed for their commuting and foraging potential for bats. An evaluation system was applied to the commuting and foraging potential using the following criteria.

- **Suitability – none.** No habitat features on site likely to be used by any commuting or foraging bats at any time of year i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats.
- **Negligible commuting and foraging potential for bats.** Habitat features unlikely to be used by commuting or foraging bats i.e. no obvious flight-paths or foraging opportunities. However, a small element of uncertainty remains in order to account for non-standard bat behaviour.
- **Low commuting and foraging potential for bats.** Habitats that could be used by a small number of commuting or foraging bats such as, a gappy hedgerow, unvegetated stream or lone trees, but are isolated and not well connected to the surrounding landscape.
- **Moderate commuting and foraging potential for bats.** Habitats that are continuous and connected to the wider landscape such as, lines of trees, scrub, linked back gardens, grasslands and water features.
- **High commuting and foraging potential for bats.** Habitats that are continuous and connected to the wider landscape such as, river valleys, watercourses, hedgerows, lines of trees, deciduous woodland, and grazed parkland. These habitats are likely to be used regularly by commuting or foraging bats and are likely to be close to, or connected to, known roosts.

Birds

The site and its surrounding habitats were assessed for their potential to support breeding birds. Bird nesting habitat could include grassland, hedgerows, scrub, trees and buildings.

Bird species noted during the site visit were recorded. Trees, buildings and grassland were checked for use by barn owls, swifts and skylarks.

Great crested newts

Habitats on and near the site were assessed for their suitability for great crested newts ("GCN").

Water features on and near the site were assessed for their suitability for occupation by GCN, according to a Habitat Suitability Index ("HSI"). The HSI is a theoretical index of a waterbody's suitability to support a breeding population of GCN and is calculated from a series of ten variables recorded on site, as detailed in Table 3.

Indices	Name	Description
SI1	Geographic Location	Lowland England or upland England, Scotland and Wales
SI2	Pond area	To the nearest 50m²
SI3	Permanence	Number of years' pond dry out of ten
SI4	Water quality	Measured by invertebrate diversity
SI5	Shade	Percentage shading of pond edge at least 1m from shore
SI6	Fowl	Level of waterfowl use
SI7	Fish	Level of fish population
SI8	Pond count	Number of ponds within 1km divided by 3.14
SI9	Terrestrial habitat	Quality of surrounding terrestrial habitat
SI10	Macrophytes	Percentage extent of macrophyte cover on pond surface

Table 3, HSI indices.

The HSI score is the geometric mean of the ten suitability indices calculated:

HSI = (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10)1/10

Once calculated, the HSI score for a waterbody can be categorised as follows:

Excellent (>0.8)

Good (0.7 – 0.79)

Average (0.6 – 0.69)

Below Average (0.5 – 0.59)

Water voles, otters and white-clawed crayfish

Water features on and adjacent to the site were assessed for use by water vole, otter and white-clawed crayfish. Otters in England typically use areas of fresh water and streams and ditches for moving between habitats. Otter holts are usually located underneath tree roots, in tunnels. Field signs of presence include spraints on prominent features such as bridges, tree bases or boulders, and footprints.

Water voles inhabit burrows in the banks of ponds, ditches, streams and rivers. Field signs include droppings left in latrine spots, burrow entrances or feeding remains.

White-clawed crayfish inhabit streams and rivers with a moderate flow rate, and lakes. Clear, well-oxygenated water is preferred. Typical habitat features include crevices in rocks, gaps between stones, submerged plants and tree roots.

Reptiles

The habitats on the site and within the proposed area of works were assessed for suitability for reptiles.

Reptiles rely on conditions that allow them to maintain their body temperature through basking. They require access to direct sunlight, shelter from the elements, sufficiently large populations of prey species and hibernation sites.

Reptiles typically favour a habitat mosaic with a diverse vegetation structure, which could include grassland, scrub and woodland.

Badgers

An inspection of all habitats with the potential to support badger *Meles meles* sett construction and foraging activities on the application site was undertaken. Any incidental observations of badger signs were also recorded. The survey comprised searching for evidence of badger activity in the form of setts, droppings, pathways, snuffle holes, hair and footprints.

Dormice

Dormice habitats include deciduous woodland, hedgerows and scrub. Dormice are found mainly in the south of England, including Kent and Sussex, with sporadic populations elsewhere. An assessment of the suitability of site habitats for occupation by dormice was made.

Other protected species

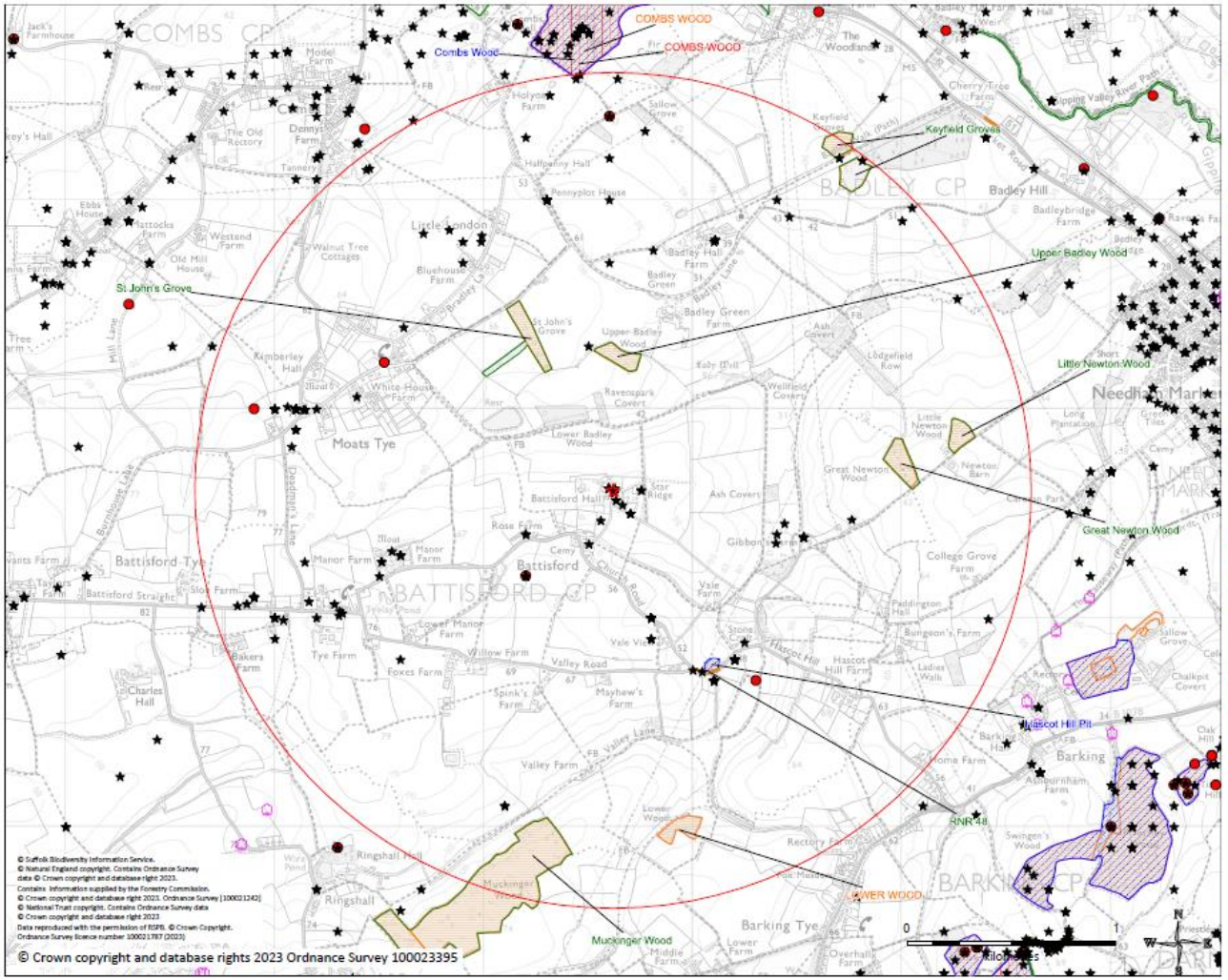
Particular regard was made to the nature of the proposed development and the potential of impact upon any other protected species, species which are nationally or locally scarce, or species subject to other conservation designations such as Red Data Book or Priority S41 species, from the development work, should these be present in the area.

