
Preliminary Ecological Appraisal

Copelands, Little London, Combs

for

Trevor Holley

23 February 2024

Client

Trevor Holley

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).

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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.

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SUMMARY

Greenlight Environmental Consultancy Ltd. has been commissioned to carry out a Preliminary Ecological Appraisal for a proposed development at Copelands, Little London, Combs, Suffolk, IP14 2ET (grid reference: TM 05094 55914).

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 construction of a double garage.

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 low ecological value and that there are no significant ecological constraints that would prevent the proposed works.

Under the proposed plans, no further surveys/licences are required to inform an ecological impact assessment or mitigation strategy.

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 six 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	Very small areas of modified grassland managed as lawn and hardstanding will be removed as part of the proposed works. No Priority Habitats will be affected.	Low scale of habitat loss predicted for wildlife.	<u>Mitigation</u> Construction work to be carried out in accordance with BSI (2012), BS 5837:2012, to protect trees and their root protection areas.
Bats	The buildings were not surveyed as no works are proposed as part of this planning application. Low value commuting and foraging habitat on site.	Low scale loss and potential light disturbance of commuting and foraging habitats on site.	<u>Mitigation</u> Any lighting schemes will comply with Bat Conservation Trust (GN08/23) and CIE 150:2017 guidance. <u>Enhancement</u> Installation of one integrated bat box on the new garage.
Breeding birds	Nesting habitats for hedgerow, tree and building nesting birds present on site, including potential	None predicted.	<u>Mitigation</u> If works change to affect any hedgerows, trees and buildings on site, this is to be conducted outside bird

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
	breeding habitat for Amber listed species. No suitable barn owl foraging habitat on site.		nesting season or under watching brief of ecologist if during nesting season. <u>Enhancement</u> Installation of one small bird box on site.
Great crested newts	Unsuitable terrestrial habitats on site. Two ponds within 250m of the site, one assessed as average suitability and one could not be accessed for detailed assessment. Site falls within Amber risk zone for district level licensing. 23 GCN records within 2km.	Potential harm to GCN if present on site during works.	<u>Precautionary mitigation</u> Cut and maintain vegetation short (maximum height of 10cm) on and around the site until the start of works. 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. In the highly unlikely event that any GCN are found, work will cease immediately, and a licenced ecologist contacted to remove any GCN to safety and advice on how to proceed.
Reptiles	Habitats on site unsuitable. 20 reptile records within 2km.	No impacts predicted.	<u>Precautionary mitigation</u> Mitigation for GCN above will be implemented to avoid impacts on reptiles from the proposed work.
Other animals	N/A	Potential harm to animals.	<u>Mitigation</u> If fencing is required, this will be porous and provide openings for hedgehogs.

1. METHOD

- 1.1. A walkover of the site was conducted on 8th February 2024 by Daniel Howes – an independent, qualified and experienced ecologist. Survey conditions were as follows: 5°C, 12mph wind, overcast and 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*



Hazel dormouse *Muscardinus avellanarius*

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 within the village of Little London, with the A14 located approximately 3km northeast. The closest town is Stowmarket, with the suburb of Combs Ford located approximately 1.2km north of the site.
- 2.3. The site is enclosed by an arable field to the north and east, a residential dwelling to the south and Bradley Lane to the west. The wider surroundings are comprised of a mixture of residential dwellings, blocks of woodland, parkland and arable fields lined with mature trees and hedgerows.

