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# **Preliminary Ecological Appraisal**

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**Kedges End, Kersey**

**for**

**David Butcher**

**22 December 2023**



**Client**

David Butcher

**Planning authority**

Babergh 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
Date of site visit	5 December 2023
Date of report	22 December 2023
Reference number	3397
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<b><i>Signed disclosure</i></b> <i>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.</i> <i>Nathan Duszynski, ACIEEM</i>	
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## SUMMARY

- Greenlight Environmental Consultancy Ltd. has been commissioned to carry out a Preliminary Ecological Appraisal for a proposed development at Kedges End, Kedges Lane, Kersey, Ipswich, Suffolk, IP7 6RY (grid reference: TL 99997 44112).
- 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 one cart lodge.
- 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	One statutory and two 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	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> Soft landscaping scheme to include the planting of new native species-rich hedgerows and trees around the site. 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. Aquatic habitats will be clearly marked with temporary protective fencing, detailing no work zones.
Bats	Three buildings on site were not assessed as they will not be impacted by the proposals. <b>Moderate</b> value commuting and	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 installed on new building.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
	foraging habitat on site.		
Breeding birds	Nesting habitats for hedgerow, tree and building nesting birds present on site, including potential breeding habitat for Red and Amber listed species. No suitable barn owl foraging habitat on site.	No loss of nesting habitat on site.	<u>Mitigation</u> Works to any hedgerow, trees and buildings on site to be conducted outside bird nesting season or under watching brief of ecologist if during nesting season. <u>Enhancement</u> Installation of two integrated sparrow terraces, installed on new building.
Great crested newts	Unsuitable terrestrial habitats on site. One pond located on site and one pond within 250m. Pond one was assessed as <b>poor</b> suitability and pond two could not be accessed for detailed assessment. Site falls within Green and Amber risk zones for district level licensing. One GCN record within 2km.	No impacts predicted.	<u>Precautionary mitigation</u> Cut and maintain vegetation short (maximum height of 10cm) on and around the site until the start of works.
Water voles and otters	Suboptimal stream adjacent the site for water vole and suitable for otters. One water vole and two otter records within 2km.	No impacts predicted.	<u>Precautionary mitigation</u> A 6m no-work buffer zone to be applied from the top of the bank using temporary barrier netting. If proposed works change to incorporate this area, further water vole surveys will be conducted prior to works commencing to inform a detailed mitigation strategy.
Other animals	N/A	Potential harm to animals.	<u>Mitigation</u> 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.

## 1. METHOD

- 1.1. A walkover of the site was conducted on 5<sup>th</sup> December 2023 by Ebonie Lambo-Hills – an independent, qualified and experienced ecologist. Survey conditions were as follows: 7°C, 7mph wind, sunny intervals and dry.
- 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:
  - White-clawed crayfish *Austropotamobius pallipes*
  - Reptiles (slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and adder *Vipera berus*)
  - Badger *Meles meles* (setts)
  - 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 Kersey, with the A14 located approximately 12.4km east. The closest town is Hadleigh located approximately 2.8km southeast of the site.
- 2.3. The site is enclosed by residential dwellings and allotments to the north, The Street and residential dwellings to the east, a stream and residential dwellings to the south and grassland 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 21/12/23.

### 3. DESCRIPTION OF THE DEVELOPMENT

- 3.1. The proposals are for the construction of one cart lodge. Please refer to Appendix K for the proposed plans.

### 4. PROTECTED SITES

#### Statutory

- 4.1. There is one statutory protected site located within 2km – one Site of Special Scientific Interest (“SSSI”). Please refer to Appendix C for the full citation.
  - i. Groton Wood SSSI, approximately 2km southwest.

*“Groton Wood is an ancient coppice woodland on a boulder clay plateau overlain by a surface deposit of loess. The site consists of a primary core with later additions of post-medieval secondary woodland.”*
- 4.2. The proposed development falls outside of all SSSI Impact Risk Zones relating to rural non-residential developments.

#### Non-statutory

- 4.3. There are two non-statutory protected sites located within 2km – two County Wildlife Sites (“CWS”). Please refer to Appendix C for the full citations.
  - i. Howe Wood CWS, approximately 0.8km northwest.

*“Howe Wood is situated between the villages of Kersey Tye and Lindsey Tye and not far from Groton Wood, a large wood of high conservation value which is designated as a Site of Special Scientific Interest. The sinuous outline of Howe Wood is a characteristic feature of ancient woods as is the ditch and wood bank which surrounds it.”*
  - ii. Fenn’s Grove CWS, approximately 1.1km southeast.

*“This small wood is listed in English Nature’s Ancient Woodland Inventory. Surrounded by arable land, Fenn’s Grove is enclosed in part by a ditch and bank; a characteristic feature of ancient woodlands.”*



## 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, Lowland Fens, Lowland Meadows, Deciduous Woodland, Traditional Orchards and Woodpasture and Parkland BAP Priority Habitat. The closest of which, is Traditional Orchard located approximately 100m southeast of the site.

### Field study

- 5.2. The habitats on the site are of **low** ecological value, being mainly modified grassland managed as lawn with scattered trees, a pond, non-native hedgerows and native hedgerows (Priority Habitat).
- 5.3. Priority Habitats, as listed under the NERC Act 2006 Section 41 Habitats of Principal Importance found on site include: hedgerows.
- 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 is dominated by managed modified grassland, consisting of a residential garden that is frequently mown, with associated ornamental planting. Species include: annual meadow grass *Poa annua*, aquilegia *Aquilegia sp.*, creeping buttercup *Ranunculus repens*, daisy *Bellis perennis*, dandelion *Taraxacum officinale*, greater periwinkle *Vinca major*, ground ivy *Glechoma hederacea*, perennial ryegrass *Lolium perenne*, rhododendron *Rhododendron sp.*, ribwort plantain *Plantago lanceolata*, rose *Rosa sp.*, white clover *Trifolium repens* and Yorkshire fog *Holcus lanatus*.
- 5.6. Around the garden, there are several scattered trees, species include: ash *Fraxinus excelsior*, beech *Fagus sylvatica*, Lawsons cypress *Chamaecyparis lawsoniana*, Leyland cypress *Cupressus × leylandii*, silver birch *Betula pendula*, snowberry *Symphoricarpos albus* and wild cherry *Prunus avium*.