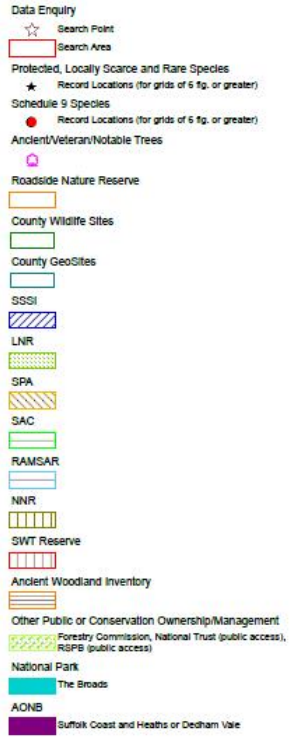
Constraints

The field survey was conducted outside of the optimal survey period for flowering plants. Although the habitats recorded on site are unlikely to change to those described in this report, flora biodiversity is likely to be under recorded.

Several buildings on site were partially collapsed and due to health and safety precautions, were unable to be fully inspected. Although potential bat roosting features are unlikely to change to those described, roosting features and evidence of bats within several buildings could be under recorded.

Appendix B
Map of protected sites within 2km





Greenlight (Battisford Barns TM05617 54609) 2km Data Enquiry

SBIS SUFFOLK BIODIVERSITY INFORMATION SERVICE

Date: 29/11/2023| Drawn by: Andy Mercer

Appendix C
Protected sites citations

SSSI citations

COUNTY: SUFFOLK SITE NAME: COMBS WOOD

DISTRICT: MID SUFFOLK

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: Mid Suffolk District Council

National Grid Reference: TM 055568 Area: 14.33 (ha.) 35.41 (ac.)

Ordnance Survey Sheet 1:50,000: 155 1:10,000: TM 05

Date Notified (Under 1949 Act): 1954 Date of Last Revision: 1972

Date Notified (Under 1981 Act): 1982 Date of Last Revision: 1987

Other Information:
This site is owned and managed by the Suffolk Trust for Nature Conservation.

Description and Reasons for Notification:
Situated just to the south of Stowmarket, Combs Wood is an ancient woodland with a well developed coppice with standards structure, on boulder clay overlain with variable amounts of sand and loess. The consequent range of soil types has led to the development of a variety of woodland types. Pedunculate oak-hornbeam woodland is predominant, with areas of typical ash-maple woodland, this grading into the heavy soil form of pedunculate oak-hazel-ash woodland where the soils are more acid.

The pedunculate oak-hornbeam woodland consists mainly of tall coppice of hornbeam *Carpinus betulus*, with some ash *Fraxinus excelsior* and field maple *Acer campestre* and scattered standards of pedunculate oak *Quercus robur*. The shrub layer is poorly developed, with occasional hazel *Corylus avellana*, midland hawthorn *Crataegus oxycanthoides* and elder *Sambucus nigra*. The ground flora is sparse, and consists mainly of dog's mercury *Mercurialis perennis* and bramble *Rubus sp.*, with early dog violet *Viola reichenbachiana*. The ash-maple woodland is dominated by coppice of ash, with frequent hazel and occasional field maple. There are occasional standards of pedunculate oak. The shrub layer is well developed, and includes hawthorn *Crataegus monogyna*, midland hawthorn, spindle *Euonymus europaeus*, dogwood *Cornus sanguinea* and guelder rose *Viburnum opulus*. The ground flora beneath this woodland type is rich and varied, and has shown a good response to the recent reintroduction of a coppice rotation over the wood. Dog's mercury and tufted hair-grass *Deschampsia cespitosa* are locally abundant, with frequent wood anemone *Anemone nemorosa*, wood sedge *Carex sylvatica* and remote sedge *Carex remota*. Other species of interest include woodruff *Asperula odorata*, greater butterfly orchid *Platanthera chlorantha*, pale sedge *Carex pallescens*, grey sedge *C. divulsa* and oxlip *Primula elatior* which is at the northern limit of its range here.

There are a number of rides within the woodland which are wet in places, and support a flora including creeping bent *Agrostis stolonifera*, soft rush *Juncus effusus*, water mint *Mentha aquatica*, greater bird's-foot trefoil *Lotus uliginosus*, bugle *Ajuga reptans* and nettle-leaved bellflower *Campanula trachelium*. The unimproved grassland of these rides and a small pond provide valuable additional habitat for invertebrates.

COUNTY: SUFFOLK SITE NAME: HASCOT HILL PIT

DISTRICT: MID SUFFOLK

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: MID SUFFOLK DISTRICT COUNCIL

National Grid Reference: TM 061538 Area: 0.4 (ha.) 0.9 (ac.)

Ordnance Survey Sheet 1:50,000: 155 1:10,000: TM 05 SE

Date Notified (Under 1949 Act): 1955 Date of Last Revision: 1972

Date Notified (Under 1981 Act): 1987 Date of Last Revision: –

Other Information:
The site is managed by the Suffolk Trust for Nature Conservation.