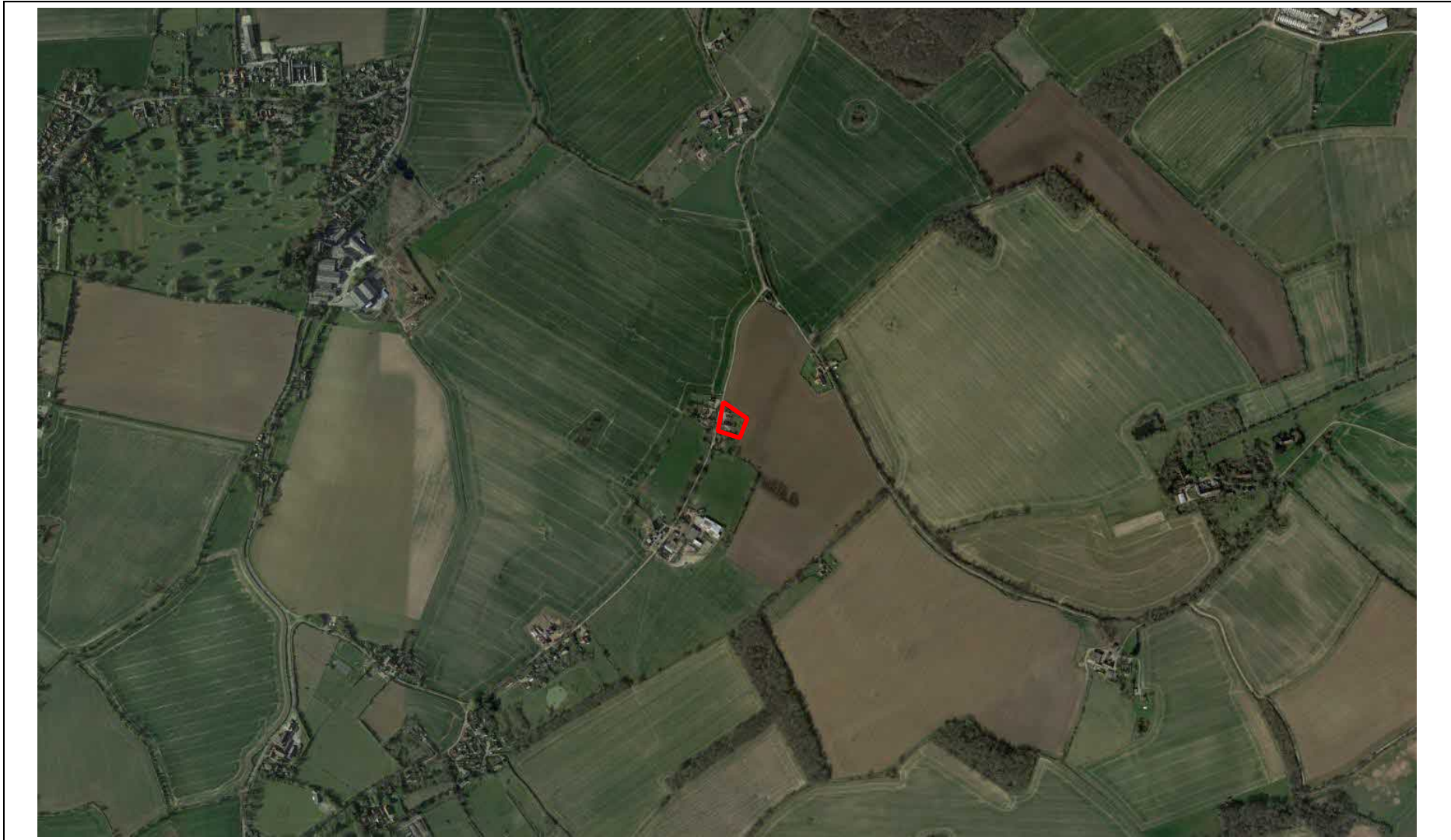


Figure 1
Satellite image of site surroundings, site indicated by red line.
Image © Google, date accessed 14/02/24

3. DESCRIPTION OF THE DEVELOPMENT

- 3.1. The proposals are for the construction of a double garage. Please refer to Appendix I for the proposed plans.

4. PROTECTED SITES

Statutory

- 4.1. There are two statutory protected sites located within 2km – one Sites of Special Scientific Interest (“SSSI”) and one Local Nature Reserve (“LNR”). Please refer to Appendix C for the full citation.

- i. Combs Wood SSSI, approximately 0.7km northeast.

“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.”

- ii. Church Meadow LNR, approximately 0.9km north.

“Church Meadow owes its existence to an 18th century manor house - Combs Hall, which once stood behind the Church. Although demolished in 1756, features of the formal garden can still be seen today. These include earth banks that originally surrounded an ornamental lake and a small circular pond. The pond in Combs Wood - southeast of the reserve - is also part of these old landscaped gardens. Plants include early marsh orchids and double-flowered Lady's Smock.”

- 4.2. The proposed development falls outside of all SSSI Impact Risk Zones.

Non-statutory

- 4.3. There are six non-statutory protected sites located within 2km – six County Wildlife Sites (“CWS”). Please refer to Appendix C for the full citations.

- i. St John's Grove CWS, approximately 0.4km south.

“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.”

- ii. Upper Badley Wood CWS, approximately 0.7km southeast.

“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.”

- iii. Church Meadow CWS, approximately 0.9km north.

“Church Meadow, which belongs to Mid Suffolk District Council is an area of unimproved species rich grassland (Priority habitat) and has good connectivity with other valuable semi-natural habitat such as Combs churchyard, Combs Wood (Ancient Woodland SSSI) and surrounding hedgerows.”

- iv. Keyfield Groves CWS, approximately 1.5km east.

“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.”

- v. Suffolk Business Park Meadow CWS, approximately 1.6km northeast.

“This site is a gently sloping area of unimproved species rich grassland (Priority habitat) adjacent to Suffolk Business Park, off the B1113 Needham to Stowmarket road. Despite its small size, the grassland community contains a high diversity of flowering plants.”

- vi. Combs Lane Cornflower Site CWS, approximately 1.9km northwest.

“This site lies to the west of Combs village and was previously designated as supporting cornflower. Although now absent, the sward in the east of the site is developing into species rich semi-improved neutral grassland with species including bee orchid, cowslip, hedge bedstraw, common knapweed, goat's beard, hairy tare and perforate St John's.”

5. HABITATS

Desktop review

- 5.1. Priority Habitats to occur within 2km (identified using MAGIC – managed by Natural England), include Coastal and Floodplain Grazing Marsh, Good Quality Semi-Improved Grassland, Deciduous Woodland, Traditional Orchards and Woodpasture and Parkland BAP Priority Habitat. The closest of which, is Deciduous Woodland located approximately 400m south of the site.