*Other native hedgerow (UK Habitat Classification h2a6) – Priority Habitat*

- 5.7. There is a native hedgerow which is approximately 2m in height and 1.5m in width. Species include: wild privet *Ligustrum vulgare* and yew *Taxus baccata*. This hedgerow does not qualify as “important” under The Hedgerow Regulations 1997, lacking the required number of native woody species or associated features.

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

- 5.8. Along the northern periphery, the site features a non-native hedgerow which is comprised of approximately 50% non-native species. Species include: cherry laurel *Prunus laurocerasus*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, holly *Ilex aquifolium* and Leyland cypress.

*Buildings (UK Habitat Classification u1b5)*

- 5.9. There are three buildings on site used for residential purposes with associated storage. Please refer to the bat section detailed below for further information.

*Other developed land (UK Habitat Classification u1b6)*

- 5.10. The site features a mixture of gravel and patio hardstanding surrounding the residential dwelling and at the northern entrance to the site.

*Artificial unvegetated, unsealed surface (UK Habitat Classification u1c, secondary code; 510 bare ground)*

- 5.11. An area of bare ground is present to the northwest of the site around the chicken coop.

*Built linear features (UK Habitat Classification u1e, secondary code; 612 fence & 853 mortared wall)*

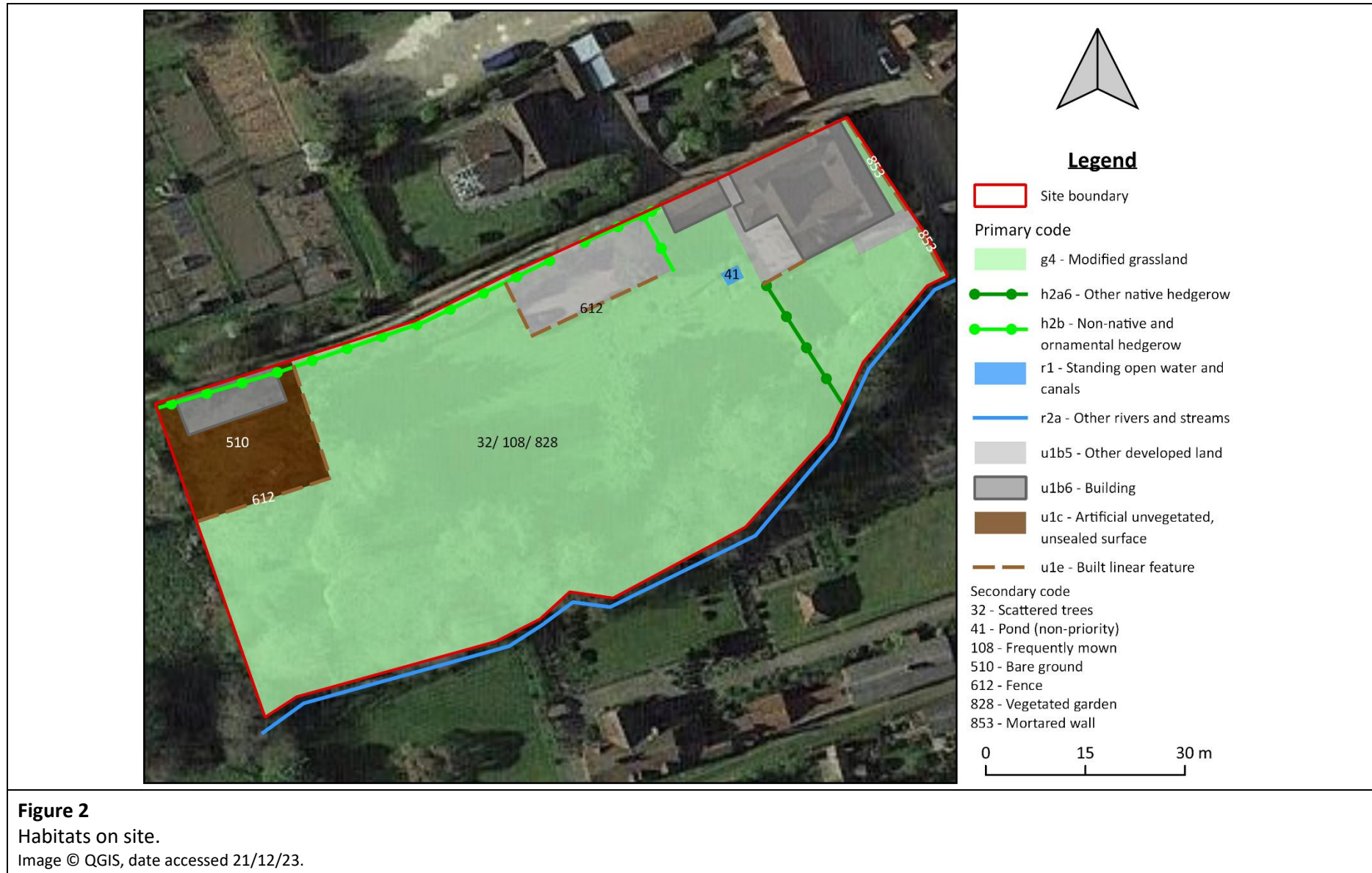
- 5.12. The site features a brick wall along the eastern periphery, and a mixture of post and rail, bamboo panels and close board fencing around the site.