Description and Reasons for Notification:
This site is of geological interest as it is the only site known to expose a beach facies of the Red Crag, comprising beach cobbles and a littoral fauna. The site provides an important sedimentological and faunal contrast with other Red Crag exposures, which show deeper water facies.

County Wildlife Sites citations

CWS Number	Name	Description	Area (ha)
Mid Suffolk 111	MUCKINGER WOOD	Muckinger Wood, a large ancient woodland is situated close to the Barking Woods, a number of which have been scheduled as Sites of Special Scientific Interest. It is listed in English Nature's Inventory of Ancient Woodland. The sinuous outline of Muckinger Wood is a characteristic feature of medieval woods. An internal and external ditch and bank system is another indication of the wood's antiquity. The semi-natural structure of the wood has been considerably altered by the extensive planting of conifers, mainly Scots pine and Norway spruce. Native woodland is largely restricted to the southern corner. Despite the widespread planting of non-native trees, Muckinger Wood supports a diverse woodland flora. Bramble, dog's mercury, bluebell and nettle are frequent in the field layer as are a number of rare ancient woodland indicator plants. Oxlip, a nationally rare species, occurs in small quantities in Muckinger Wood. Other uncommon medieval plants are nettle-leaved bellflower, herb-Paris, pale sedge, stinking iris and yellow pimpernel. Some recent management work has included the removal of conifers and the clearing of overshadowed rides. A woodland pond colonised by yellow flag provides additional valuable habitat for woodland invertebrates.	22.45
Mid Suffolk 165	RNR 48	Boulder clay flora. This site is also a Roadside Nature Reserve.	0.12
Mid Suffolk 18	GREAT NEWTON WOOD	Great Newton Wood lies to the west of Needham Market and is situated close to another small ancient woodland, namely Little Newton Wood. A public footpath runs along the southern boundaries of both woods. The dominant species in the dense tree canopy are ash with some oak with smaller amounts of field maple coppice and hornbeam. Hazel coppice and occasional elder forms the shrub layer. The ground flora, although dominated by dog's mercury also contains patches of bluebell and primrose and a number of uncommon ancient woodland indicator species for example wood spurge and wood anemone. A ditch and a dense hedge composed of hawthorn, bramble, blackthorn, hornbeam and field maple enclose the wood. Great Newton Wood which is listed in English Nature's Ancient Woodland Inventory appears to have been neglected for some time.	2.02

Mid Suffolk 19	LITTLE NEWTON WOOD	This small woodland is one of several woodlands listed in English Nature's Inventory of Ancient Woodlands, situated to the west and south of Needham Market. Little Newton Wood, together with Great Newton Wood situated close by, are important both as refuges for wildlife and as features in an intensively-farmed landscape. The entire wood is enclosed by a barbed-wire fence and a dense hedge consisting of hawthorn, dogwood and blackthorn. The tree canopy is dominated by oak and ash with small amounts of hornbeam. Beneath the tree layers, hazel coppice and elder form a dense understorey in places. The woodland floor is carpeted with dog's mercury, bluebell and wood anemone, the latter species being strongly associated with ancient woodland. It appears that Little Newton Wood has been neglected for some time.	1.25
Mid Suffolk 6	ST JOHN'S GROVE	This small wood is listed in the Suffolk Ancient Woodland Inventory compiled by English Nature. A significant feature of the wood is a ditch and woodbank, probably medieval in origin, which encloses it on all sides. A species-rich hedge mainly hawthorn, with blackthorn, hazel, spindle, dogwood and sallow borders the eastern and western edges. Part of the secondary woodland, which lies adjacent to the medieval wood, has been grubbed out and converted to arable land. St John's Grove consists predominantly of hornbeam coppice with pedunculate and Turkey oak standards. Small areas of ash, field maple and hazel coppice are confined mainly to the edges of the wood. In addition there is an area of sycamore on the western margin. In areas where the hornbeam coppice is less dense, hawthorn and elder are abundant in the shrub layer. The field layer composed largely of dog's mercury, bramble and nettle also supports small quantities of ancient woodland indicator species, for example nettle-leaved bellflower, wood millet, oxlip and hairy wood-rush. A large pond situated in the southern corner of the wood provides valuable additional habitat, particularly for dragonflies.	2.83
Mid Suffolk 7	UPPER BADLEY WOOD	This small woodland is situated to the south west of Badley Green Farm. It is listed in English Nature's Inventory of Ancient Woodland. A ditch, woodbank and hedge possibly medieval in origin enclose the entire wood. A large proportion of Upper Badley Wood is dominated by ash standards with abundant hornbeam coppice. The understorey is composed of Midland hawthorn, field maple and hazel. The ground flora is rather impoverished due to the dense shade cast by the hornbeam coppice. In areas where there is sufficient light dog's mercury, nettle, bramble and ivy carpet the woodland floor. Dead wood, in the form of fallen branches and standing timber is a significant feature of	1.49

		Badley Wood and provides a valuable habitat for dead wood invertebrates and hole-nesting birds.	
Mid Suffolk 9	KEYFIELD GROVES	Keyfield Groves is listed in English Nature's Ancient Woodland Inventory. This small woodland is divided into two sections by a wide, shrubby track, known as the Badley Walk. This footpath is well-used by local people from Stowmarket and Needham Market. The northern woodland is composed of hazel and hornbeam coppice. Some old coppiced ash stools which are also present are evidence of the wood's antiquity. Midland hawthorn, a species strongly associated with medieval woodlands, and elder are abundant in the understorey. On the woodland floor, bramble and dog's mercury form a dense layer. The southern woodland consists of field maple, elder, rose, elm and hazel. Large ash standards dominate the tree canopy. The impenetrable shrub layer provides valuable habitat for breeding birds. A significant feature of Keyfield Groves is the abundance of dead and dying wood. This provides a source of food for invertebrates, fungi and birds.	2.87

Appendix D
Legislation

European Protected Species

The Ramsar Convention (1971) on Wetlands of International Importance especially as Waterfowl Habitat seeks to promote the conservation and wise use of wetlands, particularly those which support internationally significant numbers of water birds. This is achieved through the designation of Ramsar Sites.

The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC) sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats. It requires member states to designate Special Protection Areas (SPAs) for protection of certain species.

The main piece of legislation relating to nature conservation in Great Britain is **The Wildlife and Countryside Act 1981 (as amended).** This Act is supplemented by provision in **The Countryside and Rights of Way (CRoW) Act 2000** and **The Natural Environment and Rural Communities Act 2006 (in England and Wales).** This act provides varying degrees of protection for the listed species of flora and fauna, including comprehensive protection of wild birds, their nests and eggs.