Field study

- 5.2. The habitats on the site are of low ecological value, being mainly modified grassland managed as lawn, buildings, hardstanding and hedgerows on the site peripheries.
- 5.3. No Priority Habitats, as listed under the NERC Act 2006 Section 41 Habitats of Principal Importance are found on site.
- 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: 32 scattered trees, 108 frequently mown, 828 vegetated garden)

- 5.5. The site features the garden of the residential dwelling, comprised of modified grassland managed as lawn. Species include: creeping buttercup *Ranunculus repens*, daisy *Bellis perennis*, dandelion *Taraxacum officinale*, dove's-foot cranesbill *Geranium molle*, fescue *Festuca* sp., groundsel *Senecio vulgaris*, perennial ryegrass *Lolium perenne* and yarrow *Achillea millefolium*. Several scattered cherry *Prunus* sp. and silver birch *Betula pendula* trees are present in the site's northeast corner.

Non-native and ornamental hedgerow (UK Habitat Classification h2b)

- 5.6. The site features a mixture of cherry laurel *Prunus laurocerasus* and Leyland cypress *Cupressus × leylandii* hedgerows which are actively managed on all the boundaries.

Buildings (UK Habitat Classification u1b5)

- 5.7. There are several buildings on site that are used as a residential dwelling and associated outbuildings. Please refer to the bat section detailed below for further information.

Other developed land (UK Habitat Classification u1b6)

- 5.8. The site features a mixture of brick and paving slab hardstanding across the site.

Built linear features (UK Habitat Classification u1e; secondary code: 612 fence)

- 5.9. Small sections of closeboard fencing are present along the northern boundary and in the site's northwestern corner.





Photo 1, hardstanding driveway to the west of the site, looking north.



Photo 2, looking east along the site's northern boundary.



Photo 3, looking to the site's southwestern corner.



Photo 4, looking to the site's southeastern corner.



Photo 5, looking southeast across the garden onsite.



Photo 6, area of proposed garage construction in the site's northwestern corner, looking northeast.

6. PROTECTED AND NOTABLE SPECIES

Desktop review

Data search

6.1. The biodiversity data search within 2km of the site indicated 1,246 records from 163 species.

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

Seven barn owl *Tyto alba* records, with the most recent from 2021.

19 skylark *Alauda arvensis* records, with the most recent from 2022.

56 swift *Apus apus* records, with the most recent from 2023.

23 GCN *Triturus cristatus* records, with the most recent from 2020. The closest record is located approximately 0.8km north.

20 reptile records, with the most recent from 2017. The closest record is located approximately 0.6km northwest. Species include: slow-worm *Anguis fragilis* and grass snake *Natrix Helvetica*.

224 hedgehog *Erinaceus europaeus* records, with the most recent from 2023.

25 bat records, with the most recent from 2022, including common pipistrelles *Pipistrellus pipistrellus*, soprano pipistrelles *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, brown long-eared *Plecotus auritus*, serotines *Eptesicus serotinus*, noctules *Nyctalus noctula*, Leisler's *Nyctalus leisleri*, Natterer's *Myotis nattereri*, barbastelles *Barbastella barbastellus* and other unidentified bat species.

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. The buildings on site were not surveyed as no works are proposed as part of this planning application.

Trees

6.5. 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

- 6.6. The site itself provides low value foraging habitat for bats along the boundary hedgerows and trees, with bats mainly using nearby woodlands for foraging.
- 6.7. The landscape immediately adjacent to the site is considered of low to moderate value for foraging and commuting bats, with linked gardens and hedgerows providing links to the wider landscape. Residential dwellings adjacent the site and within Little London have the potential to provide roosting opportunities for bats.

Birds

- 6.8. 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.
- 6.9. The following bird species were observed during the site visit:

Red listed:

Skylark

Alauda arvensis

Amber listed:

Rook

Corvus frugilegus

Woodpigeon

Columba palumbus

Green listed:

Blackbird

Turdus merula

Great tit

Parus major

Magpie

Pica pica

Robin

Erithacus rubecula

- 6.10. The site provides suitable nesting habitats for hedgerow, tree and building nesting species.
- 6.11. The site does not have the potential to support nests for the Red listed species.
- 6.12. The site has the potential support nests for the following Amber listed species: woodpigeon.
- 6.13. 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.
- 6.14. No signs of barn owl were found on the site and no foraging habitat is present.

Great crested newts

- 6.15. There are no ponds within the survey site and two 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 3). GCN are most likely to occupy good quality terrestrial habitat within 250m of a breeding pond (English Nature, 2001).

- 6.16. The terrestrial habitats on the site are considered predominantly unsuitable for GCN, consisting of modified grassland managed as lawn and hardstanding, with suboptimal hedgerows on the boundaries.
- 6.17. Terrestrial habitats adjacent the site are considered unsuitable (roads, arable fields and residential dwellings with associated gardens and hardstanding) GCN foraging, commuting and hibernating habitats.
- 6.18. Pond one was assessed as average suitability for GCN (Table 1). Pond two was not assessed in detail, as authorised access to the pond was not available.
- 6.19. 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
Geographic location	Zone A
	1.00
Pond surface area (m ²)	250m ²
	0.50
Desiccation rate	Never
	0.90
Water quality/ invert density	Poor
	0.33
Shoreline shade (%)	70%
	0.80
Waterfowl impacts	Minor
	0.67
Fish impacts	Absent
	1.00
Ponds within 1km	13+
	1.00
Terrestrial habitat quality	Poor
	0.33
Macrophyte cover (%)	5%
	0.35
HSI Score	Average
	0.63

Table 1, HSI score for ponds within 250m of the proposed site.