*Standing open water and canals (UK Habitat Classification r1, secondary code; 41 pond (non-priority))*

- 5.13. There is one ornamental lined, fishpond located on site. The pond features brick sides and a net over the top.

*Other rivers and streams (UK Habitat Classification r2b)*

- 5.14. Along the southern periphery, there is a running stream which is connected to the River Brett, located approximately 1.2km east of the site.





**Photo 1**, access track to the northwestern entrance and non-native hedgerow along the northern periphery, looking northeast.



**Photo 2**, hardstanding, looking northeast.



**Photo 3**, buildings and bare ground around the chicken coop, looking northwest.



**Photo 4**, modified grassland with scattered trees, looking west.



**Photo 5**, managed modified grassland with ornamental planting, looking northeast.



**Photo 6**, stream along the southern periphery, looking southwest.

## 6. PROTECTED AND NOTABLE SPECIES

### Desktop review

#### Data search

- 6.1. The biodiversity data search within 2km of the site indicated 678 records from 124 species.
- 6.2. Records of note within 2km and relevant to the proposed development works are:
  - 14 barn owl *Tyto alba* records, with the most recent from 2021.
  - 14 skylark *Alauda arvensis* records, with the most recent from 2020.
  - 15 swift *Apus apus* records, with the most recent from 2015.
  - One GCN *Triturus cristatus* record from 2014, located approximately 0.9km northeast.
  - Two otter *Lutra lutra* records, with the most recent from 2013. The closest record is located approximately 1.3km northwest.
  - One water vole *Arvicola amphibius* record from 2013 and located approximately 1.7km northwest.
  - 11 hedgehog *Erinaceus europaeus* records, with the most recent from 2021.
  - 15 bat records, with the most recent from 2022, including common pipistrelles *Pipistrellus pipistrellus*, soprano pipistrelles *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, noctules *Nyctalus noctula*, and barbastelles *Barbastella barbastellus*.

#### Protected species licences

- 6.3. A 2km search on <http://www.magic.gov.uk/> indicated one record of a granted European Protected Species (“EPS”) Mitigation Licence relating to:
  - Bats (case reference: 2015-13984-EPS-MIT) from 2015, approximately 0.8km northeast. Species on the licence include: common pipistrelle, soprano pipistrelle, Natterer’s *Myotis nattereri* and brown long-eared.
- 6.4. Greenlight Environmental Consultancy Ltd is aware of an additional EPS mitigation relating to:
  - Bats (case reference: 2021-55847-EPS-MIT) from 2021, approximately 0.1km east. Species on the licence include: common pipistrelle, soprano pipistrelle, brown long-eared and barbastelle.

### Bats

- 6.5. Although there are three buildings located on site, the buildings were not assessed, as the buildings will not be impacted by the proposed works.



### Trees

- 6.6. The trees on and 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

- 6.7. The site itself provides **moderate** value foraging habitat for bats over scattered trees and along the hedgerow and stream.
- 6.8. The landscape immediately adjacent to the site is considered of **moderate** value for foraging and commuting bats, with linked gardens, stream, hedgerows and treelines providing links to the wider landscape. Residential dwellings adjacent the site and within Kersey have the potential to provide roosting opportunities for bats.

### Birds

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

#### **Red listed:**

Starling	<i>Sturnus vulgaris</i>
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#### **Amber listed:**

Black-headed gull	<i>Chroicocephalus ridibundus</i>
Dunnock	<i>Prunella modularis</i>
Moorhen	<i>Gallinula chloropus</i>
Woodpigeon	<i>Columba palumbus</i>

#### **Green listed:**

Blackbird	<i>Turdus merula</i>
Blue tit	<i>Cyanistes caeruleus</i>
Buzzard	<i>Buteo buteo</i>
Carrion crow	<i>Corvus corone</i>
Chaffinch	<i>Fringilla coelebs</i>
Dunnock	<i>Prunella modularis</i>
Goldfinch	<i>Carduelis carduelis</i>
Great tit	<i>Parus major</i>
Red kite	<i>Mulvis mulvis</i>
Robin	<i>Erithacus rubecula</i>

#### **Introduced:**

Pheasant	<i>Phasianus colchicus</i>
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- 6.11. The site provides suitable nesting habitats for hedgerow, tree and building nesting species.
- 6.12. The site has the potential to support nests for the following Red listed species: house sparrow *Passer domesticus*, swift *Apus apus* and starling.
- 6.13. The site has the potential support nests for the following Amber listed species: dunnock, mallard *Anas platyrhynchos*, moorhen, rook *Corvus frugilegus*, tawny owl *Strix aluco*, woodpigeon and wren *Troglodytes troglodytes*.
- 6.14. 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.
- 6.15. No signs of barn owl were found on the site and no foraging habitat is present.