The Countryside and Rights of Way Act 2000 strengthens the protection given to SSSIs. It revises the procedures for the notification of SSSIs and for the consenting of operations which may damage the special interest of a SSSI. Local authorities have a duty to take steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of SSSIs. The act also strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" destroying or damaging the habitats of certain protected species.

UK wildlife is also protected under **The Conservation (Natural Habitats &c.) Regulations 1994** (which were issued under the European Communities Act 1972), through inclusion on Schedule 2. In 2017, these Regulations, together with subsequent amendments, were consolidated into **The Conservation of Habitats and Species Regulations 2017.**

The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

The Protection of Badgers Act 1992 consolidates previous badger legislation by providing comprehensive protection for badgers and their setts, with a requirement that any authorised sett disturbance or destruction be carried out under licence.

The Hedgerows Regulations 1997 aim to protect important hedgerows in the countryside. They make it illegal to remove most countryside hedges without first notifying the local planning authority, and provide protection for 'important hedgerows'.

County Wildlife Site is a non-statutory designation used to identify high quality wildlife habitats in a county context. Local Authorities have a responsibility as part of their planning function to take account of sites of substantial nature conservation value and to consider them alongside other material planning considerations. The location of County Wildlife Sites will be included in Local Plans and Development Documents.

National Planning Policy - National Planning Policy Framework (NPPF)

Section 15 of the National Planning Policy Framework 2023 (NPPF): Conserving and enhancing the natural environment states that 'planning policies and decisions should contribute to and enhance the natural and local environment by … minimising impacts on and providing net gains for biodiversity.'

Office of The Deputy Prime Minister ("ODPM") Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the planning system.

Paragraph 98 of Circular 06/2005 states that 'the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat'.

Implications of legislation and policies

Without this ecological assessment, the potential developer would be unable to demonstrate due diligence in his responsibilities. Furthermore, the local planning authority would not have been provided with sufficient information for a planning decision to be made. This could result in non-determination or refusal of the application.

With legal responsibilities and planning implications, it is essential that any ecological assessment of a potential development site, including the area of this report, must determine the possible presence or absence of any protected species as part of any planning development consideration.

Where mitigation or compensation measures are required to ensure that no significant impacts will result on biodiversity from the development, the proposed measures may be secured through planning conditions or by EPS Mitigation Licences from Natural England.

Bats

All bat species in Britain are protected under the Wildlife and Countryside Act 1981 through inclusion on Schedule 5. They are also protected under the Conservation (Natural Habitats &c.) Regulations 1994 (which were issued under the European Communities Act 1972), through inclusion on Schedule 2. On 30th November 2017, these Regulations, together with subsequent amendments, were consolidated into the Conservation of Habitats and Species Regulations 2017.

European protected animal species ("EPS") and their breeding sites or resting places are protected under Regulation 42. It is an offence for anyone to deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs. It is an offence to damage or destroy a breeding or resting place of such an animal. It is also an offence to have in one's possession or control, any live or dead European protected species.

The threshold above which a person will commit the offence of deliberately disturbing a wild animal of a European protected species has been raised. A person will commit an offence only if he deliberately disturbs such animals in a way as to be likely significantly to affect (a) the ability of any significant groups of animals of that species to survive, breed, or rear or nurture their young, or (b) the local distribution of abundance of that species. The existing offences under the Wildlife and Countryside Act (1981) as amended which cover obstruction of places used for shelter or protection (for example, a bat roost), disturbance and sale still apply to European protected species.

This legislation provides defences so that necessary operations may be carried out in places used by bats, provided the appropriate Statutory Nature Conservation Organisation (in England this is Natural England) is notified and allowed a reasonable time to advise on whether the proposed operation should be carried out and, if so, the approach to be used. The UK is a signatory to the Agreement on the Conservation of Bats in Europe, set up under the Bonn Convention. The Fundamental Obligations of Article III of this Agreement require the protection of all bats and their habitats, including the identification and protection from damage or disturbance of important feeding areas for bats.

Barn Owls

The Habitats Regulations (1994), as amended, states that a person commits an offence in the case of Barn Owl only if this species is disturbed in the breeding season. This applies equally to all those bird species listed under Schedule 1.

Breeding Birds

It is an offence to kill, injure or take any wild bird; take, damage or destroy the nest of any wild bird while that nest is in use or being built (even of "pest" species); take or destroy the eggs of any wild bird.

Great Crested Newts

Great crested newts are protected under both English and European law. It is an offence to kill, injure, disturb or take great crested newts or to damage or destroy their places of shelter, whether the animals are present or not.

Water Vole

The water vole received limited legal protection in April 1998 through its inclusion in Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) for some offences. Legal protection makes it an offence to:

- intentionally kill, injure or take (capture) a water vole;

- possess or control a dead or live water vole, or any part of a water vole;
- intentionally or recklessly damage or destroy access to any structure or place which water voles use for shelter or protection or disturb Water Voles while they are using such a place;
- sell, offer for sale or advertise for sale live or dead Water Voles

Water voles, their breeding sites and resting places are protected by law. In most cases, work can be planned to avoid harming water voles. If works cannot avoid disturbing them or damaging their habitats, you may be able to get a licence from Natural England.

Otters

Otters are protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended) and revised by the Countryside and Rights of Way Act 2004, making it an offence to:

- intentionally kill, injure or take an otter;
- possess or control any (live or dead) otter, or any part of or anything derived from an otter;
- intentionally or recklessly damage or destroy or obstruct access to any structure or place used for shelter or protection by an otter;
- intentionally or recklessly disturb an otter while it is occupying a structure or place for that purpose;
- to sell, offer for sale, possess or transport for the purpose of sale any (live or dead) otter or part or derivative of an otter;
- to advertise for buying and selling such things.

Furthermore, otters are included on Schedule 2 of the Conservation (Habitats &c.) Regulations (1994), making it an offence to:

- deliberately to capture or kill a wild animal of a European protected species;
- deliberately to disturb any such animal;
- deliberately to take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

Otters are also listed as a priority species on the UK and Biodiversity Action Plans.

White-Clawed Crayfish

This crayfish is listed under Annex II of the habitats directive and areas are designated as Special Areas of Conservation to protect this species. Outside of this a licence is required to capture this species. It is listed as a priority species under the Biodiversity Action Plan and is a Species of Principal Importance under section 41 of the NERC Act 2006.