Photo 7, pond one, looking southeast.

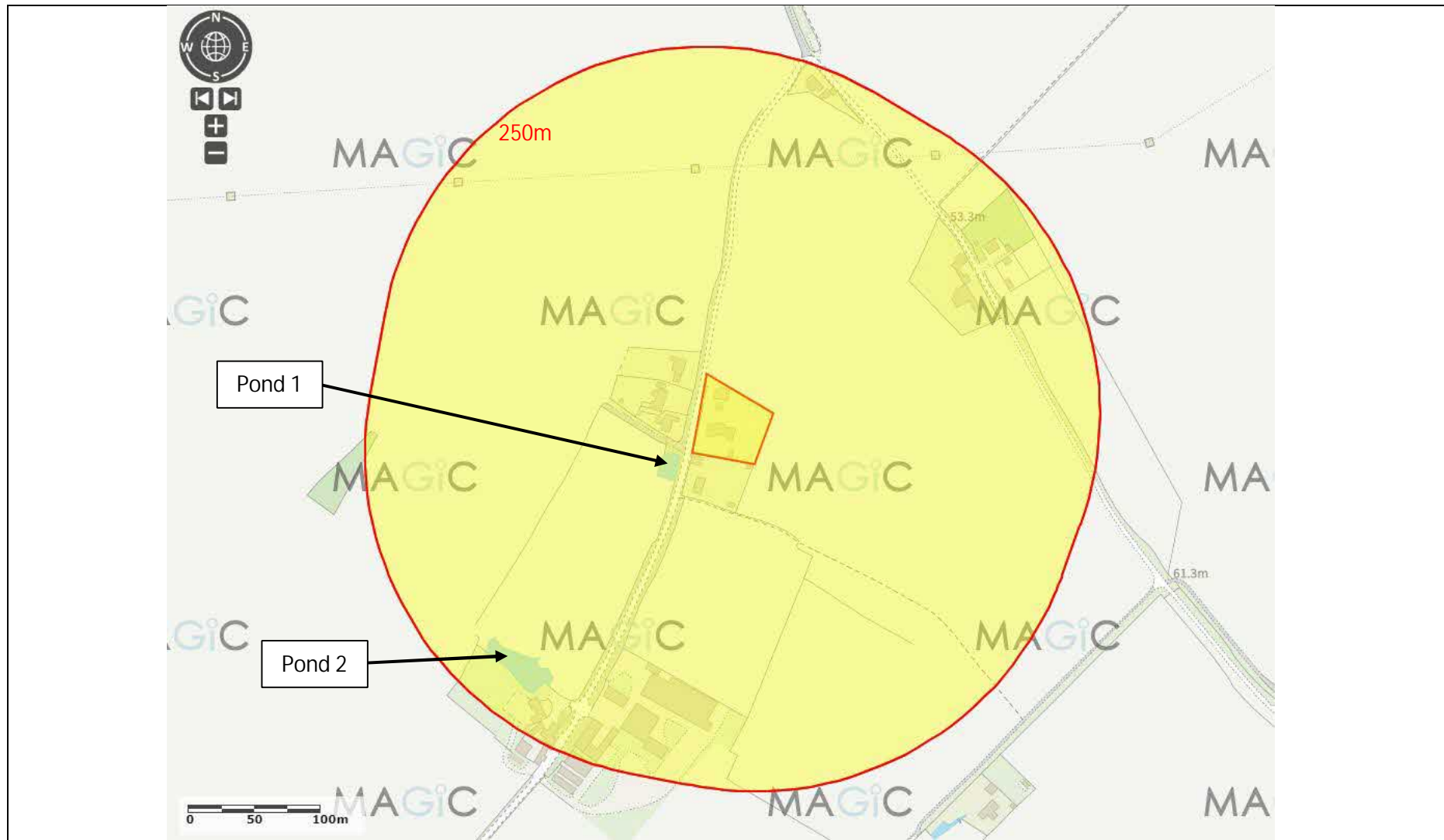


Figure 3
Ponds within 250m of the proposed site.
Image © MAGIC, date accessed 15/02/24

Reptiles

- 6.20. The habitats on the site are considered predominantly unsuitable for reptiles, consisting of modified grassland managed as lawn and hardstanding, with suboptimal hedgerows on the boundaries.
- 6.21. Habitats located on the site boundaries including the base of the hedgerows could be used as commuting habitats by reptiles if they were present in the area.
- 6.22. Terrestrial habitats adjacent the site are considered unsuitable (roads, arable fields and residential dwellings with associated gardens and hardstanding) reptile foraging, commuting and hibernating habitats.

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 six non-statutory protected sites located within 2km of the site.

The closest statutory protected site (Combs Wood SSSI) is located approximately 0.7km northeast and designated for its ancient woodland with a well-developed coppice with standards structure.

The closest non-statutory protected site (St John's Grove CWS) is located approximately 0.4km south of the site and designated for its small wood listed in the Suffolk Ancient Woodland Inventory.

- 7.2. The proposed development falls outside of all SSSI Impact Risk Zones.
- 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 little clearance of vegetated habitats on site, with the works limited to a small area of modified grassland managed as lawn and hardstanding.
- 7.5. As a precautionary measure, the following mitigation will be implemented to avoid impacts on habitats from the proposed works:
- i. 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.