### **Great crested newts**

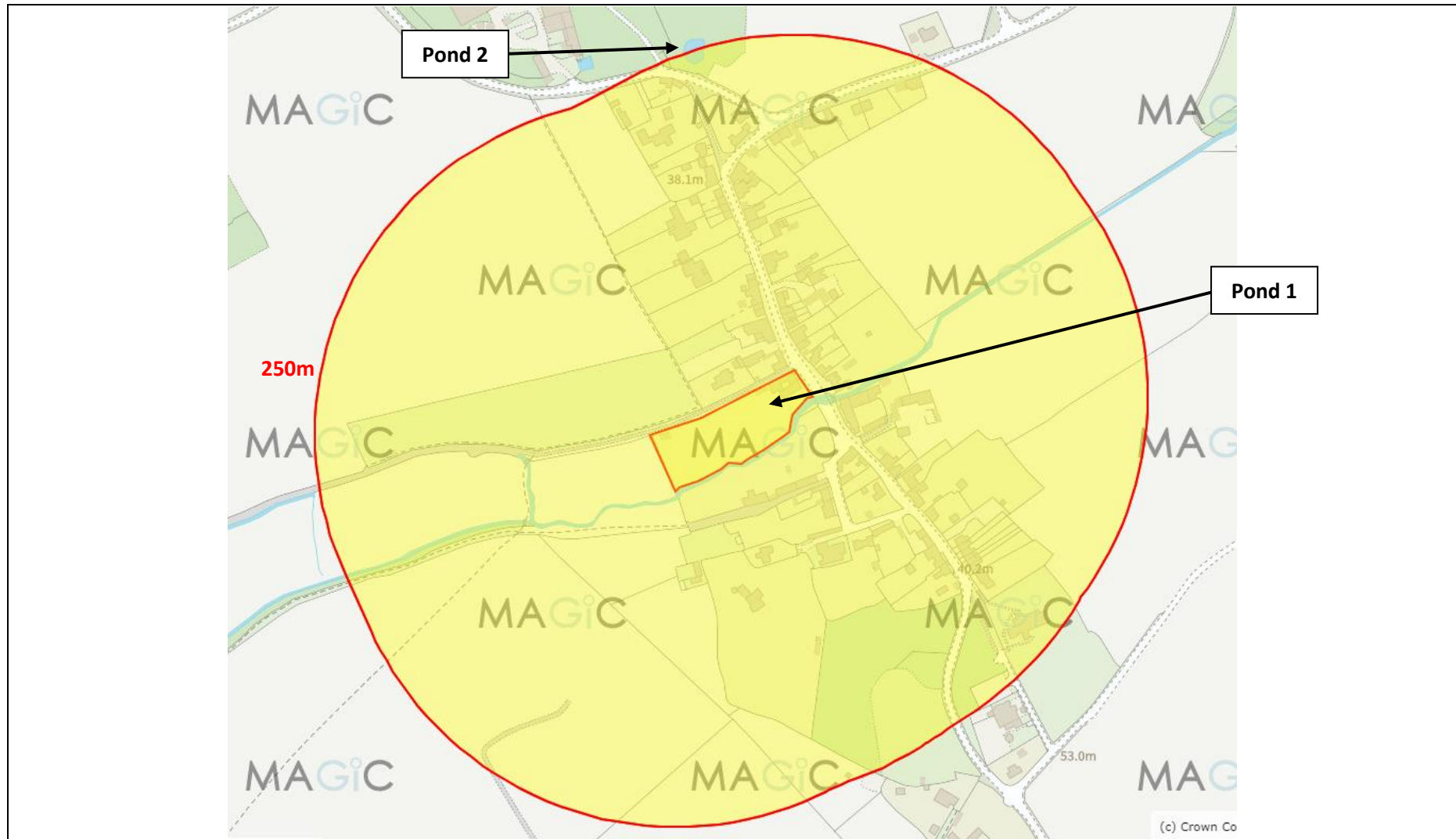
- 6.16. There is one pond within the survey site and one further pond within 250m, which for the size of the development and nature of terrestrial habitat on the site, is a sufficient distance to consider for assessment (Figure 4). GCN are most likely to occupy good quality terrestrial habitat within 250m of a breeding pond (English Nature, 2001).
- 6.17. The terrestrial habitats on the site are considered predominantly unsuitable for GCN, consisting of regularly managed modified grassland with scattered trees and bare ground, with suitable hedgerows along the northern periphery.
- 6.18. Terrestrial habitats adjacent the site include a mixture of unsuitable (streams and residential dwellings with associated gardens and hardstanding) and suitable (grassland, allotments and hedgerows) GCN foraging, commuting and hibernating habitats.
- 6.19. Pond one was assessed as **poor** suitability for GCN (Table 3). Pond two was not assessed in detail, as authorised access to the pond was not available.
- 6.20. The site falls within the Green and Amber risk zones for GCN district level licensing, which is classified as “*containing sparsely distributed GCN and are less likely to contain important pathways of connecting habitat for this species*” and “*containing main population centres for GCN and comprise important connecting habitat that aids natural dispersal*” respectively (Natural England, 2021).
- 6.21. The fast-flowing stream to the south could act as habitat barriers and ecologically separate the site from ponds in the local vicinity.

Pond	1
Geographic location	Zone A
	1.00
Pond surface area (m <sup>2</sup> )	<50m <sup>2</sup>
	0.05
Desiccation rate	Never
	0.90
Water quality/ invert density	Moderate
	0.67
Shoreline shade (%)	0%
	1.00
Waterfowl impacts	Absent
	1.00
Fish impacts	Major
	0.01
Ponds within 1km	13+
	1.00
Terrestrial habitat quality	Moderate
	0.67
Macrophyte cover (%)	30%
	0.60
HSI Score	<b>Poor</b>
	0.41

**Table 3**, HSI score for ponds within 250m of the proposed site.



**Photo 7**, pond one, looking south.



**Figure 4**  
Ponds within 250m of the proposed site.  
Image © MAGiC, date accessed 21/12/23.

### **Water voles and otters**

- 6.22. The stream on the southern periphery of the site is considered suboptimal for water voles, having suitable flowing water and a mixture of short grass, submerged weed, herbaceous plants and bushes for foraging. Although the banks currently provide unsuitable burrowing locations for water vole due to the water level being close to the banks edge, there has been higher than average rainfall over the preceding three months (161% of the long term average rainfall; Environment Agency, 2023). As water levels are likely to drop during summer months, the banks are considered to provide suitable locations for burrowing. No burrows or signs of water vole were identified during the survey.
- 6.23. The stream is considered suitable for otters, albeit no holts or signs of use by otters were observed on site.