Reptiles

Reptiles such as common lizard, slowworm, grass snake or adder are protected under Section 9 of the Wildlife & Countryside Act (1981) as amended. The legislation makes it illegal to deliberately or recklessly kill or injure

any native reptile. This protection therefore requires that reasonable effort be made to avoid harm to reptiles during developments on land occupied by reptiles.

Badger

The Wildlife and Countryside Act (1981) and its subsequent amendment in 1985 made it an offence to take, kill, injure or ill-treat a badger. The badger gained further protection under the auspices of The Protection of Badgers Act (1992) which consolidates all former protective legislation in relation to badgers, except their inclusion on Schedule 6 of the Wildlife and Countryside Act 1981.

Under the 1992 Act, the badger sett is protected against obstruction, destruction, and damage; furthermore, the animal's access to and from the sett must not be impeded. It should be noted that the concept/definition of the sett extends beyond the main sett to include annexe, subsidiary and outlying setts. However, although the badger and its sett are protected (including access to the sett), the wider habitat and foraging ground is not.

Dormice

Dormice are protected from being killed, injured, captured or disturbed and their resting and breeding places should not be damage or destroyed.

Natural England Licensing - EPS Mitigation Licensing

Licences can be obtained from the Wildlife Management and Licensing Service at Natural England to allow certain activities that would otherwise constitute an offence, for the purposes of development (e.g. destruction of a bat roost, loss of great crested newt aquatic and terrestrial habitat, etc).

Appendix E
Plant species recorded on site

English name	Scientific name
Annual meadow grass	*Poa annua*
Ash	*Fraxinus excelsior*
Bramble	*Rubus fruticosus*
Bristly oxtongue	*Helminthotheca achioides*
Broadleaf dock	*Rumex obtusifolius*
Chickweed	*Stellaria media*
Cleavers	*Galium aparine*
Cock's-foot	*Dactylis glomerata*
Cow parsley	*Anthriscus sylvestris*
Creeping buttercup	*Ranunculus repens*
Creeping thistle	*Cirsium arvense*
Dandelion	*Taraxacum officinale*
Dog-rose	*Rosa canina*
Dove's-foot cranesbill	*Geranium molle*
Elder	*Sambucus nigra*
English oak	*Quercus robur*
False-oat grass	*Arrhenatherum elatius*
Field maple	*Acer campestre*
Ground ivy	*Glechoma hederacea*
Groundsel	*Senecio vulgaris*
Hairy bittercress	*Cardamine hirsuta*
Herb-robert	*Geranium robertianum*
Holly	*Ilex aquifolium*
Ivy	*Hedera helix*
Mugwort	*Artemisia vulgaris*
Nettle	*Urtica dioica*
Perennial ryegrass	*Lolium perenne*
Ragwort	*Jacobaea vulgaris*
Ribwort plantain	*Plantago lanceolata*
Spear thistle	*Cirsium vulgare*
White clover	*Trifolium repens*
Willowherb	*Epilobium sp.*
Yarrow	*Achillea millefolium*
Yorkshire fog	*Holcus lanatus*

Appendix F
Native species suitable for planting and sowing

Plants should be obtained from specialist nurseries and preferably be of local genetic stock.
Key: (f) – fruit and berry species; (e) – evergreen species; (se) semi-evergreen species; (d) – deciduous species

Trees	
Alder (d)	*Alnus glutinosa*
Apples (f; d)	*Malus spp.* (local varieties)
Ash (d)	*Fraxinus excelsior*
Beech (d)	*Fagus sylvatica*
Bird cherry (f; d)	*Prunus padus*
Elder (f; d)	*Sambucus nigra*
Elm (d)	*Ulmus procera*
Field maple (d)	*Acer campestre*
Pedunculate oak (d)	*Quercus robur*
Rowan (f; d)	*Sorbus aucuparia*
Pears (f; d)	*Pyrus spp.*
Silver birch (d)	*Betula pendula*
Small-leaved lime (d)	*Tilia cordata*
White willow (d)	*Salix alba*
Wild cherry (f; d)	*Prunus avium*
Walnut (d)	*Juglans regia*

Shrubs	
Blackthorn (f; d)	*Prunus spinosa*
Buckthorn (f; d)	*Rhamnus catharticus*
Crab apple (f; d)	*Malus sylvestris*
Dog rose (f; d)	*Rosa canina*
Dogwood (f; d)	*Cornus sanguinea*
Field maple (d)	*Acer campestre*
Guelder-rose (f; d)	*Viburnum opulus*
Hawthorn (f; d)	*Crataegus monogyna*
Hazel (d)	*Corylus avellana*
Holly (e)	*Ilex aquifolium*
Honeysuckle (f; d)	*Lonicera periclymemum*
Spindle (f; d)	*Euonymus europaeus*
Wild privet (f; se)	*Ligustrum vulgare*
Yew (f; e)	*Taxus baccata*

Flowering plants	
Bird's-foot trefoil	*Lotus corniculatus*
Black knapweed	*Centaurea nigra*
Common cat's-ear	*Hypochoeris radicata*
Common sorrel	*Rumex acetosa*
Common vetch	*Vicia sativa*
Cowslip	*Primula veris*
Field scabious	*Knautia arvense*
Foxglove	*Digitalis purpurea*
Lady's bedstraw	*Galium verum*
Meadow buttercup	*Ranunculus acris*
Meadow vetchling	*Lathyrus pratensis*
Oxeye daisy	*Leucanthemum vulgare*
Primrose	*Primula vulgaris*
Red clover	*Trifolium pratense*
Selfheal	*Prunella vulgaris*
Sweet violet	*Viola odorata*
Wild daffodil	*Narcissus pseudonarcissus*
Yarrow	*Achillea millefolium*

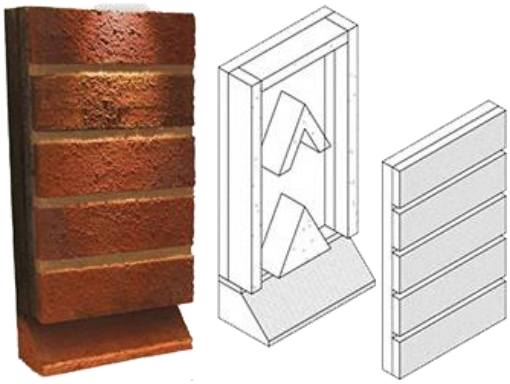
Grasses	
Common bent	*Agrostis capillaris*
Crested dog's-tail	*Cynosurus cristatus*
Meadow fescue	*Festuca pratensis*
Red fescue	*Festuca rubra*
Rough meadow-grass	*Poa trivialis*
Small timothy	*Phleum bertolonii*
Smooth meadow-grass	*Poa pratensis*
Sweet vernal-grass	*Anthoxanthum odoratum*
Yellow oat-grass	*Trisetum flavescens*