Bats

- 7.6. The proposed works are expected to result in a low scale loss of potential roosting, foraging and commuting habitats for bats through increased noise and light levels.
- 7.7. As a precautionary measure, the following mitigation will be implemented to avoid impacts on bats from the proposed works:
- i. 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 $<70^\circ$, connected to movement sensors and feature baffles, hoods, louvres and horizontal cut off units at 90° where necessary.

- 7.8. 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.
- 7.9. As enhancements, the following will be implemented:
- i. One integrated bat box on the southern aspect of the new garage (Bat Block – Appendix G).
- 7.10. After these precautionary mitigation measures, we predict no impact on bats as a result of the development plans. We consider that a European Protected Species Licence will not be required, and no further surveys are necessary.

Birds

- 7.11. The proposed works are not expected to result in a loss of bird nesting habitat.
- 7.12. As a precautionary measure, the following mitigation will be implemented to avoid impacts on birds from the proposed works:
- i. If works change to affect bird nesting habitat such as management of hedgerows, trees or buildings, this 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.
- 7.13. As enhancements, the following will be implemented:
- i. One small bird box on the new garage or suitable tree onsite (Schwegler 1B or 2H Nest Box – Appendix G).

Great crested newts

7.14. The proposed works are not expected to result in a loss of terrestrial habitats, with the works consisting of hardstanding and a very small area of modified grassland managed as lawn.

7.15. Taking a worst-case scenario of 0.1-0.5ha of land being lost or damaged within 100m of a breeding pond (ponds one), the risk assessment calculation (set out in the GCN method statement template provided by Natural England) indicates an “offence likely”, although goes on to state:

“This generic risk assessment will over- or under-estimate some risks because it cannot take into account site-specific details. In particular, the exact location of the development in relation to resting places, dispersal areas and barriers should be critically examined.”

7.16. Habitats located within the proposed area of works and onsite are considered predominantly unsuitable for GCN, consisting of buildings, hardstanding and modified grassland managed as lawn. The proposed area of works is limited to a very small area ($\approx 50\text{m}^2$) of modified grassland managed as lawn and hardstanding. Furthermore, all suitable ponds and habitats are located south of the site. Therefore, we consider it unlikely GCN would commute/forage across the areas of works.

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

- i. Vegetation on site will be cut and maintained short (maximum height of 10cm) until the start of works, to discourage animals from using these areas.
- ii. 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.
- iii. 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.
- iv. In the highly unlikely event that any GCN are found, work will cease immediately and a licenced ecologist contacted to remove any GCN to safety and advice on how to proceed.

7.18. After these precautionary mitigation measures, we predict no impact on GCN as a result of the development plans, and no further surveys are necessary.

Reptiles

7.19. The proposed works are not expected to result in a loss of reptile habitat, with the works limited to hardstanding and a small area of modified grassland managed as lawn.

- 7.20. As a precautionary measure, the mitigation for GCN above will ensure there are no impacts on reptiles from the proposed development.
- 7.21. After these precautionary mitigation measures, we predict no impact on reptiles as a result of the development plans, and no further surveys are necessary.

Other animals

- 7.22. 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).
- 7.23. 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.

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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 were not surveyed as no works are proposed as part of this planning application. The rest site is comprised predominantly of modified grassland managed as lawn, hardstanding, hedgerows and scattered trees.

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 2.

Indices	Name	Description
SI1	Geographic Location	Lowland England or upland England, Scotland and Wales
SI2	Pond area	To the nearest 50m ²
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 2, HSI indices.

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

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

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.

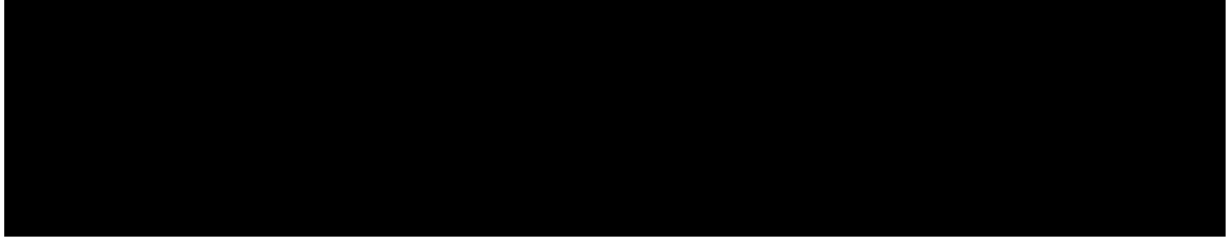
White-clawed crayfish inhabit streams and rivers with a moderate flow rate, and lakes. Clear, well-oxygenated water is preferred. Typical habitat features include crevices in rocks, gaps between stones, submerged plants and tree roots.

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.