## 7. DISCUSSION AND CONCLUSIONS

### Protected sites

- 7.1. The development footprint falls outside all identified protected sites (statutory and non-statutory). There is one statutory protected site and two non-statutory protected sites located within 2km of the site.
- The closest statutory protected site (Groton Wood SSSI) is located approximately 2km southwest and designated for its ancient woodland.
  - The closest non-statutory protected site (Howe Wood CWS) is located approximately 0.8km northwest of the site and designated for ancient woodland of high conservation value.
- 7.2. The proposed development falls outside of any SSSI Impact Risk Zones relating to rural non-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 not require the clearance of vegetated habitats on site, with the proposed works to be located on an area of hardstanding. No priority habitats will be affected by the proposed development.
- 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 the planting of new native species-rich ( $\geq 5$  species), hedgerows and trees around the site (see Appendix F for suggested species).
  - 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  $\geq 10$ m 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 are expected to result in a low scale loss of potential foraging and commuting habitats for bats through the 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°, 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 (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 is not expected to result in a loss of bird nesting habitat with works limited to an area of hardstanding.

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

- i. If any works affecting bird nesting habitat such as management of hedgerows, trees or buildings are proposed these would ideally need to be conducted outside the main nesting season. If work is planned during the bird nesting season (between 1<sup>st</sup> March and 31<sup>st</sup> 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. Two sparrow terraces (Integrated sparrow terrace – Appendix G).

#### **Great crested newts**

7.14. The proposed works are not expected to result in a loss of GCN terrestrial habitat with works limited to an area of hardstanding.

7.15. We consider it highly unlikely that GCN would forage and/or commute across the proposed area of works, with the pond located on site (pond one) providing unsuitable habitat for breeding GCN, being heavily stocked with fish. The only other pond within 250m (pond two) is located approximately 240m north of the site.

7.16. 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.

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

#### **Water voles and otters**

7.18. Although the stream adjacent the southern boundary was considered suboptimal for water voles and suitable for otters, no burrows, holts or signs of use were observed, and the stream will be unaffected by proposed works.

7.19. As a precautionary measure, the following mitigation will be implemented to avoid impacts on water voles and otters from the proposed works:



- i. A 6m no-work buffer zone (includes vegetation clearance) to be applied from the top of the bank using temporary barrier netting, to protect potential water vole burrows and prevent pollution/run-off from entering the watercourse. This area will be marked using a temporary barrier netting.
  - ii. If proposed works change to incorporate this area, further water vole surveys will be conducted prior to work commencing to inform a detailed mitigation strategy.
- 7.20. After these precautionary mitigation measures, we predict no impact on water voles or otters from the development plans. We consider that a European Protected Species Mitigation Licence will not be required, and no further surveys are necessary.

### **Other animals**

- 7.21. 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).
- 7.22. 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).

There were no permanent structures on site to be assessed for their potential to support roosting bats. The site is comprised predominantly of modified grassland and hardstanding.

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 <sup>2</sup>
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.

### **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.

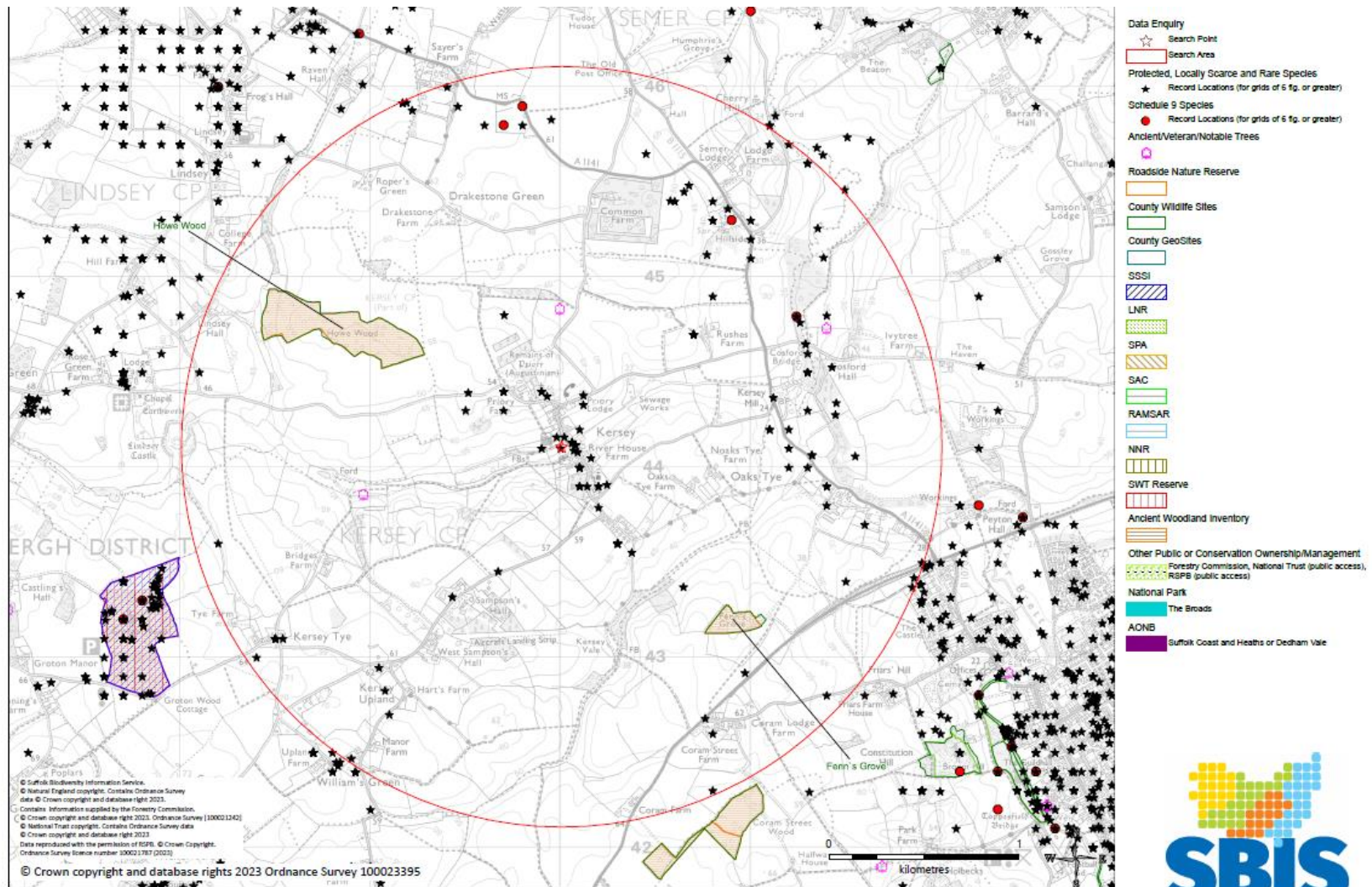
### **Other protected species**

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.