Flowering Lawn Mixture – EL1 Emorsgate Seeds
https://wildseed.co.uk/product/mixtures/complete-mixtures/special-habitat-mixtures/flowering-lawn-mixture/

Appendix G
Examples of bat and bird boxes

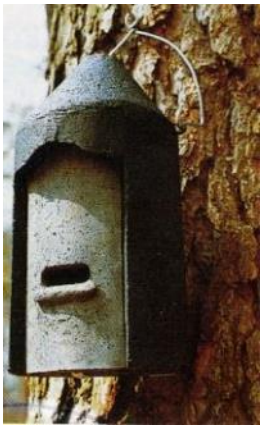
(images sourced from www.nhbs.com, www.habibat.co.uk, www.manthorpe.co.uk, www.barnowltrust.org.uk and www.greenwoodsecohabitats.co.uk)

Integrated bat box
Habibat Bat Box



Integrated bat box
Bat Block

Standalone bat box
2F Schwegler Bat Box (General purpose)



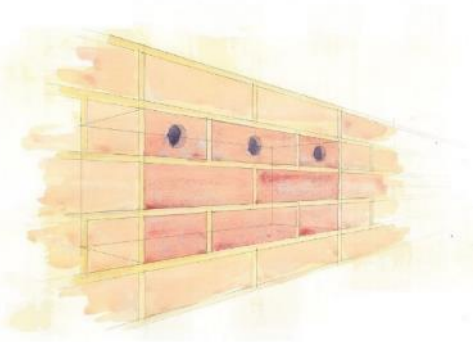
Standalone bat box
Greenwood's Ecohabitats three crevice bat box

Recommendations for installing bat boxes:
(Sourced from Bat Conservation Trust www.bct.org)

Ideally, several boxes should be put up facing in different directions to provide a range of conditions.
Locate boxes:

- Where bats are known to feed close to hedges and treelines (some bats use a treeline or hedgerow for navigation, putting boxes near these features may help the bats find the box).
- On trees: boxes should be placed on the trunk of a mature tree, where there is a clear flight line/accessible entrance.
- On buildings: boxes should be placed as close to the eaves as possible.
- As high as possible (ideally, at least 3 to 4m above the ground, where safe installation is possible).
- In sunny places, sheltered from strong winds (usually between south-west and south-east).

Make sure the boxes are secured.
Boxes can be installed on trees using adjustable ties to avoid damaging the trees. Otherwise, timber screw bolts or nails can be used. Aluminium alloy nails are less likely to damage saws and chipping machinery.
Bats need time to find and explore new homes, and it may be several months or even years before boxes have residents. Once bats find a place they want to live they can return over and over again. Droppings on the landing area, urine stains around the lower parts of the box and chittering noises from inside on warm afternoons and evenings are signs of occupation.

Small bird nesting box 1B Schwegler Nest Box 	**Small bird nesting box** 2H Schwegler Robin Box 
Integrated swift box Swift Block 	**Integrated swift box** Manthorpe Swift Brick 
Integrated sparrow terrace 1SP Schwegler Sparrow Terrace 	**Integrated sparrow terrace** Terraced Sparrow Box 

Recommendations for installing bird boxes:

(Sourced from British Trust for Ornithology www.bto.org, Manthorpe www.manthorpe.co.uk and Barn Owl Trust www.barnowltrust.org.uk)

The highest priority when siting a nest box must be to provide a safe and comfortable environment in which birds can nest successfully.

Tips for putting up a nest box:

- Boxes should be sited 1-3m from the ground, ideally on tree trunks but can be placed on the side of a shed or wall. Avoid areas where foliage obscures the entrance hole.
- Don't place boxes too close to another nest box of the same type, as this may promote aggressive behaviour between neighbours.
- Shelter your nest box from prevailing wind, rain and strong sunlight. The box should face between north and east, and angled vertically or slightly downwards to prevent rain entering.
- Make sure cats cannot get into the box.
- Keep nest box away from bird feeders.
- Use galvanized or stainless steel screws or nails. If fixing boxes to trees, galvanised wire can be used to tie the box to the trunk or hang it from a branch. Make sure to regularly inspect these fittings (every two or three years) to ensure the box remains securely attached.

Tips for putting up house sparrow terraces and swift bricks/boxes:

- Locate ≥5m high on the gable wall of the property and above the level of the insulation zone.
- Where possible, install in locations that are unlikely to receive large amounts of direct sunlight during the hottest times of the day, ideal places include below the overhang of the verge and barge board.

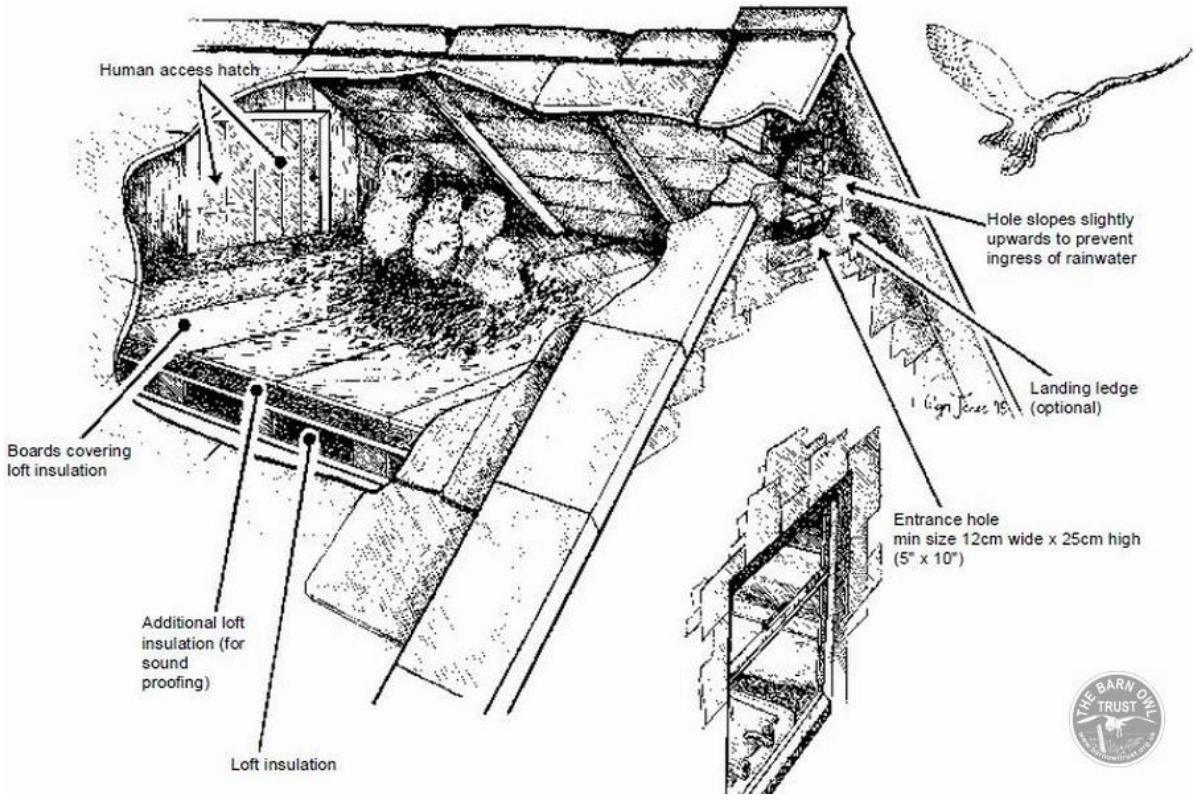
Tips for putting up barn owl boxes:

- The box should be installed on a building or tree in open farmland, on an isolated hedgerow or along the edge of a woodland.
- Boxes should be sited at least 3m from the ground, with a clear flight-path for entry and exit.
- Where possible, install boxes facing suitable habitat and ideally away from the prevailing wind.
- Nest boxes should ideally be installed in pairs.

Internal standalone barn owl box

External standalone barn owl box

Integrated barn owl box



Recommendations for installing integrated barn owl box:

(Sourced from Barn Owl Trust www.barnowltrust.org.uk)

Standalone barn owl boxes:

Tips for putting up barn owl boxes:

- The box should be installed on a building or tree in open farmland, on an isolated hedgerow or along the edge of a woodland.
- Boxes should be sited at least 3m from the ground, with a clear flight-path for entry and exit.
- Where possible, install boxes facing suitable habitat and ideally away from the prevailing wind.
- Nest boxes should ideally be installed in pairs.

Integrated barn owl boxes:

Design requirements – entrance hole dimensions and ledge (exercise platform):

- Entrance hole minimum size: 100mm wide x 200mm high, optimum size: 130mm x 250mm, maximum size: 200mm x 300mm.
- The bottom of the hole must not have any sharp edges or narrow gaps in which a toe or talon could get caught.

- Where necessary there can be a 'tunnel', minimum 150mm wide x 200mm high, between the entrance hole and the nest space.
- A grippable ledge (e.g. stone or slatted timber) below the entrance hole provides an exercise platform for emerging owlets.
- In cases where the entrance hole goes directly into a nest space less than 700mm deep, an exercise platform is essential; the bigger the better, but not less than 250mm x 500mm wide with a grippable raised edge.

Design requirements – nest space & dimensions:

- Floor area of nest chamber: absolute minimum 0.4m^2 (e.g. 500mm wide x 800mm high or 400mm wide x 1m high), ideal size is 1m^2 (1m x 1m). These dimensions are bigger than those for nestboxes, because built-in provision usually lacks an external exercise platform that would permit maximum wing stretching prior to fledging.
- Where there is no external exercise platform the internal box depth from the bottom of the entrance hole to floor of nesting area must not be less than 700mm. Note: the ideal depth for Barn Owls is at least 1m, which should be achieved wherever space permits.
- Depth from the bottom of the entrance hole to floor of nesting area must be not less than 450mm provided that there will definitely be an easy-to-grip external exercise platform for fledglings to stand on outside the entrance hole.
- In a large loft simply partition off a section behind the owls' entrance hole.
- Stone, brick and timber are all suitable materials. Although owls are not destructive and seem unharmed by soft insulation materials, these are usually best avoided.
- In an unheated building, no insulation is required.
- Lining the space is not essential.
- An internal perch positioned as high or higher than the access hole may be beneficial as long as the space is big enough to accommodate one without resulting in one perched bird defecating on another underneath.

Design requirements – insulation:

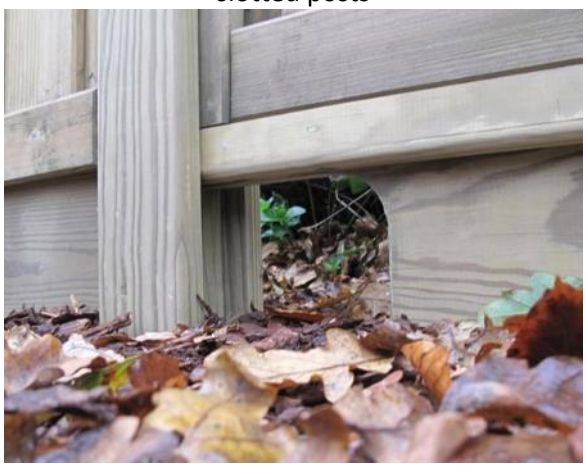
- From the owls' point of view, insulation is not required.
- However, there should be some form of moisture insulation between the owl space and the building interior.
- Where space is at a premium, use a highly efficient heat insulation board (e.g. 50mm Celotex polyurethane foam).
- Where space allows, use a more environmentally sustainable (and thicker) heat insulation board (e.g. a wood fibre board like Pavatex) to which a sound insulation board can be added (e.g. 60mm Pavatherm) if required.

Design requirements – human access and cleaning out:

- Human access is essential as the nest space will need to be cleared out very occasionally.
- A generous removable inspection hatch or door in the back of the owl space (accessible from the building interior) is usually the preferred option but in some cases an external arrangement may be a practical option.
- In the case of a loft partition, create an integral crawl-through doorway.
- The access should permit all or most of the nest space floor to be reached by hand.

Appendix H
Examples of hedgehog friendly fencing

(images sourced from www.quercusfencing.com and www.jackson-fencing.co.uk)

Quercus Fencing	**Jacksons-Fencing**
Hedgehog friendly oak woven fencing panels	Hedgehog friendly gravel board for use with slotted posts
	

Recommendations for installing hedgehog friendly fencing:
(Sourced from Hedgehog Street www.hedgehogstreet.org)

A hedgehog friendly fence should have a gap measuring at least 13cm by 13cm in the gravel board. These gaps allow any hedgehog to pass through but are too small for nearly all pets.