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

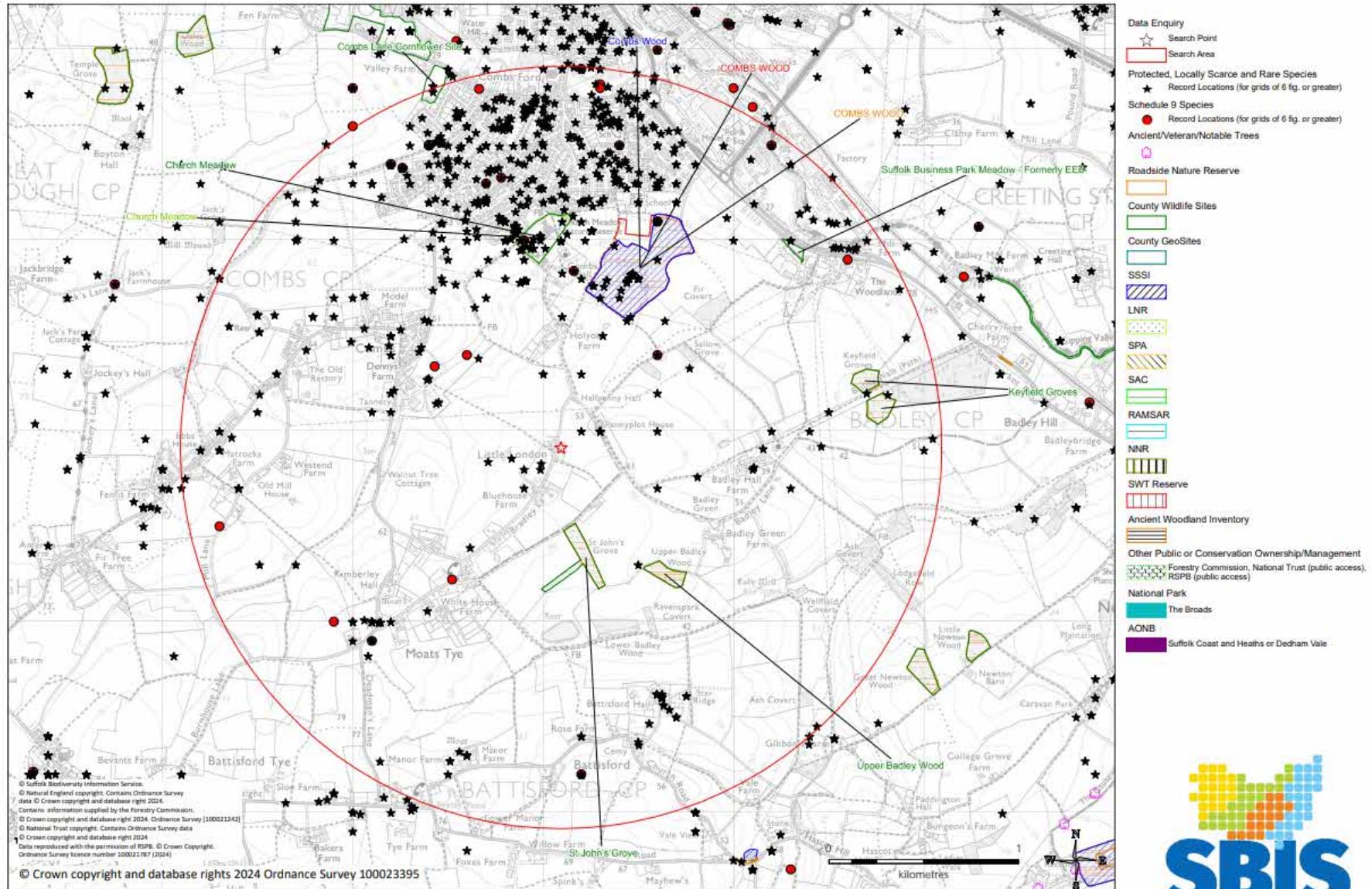
The field survey was conducted outside of the optimal survey period for flowering plants. Although the habitats recorded on site are unlikely to change to those described in this report, flora biodiversity is likely to be under recorded.

Pond two was not accessible and could not be surveyed for GCN suitability.

The buildings onsite were not surveyed as no works are proposed as part of this planning application.

Appendix B

Map of protected sites within 2km



Greenlight (Copelands, Little London, Combs TM05094 55914) 2km Data Enquiry



Date: 24/01/2024 | 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 oxyacanthoides* 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 Wildlife Sites citations

CWS Number	Mid Suffolk 6
Site Name	ST JOHN'S GROVE
Parish	BADLEY
District	Mid Suffolk
NGR	TM052553
Description	<p>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 willow 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.</p>
Area	2.83

CWS Number	Mid Suffolk 7
Site Name	UPPER BADLEY WOOD
Parish	BADLEY
District	Mid Suffolk
NGR	TM057553
Description	<p>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 Badley Wood and provides a valuable habitat for dead wood invertebrates and hole-nesting birds.</p>
Area	1.49

CWS Number	Mid Suffolk 46
Site Name	CHURCH MEADOW
Parish	COMBS
District	Mid Suffolk
NGR	TM050570
Description	<p>Church Meadow, which belongs to Mid Suffolk District Council is an area of unimproved species rich grassland (Priority habitat) and has good connectivity with other valuable semi-natural habitat such as Combs churchyard, Combs Wood (Ancient Woodland SSSI) and surrounding hedgerows.</p> <p>The meadow supports two main grassland communities: neutral grassland in the north and east and wet grassland in the lower lying areas. A range of wildflower species have been recorded here but of particular note is the occurrence of sulphur clover in the dry grassland and a population of early marsh-orchid in the wet area. The meadow ponds and watercourses support a good marginal and aquatic plant community. The ponds and adjacent habitat provide good breeding and refuge opportunities for great crested newt.</p>
Area	3.87