**Appendix B**  
**Map of protected sites within 2km**





## Appendix C

### Protected sites citations

#### SSSI citations

COUNTY: SUFFOLK      SITE NAME: GROTON WOOD

DISTRICT: BABERGH

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

Local Planning Authority: BABERGH DISTRICT COUNCIL

National Grid Reference: TL 978431      Area: 19.4 (ha.) 47.8 (ac.)

Ordnance Survey Sheet 1:50,000: 155      1:10,000: TL 94 SE

Date Notified (Under 1949 Act): 1971      Date of Last Revision: N/A

Date Notified (Under 1981 Act): 1985      Date of Last Revision: –

**Other Information:**

This site is a nature reserve belonging to the Suffolk Trust for Nature Conservation.

**Reasons for Notification:**

Groton Wood is an ancient coppice woodland on a boulder clay plateau overlain by a surface deposit of loess. The site consists of a primary core with later additions of post-medieval secondary woodland. The wood contains the finest stand known in Suffolk of the Small-leaved Lime *Tilia cordata*, a community of great ecological interest. There is a diverse ground flora that includes a number of species that are confined to ancient woodlands.

Acid birch-ash-lime woodland dominates the medieval core of Groton Wood. Lime is present as both coppiced stools and standard trees and forms an almost pure stand in many areas. The post-medieval areas are generally acid pedunculate oak-hazel-ash woodland with frequent Wild Cherry *Prunus avium* and fragments of other stand-types. The wood is still managed in a traditional way with annual coppicing.

Bramble *Rubus fruticosus* agg. dominates the ground flora over much of the wood with patches of Dog's Mercury *Mercurialis perennis*. The flora is rich and includes several uncommon species such as Violet Heleborine *Epipactis purpurata*, Stinking Iris *Iris foetidissima*, Herb Paris *Paris quadrifolia*, Wood Spurge *Euphorbia amygdaloides* and Woodruff *Galium odoratum*. A series of rides have been created in the wood. These have a distinctive flora and are dominated by Great Willow-herb *Epilobium hirsutum* and Meadowsweet *Filipendula ulmaria*.

There is an active badger sett on the site.

### County Wildlife Sites citations

<b>CWS Number</b>	Babergh 57
<b>Site Name</b>	FENN'S GROVE
<b>Parish</b>	Babergh
<b>NGR</b>	TM009432
<b>Description</b>	<p>This small wood is listed in English Nature's Ancient Woodland Inventory. Surrounded by arable land, Fenn's Grove is enclosed in part by a ditch and bank; a characteristic feature of ancient woodlands. Two old oak pollards, another indication of the wood's antiquity are situated on the eastern edge of the wood. The tree layer consists mainly of mature oak standards, with a small area dominated by ash in the centre of the wood. In addition there are small patches of elm scrub and cherry. The understorey which is dense in parts is composed of hazel coppice and elder. Bramble and large drifts of red campion dominate the ground flora with the exception of small areas of bracken, bluebell and nettle. A rutted track runs through the middle of the wood. It is colonised by arable weeds where there is sufficient light and by Yorkshire fog, remote sedge, soft rush and red campion in the more shaded sections. Dead wood in the form of a few standing trees and abundant fallen timber provides an important habitat for dead wood invertebrates.</p>
<b>Area</b>	2.74
<b>CWS Number</b>	Babergh 83
<b>Site Name</b>	HOWE WOOD
<b>District</b>	Babergh
<b>NGR</b>	TL988447
<b>Description</b>	<p>Howe Wood is situated between the villages of Kersey Tye and Lindsey Tye and not far from Groton Wood, a large wood of high conservation value which is designated as a Site of Special Scientific Interest. The sinuous outline of Howe Wood is a characteristic feature of ancient woods as is the ditch and wood bank which surrounds it. Howe Wood is listed in English Nature's Inventory of Ancient Woodland for Suffolk. Howe Wood is a coppice with standards woodland. The tree canopy is composed of ash and oak standards with large amounts of field maple coppice. Abundant small-leaved lime, a</p>

species strongly associated with ancient woods, is also present. The shrub layer is composed of neglected hazel coppice with frequent elder, hawthorn and holly. The floor of the wood is colonised by dog's mercury, bluebell, primrose and in wetter areas by tufted hair-grass. At the time of survey, Howe Wood had not been managed for some time..