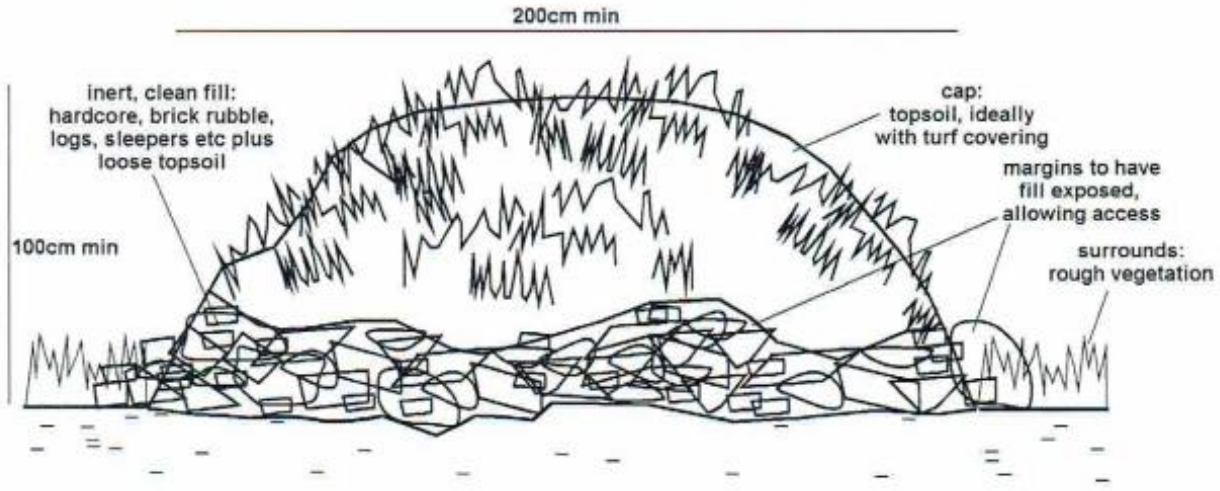
At least one hedgehog friendly fence panel should be located on each side of your garden, to provide unimpeded access.

Almost all fencing materials can be made hedgehog friendly, but may require DIY adaptations. Please note that some concrete gravel boards contain metal rods running along the length of the boards to provide strength and rigidity, and cannot be cut. To overcome this, a gap can be left between the gravel board and post to provide the required gap.

Appendix I
Habitat piles

Figure 3: Suggested hibernaculum design

This design mimics artificial and natural conditions in which great crested newts have frequently been found over-wintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.

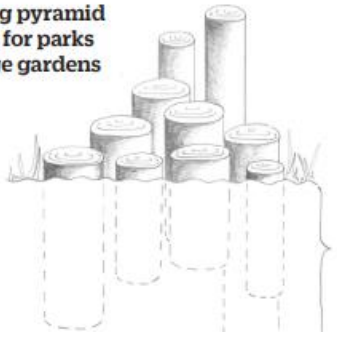


Source: English Nature (2001) *Great Crested Newt Mitigation Guidelines*, Peterborough.

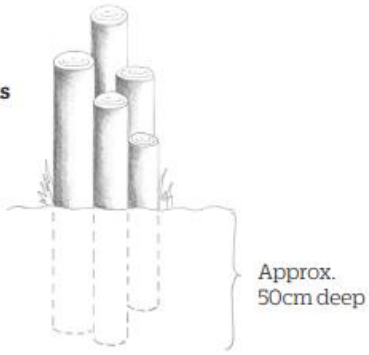
- Log pyramids can be built at any time of year
- Use wood from any broadleaved tree
- The logs should be at least the thickness of an adults arm
- Site the logs in partial shade if possible to prevent them drying out
- Partially bury the logs in the soil so that they don't dry out
- Allow plants to grow over the log pyramid to retain moisture and provide shade

Your log pyramid will also benefit a range of other species including fungi, dead wood invertebrates and the animals that feed on them. It will be a great place for foraging small mammals, basking reptiles and potentially solitary bees.

Large log pyramid suitable for parks and large gardens



Log pyramid suitable for small gardens



Peoples Trust for Endangered Species (2022) *Build a log pyramid for stag beetles*. London

Appendix J
Bee Bricks

(images sourced from www.nhbs.com and www.greenandblue.co.uk)

Bee post	**Bee bricks**
	

Recommended bee brick installation
(Sourced from NHBS www.nhbs.com)

- Bee bricks will be installed on a south facing sunny spot of an external wall of the residential dwelling, at a minimum height of 1m. No vegetation should be obstructing the holes.
- Bee posts will be positions south facing in a sun exposed spot, with no vegetation covering the fascia. The posts must be set in a concrete base at a minimum of 30mm, similar to installing a fencepost.

Appendix K
Proposed plans


new native hedgerow planting to east boundary of the grain barn and east boundary of the old mill to create natural divisions.
Specifications for new access road (all dimensions in meters)
Width between kerbs = 3.7
Turning Circles between kerbs = 16.8
Turning circle between walls = 19.2
Minimum width of gateways = 3.1
Weight capacity = 15 tonnes
Traditional open post and rail fence to east and north boundary of the open barn and north boundary of the mill
New road to be rolled gravel finish with brick kerb
new native hedge to southerly boundary of the grain barn to screen from hall
The Grain Barn
The Old Mill
The Open Barn
Pond
Pond
Pond
Open post and rail fence to north and west boundary of cartlodge rear garden. Form wider swing to turn on turn between walls for fire fighting equipment
infill native hedgerow between existing hall and pond to create natural screen. Install new post and rail gate to access road. For access use of Battisford Hall
Battisford Hall
The Cartlodge
The front of the cartlodge is to have grass landscaping to form drive
Infill existing planting to hedge of the north and east boundary to the pond to create evergreen natural screen with native species
Pond
Path (Um)
0m 10m 20m 30m 40m 50m
59.8m
Battisford Hall
(site of)
Key
Domestic Curtilage
Boundary of The Cartlodge unit 1
Boundary of The Cartlodge unit 2
Boundary of The Open Barn
Boundary of the Grain Barn
Shared Access, (last section of which is the existing farm track (last section, dotted in to be kept clear for turning of emergency vehicles)
north
Revisions:
revA – Scheme updated – March 2017
revB – Boundary – April 2017
revC – Profile Added – May 2018
revD – Fire & Rescue – Feb 2019
revE – Red line moved – June 2023
Client:
Trustees of T.H. Harwood
Job Title:
Battisford Barns
Drawing Title:
Proposed Site Plan
Scale: 1:500@A1
Drawn By: M
Date: July 2015
Job Number: 6023
Drawing Number: 10E
WCP THE WHITWORTH CO-PARTNERSHIP LLP CHARTERED ARCHITECTS AND SURVEYORS
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NOTE:
Do not scale from this drawing. Confirm all dimensions on site. Refer any discrepancies to the Architect before work is put in hand. Read this drawing in conjunction with the relevant sections of the specification, schedule of works and other drawings.
This drawing is copyright of The Whitworth Co-Partnership LLP.