CWS Number	Mid Suffolk 9
Site Name	KEYFIELD GROVES
Parish	BADLEY
District	Mid Suffolk
NGR	TM067562
Description	<p>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 understory. 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.</p>
Area	2.87

CWS Number	Mid Suffolk 8
Site Name	SUFFOLK BUSINESS PARK MEADOW - FORMERLY EEB
Parish	STOWMARKET
District	Mid Suffolk
NGR	TM063569
Description	<p>This site is a gently sloping area of unimproved species rich grassland (Priority habitat) adjacent to Suffolk Business Park, off the B1113 Needham to Stowmarket road. Despite its small size, the grassland community contains a high diversity of flowering plants. In addition to many fairly common meadow species such as common knapweed, selfheal, bird's-foot trefoil and wild carrot, the site also supports a number of species which are becoming increasingly scarce in Suffolk. These include strawberry clover, stone parsley, purging-flax and spiny restharrow. Pyramidal orchids and varying numbers of bee orchids are also present. One plant of greater burnet-saxifrage has also been found previously on this site.</p>
Area	0.41

CWS Number	Mid Suffolk 155
Site Name	COMBS LANE CORNFLOWER SITE
Parish	STOWMARKET
District	Mid Suffolk
NGR	TM044578
Description	This site lies to the west of Combs village and was previously designated as supporting cornflower. Although now absent, the sward in the east of the site is developing into species rich semi-improved neutral grassland with species including bee orchid, cowslip, hedge bedstraw, common knapweed, goat's beard, hairy tare and perforate St John's.
Area	1.57

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 damaged 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
Cherry	Prunus sp.
Cherry laurel	Prunus laurocerasus
Cleavers	Galium aparine
Clover	Trifolium sp.
Cranesbill	Geranium sp.
Creeping buttercup	Ranunculus repens
Daisy	Bellis perennis
Dandelion	Taraxacum officinale
Fescue	Festuca sp.
Forget-me-not	Myosotis sp.
Groundsel	Senecio vulgaris
Ground ivy	Glechoma hederacea
Hawthorn	Crataegus monogyna
Ivy	Hedera helix
Leyland cypress	Cupressus x leylandii
Nettle	Urtica dioica
Perennial ryegrass	Lolium perenne
Silver birch	Betula pendula
Yarrow	Achillea millefolium

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

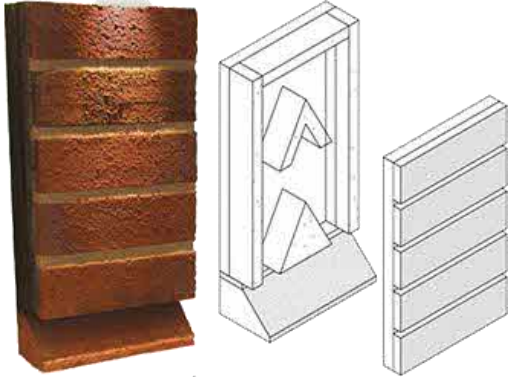



Shrubs	
Blackthorn (f; d)	<i>Prunus spinosa</i>
Buckthorn (f; d)	<i>Rhamnus catharticus</i>
Crab apple (f; d)	<i>Malus sylvestris</i>
Dog rose (f; d)	<i>Rosa canina</i>
Dogwood (f; d)	<i>Cornus sanguinea</i>
Field maple (d)	<i>Acer campestre</i>
Guelder-rose (f; d)	<i>Viburnum opulus</i>
Hawthorn (f;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

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

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

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)

<p style="text-align: center;">Integrated bat box Habibat Bat Box</p> 	<p style="text-align: center;">Integrated bat box Bat Block</p> 
<p style="text-align: center;">Standalone bat box 2F Schwegler Bat Box (General purpose)</p> 	<p style="text-align: center;">Standalone bat box Greenwood's Ecohabitats three crevice bat box</p> 

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.

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

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 $\geq 5\text{m}$ 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.