**Area**

15.52

## 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 30<sup>th</sup> 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
Annual meadow grass	<i>Poa annua</i>
Aquilegia	<i>Aquilegia sp.</i>
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Box	<i>Buxus sempervirens</i>
Bramble	<i>Rubus fruticosus</i>
Broadleaf dock	<i>Rumex obtusifolius</i>
Cherry laurel	<i>Prunus laurocerasus</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot	<i>Dactylis glomerata</i>
Corkscrew willow	<i>Salix matsudana</i>
Cow parsley	<i>Anthriscus sylvestris</i>
Crab apple	<i>Malus sylvestris</i>
Creeping buttercup	<i>Ranunculus repens</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i>
Dog-rose	<i>Rosa canina</i>
False oat grass	<i>Arrhenatherum elatius</i>
Greater periwinkle	<i>Vinca major</i>
Ground ivy	<i>Glechoma hederacea</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Herb-robert	<i>Geranium robertianum</i>
Holly	<i>Ilex aquifolium</i>
Iris	<i>Iris sp.</i>
Ivy	<i>Hedera helix</i>
Larch	<i>Larix sp.</i>
Lawsons cypress	<i>Chamaecyparis lawsoniana</i>
Leyland cypress	<i>Cupressus × leylandii</i>
Lords and ladies	<i>Arum maculatum</i>
Mouse-ear-hawkweed	<i>Pilosella officinarum</i>
Nettle	<i>Urtica dioica</i>
Ornamental sedge	<i>Carex sp.</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Palm acer	<i>Acer palmatum</i>
Perennial ryegrass	<i>Lolium perenne</i>
Red dead-nettle	<i>Lamium purpureum</i>
Rhododendron	<i>Rhododendron sp.</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rose	<i>Rosa sp.</i>
Rosemary	<i>Salvia rosmarinus</i>
Sage	<i>Salvia officinalis</i>
Silver birch	<i>Betula pendula</i>
Snowberry	<i>Symphoricarpos albus</i>
Spindle	<i>Euonymus europaeus</i>
Sun spurge	<i>Euphorbia helioscopia</i>
White clover	<i>Trifolium repens</i>
Wild cherry	<i>Prunus avium</i>
Wild privet	<i>Ligustrum vulgare</i>

Wisteria	<i>Wisteria sinensis</i>
Yarrow	<i>Achillea millefolium</i>
Yew	<i>Taxus baccata</i>
Yorkshire fog	<i>Holcus lanatus</i>

## 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 spp.</i> (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 spp.</i>
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>

#### Flowering Lawn Mixture – EL1 Emorsgate Seeds

<https://wildseed.co.uk/product/mixtures/complete-mixtures/special-habitat-mixtures/flowering-lawn-mixture/>

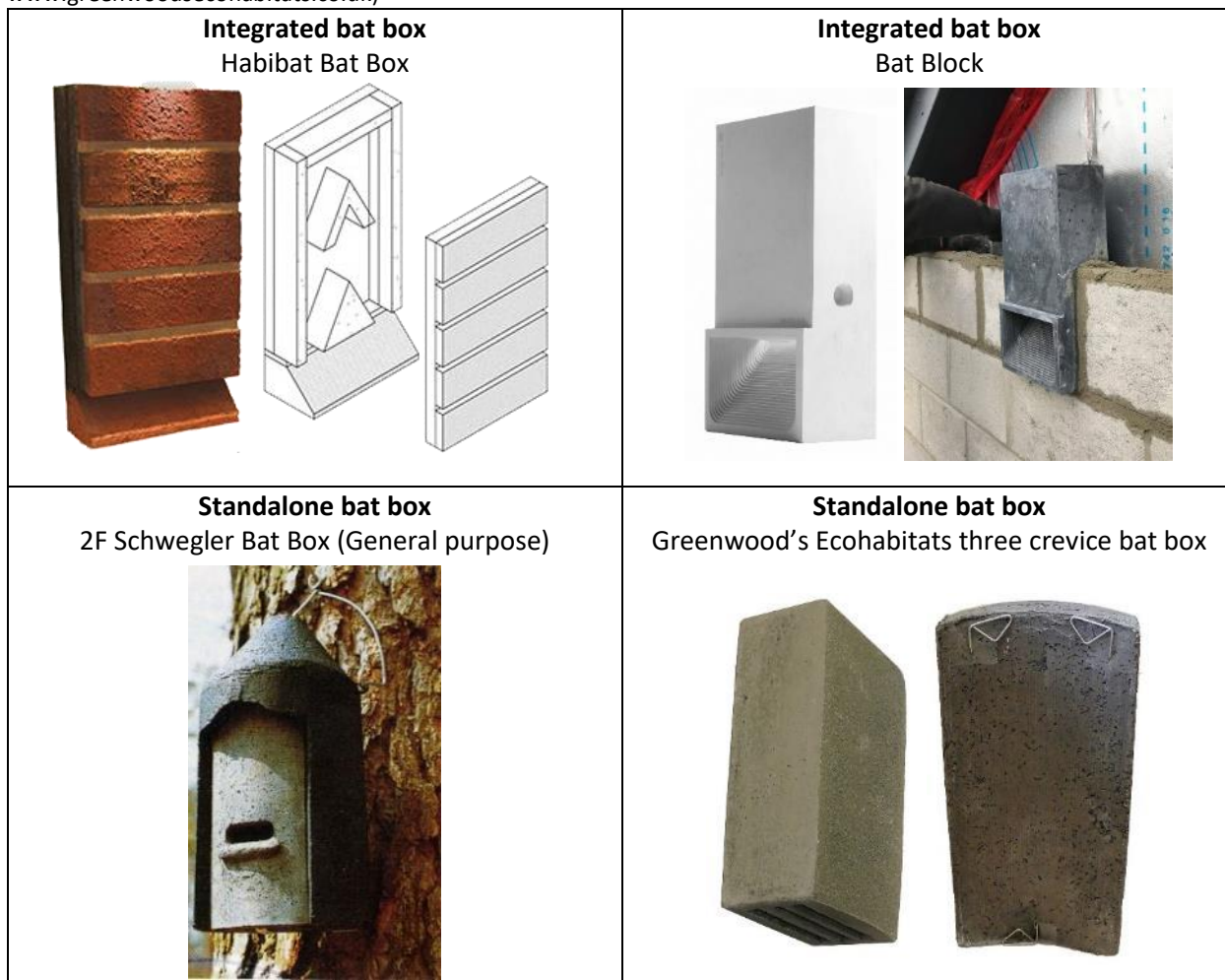
#### Wildflower Meadow Mixture – EM3 Emorsgate Seeds