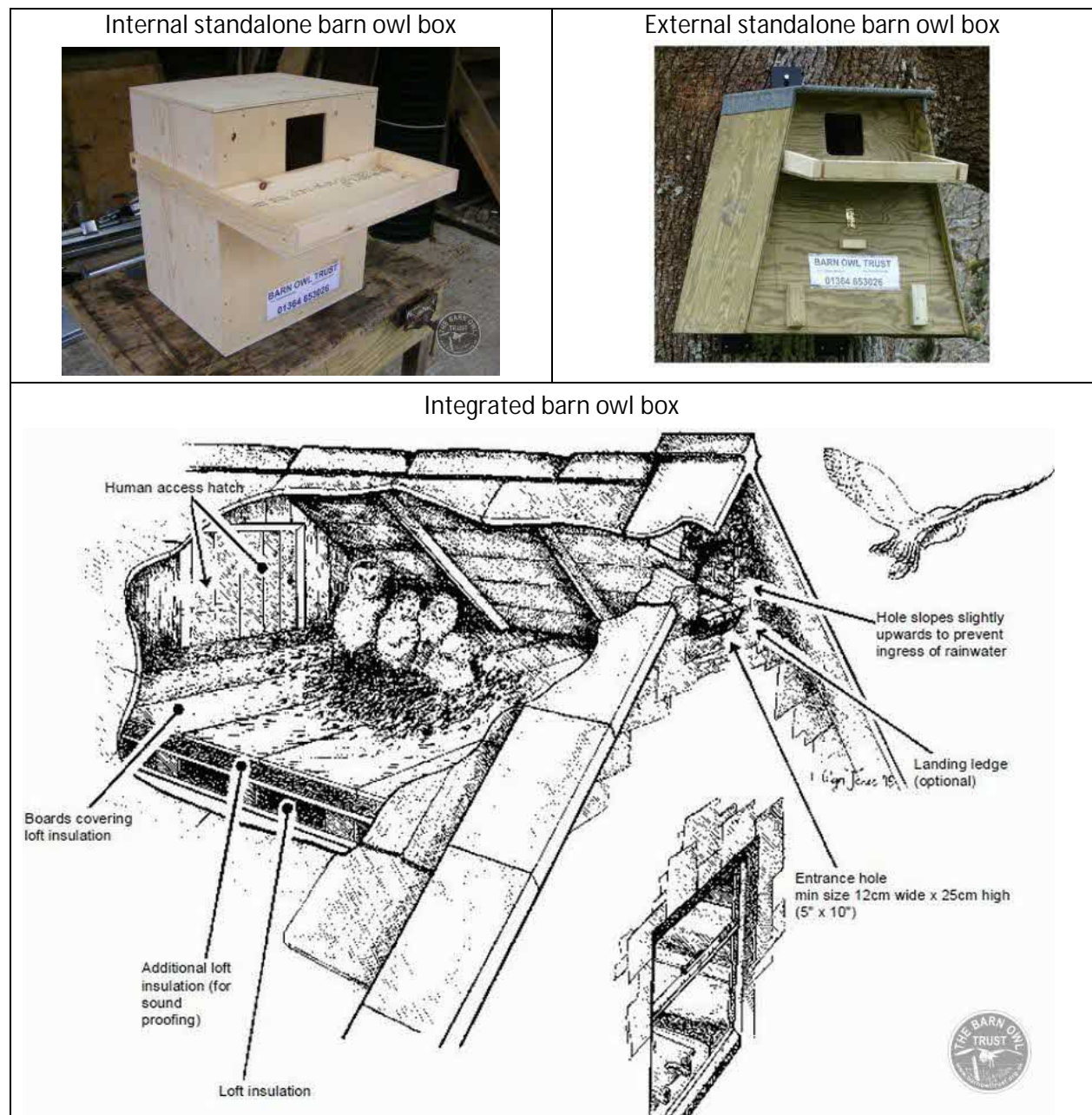
Tips for putting up barn owl boxes:

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.



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 0.4m² (e.g. 500mm wide x 800mm high or 400mm wide x 1m high), ideal size is 1m² (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.

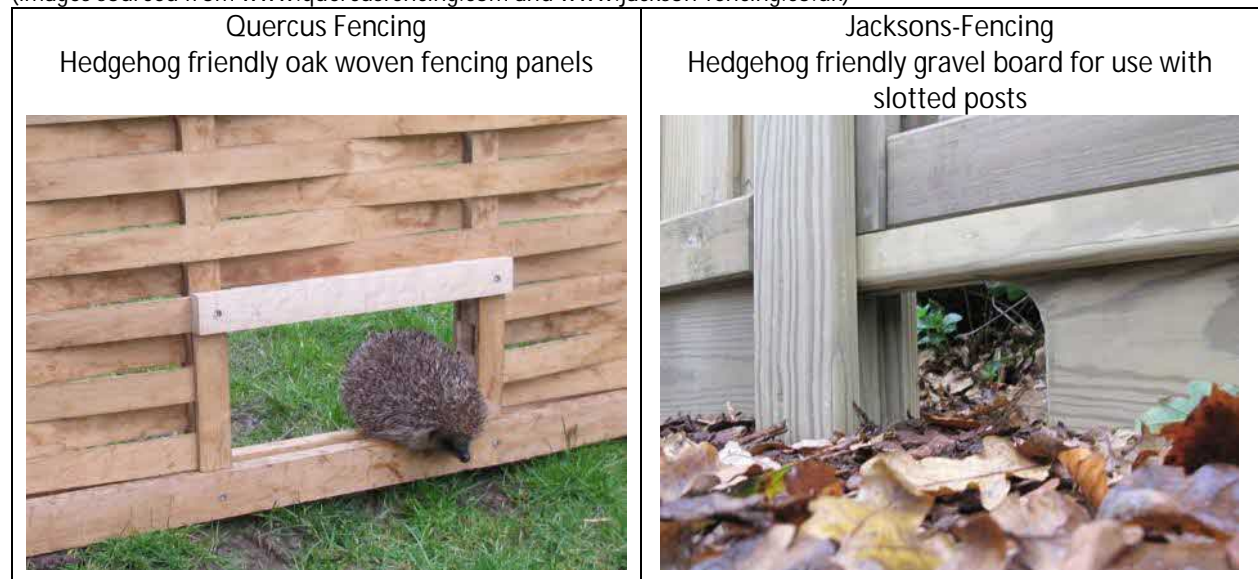
In the case of a loft partition, create an integral crawl-through doorway.

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.jacksons-fencing.co.uk)



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 Proposed plans