<https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/special-general-purpose-meadow-mixture/>

## Appendix G

### Examples of bat and bird boxes

(images sourced from [www.nhbs.com](http://www.nhbs.com), [www.habibat.co.uk](http://www.habibat.co.uk), [www.manthorpe.co.uk](http://www.manthorpe.co.uk), [www.barnowltrust.org.uk](http://www.barnowltrust.org.uk) and [www.greenwoodsecohabitats.co.uk](http://www.greenwoodsecohabitats.co.uk))



#### Recommendations for installing bat boxes:

(Sourced from Bat Conservation Trust [www.bct.org](http://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><b>Small bird nesting box</b> 1B Schwegler Nest Box</p> 	<p><b>Small bird nesting box</b> 2H Schwegler Robin Box</p> 
<p><b>Integrated swift box</b> Swift Block</p> 	<p><b>Integrated swift box</b> Manthorpe Swift Brick</p> 
<p><b>Integrated sparrow terrace</b> 1SP Schwegler Sparrow Terrace</p> 	<p><b>Integrated sparrow terrace</b> Terraced Sparrow Box</p> 

**Recommendations for installing bird boxes:**

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

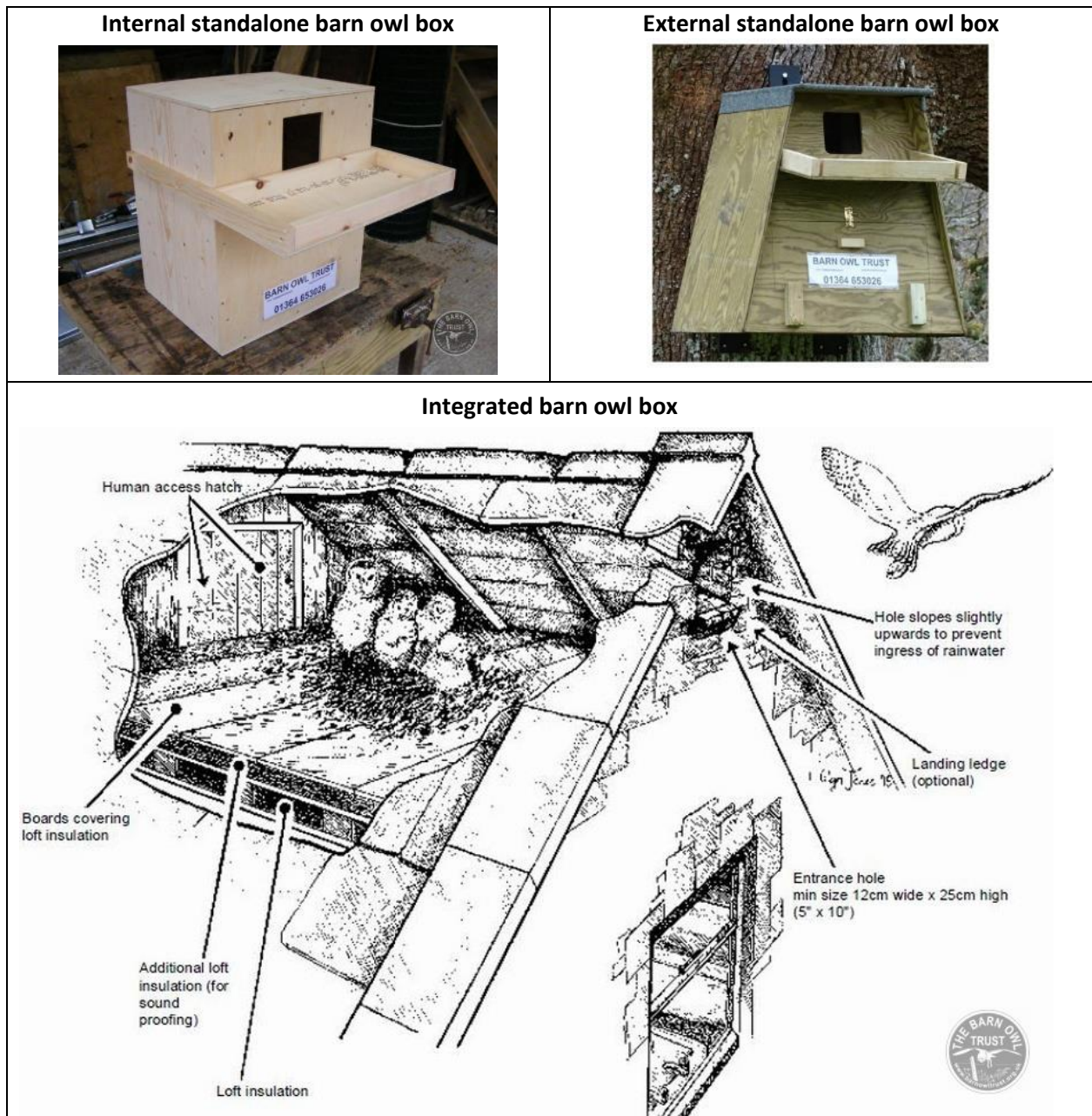
- Boxes should be sited 1-3m from the ground, ideally on tree trunks but can be placed on the side of a shed or wall. Avoid areas where foliage obscures the entrance hole.
- Don't place boxes too close to another nest box of the same type, as this may promote aggressive behaviour between neighbours.
- 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  $\geq 5$ 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](http://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<sup>2</sup> (e.g. 500mm wide x 800mm high or 400mm wide x 1m high), ideal size is 1m<sup>2</sup> (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](http://www.quercusfencing.com) and [www.jackson-fencing.co.uk](http://www.jackson-fencing.co.uk))

<b>Quercus Fencing</b>	<b>Jacksons-Fencing</b>
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](http://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.

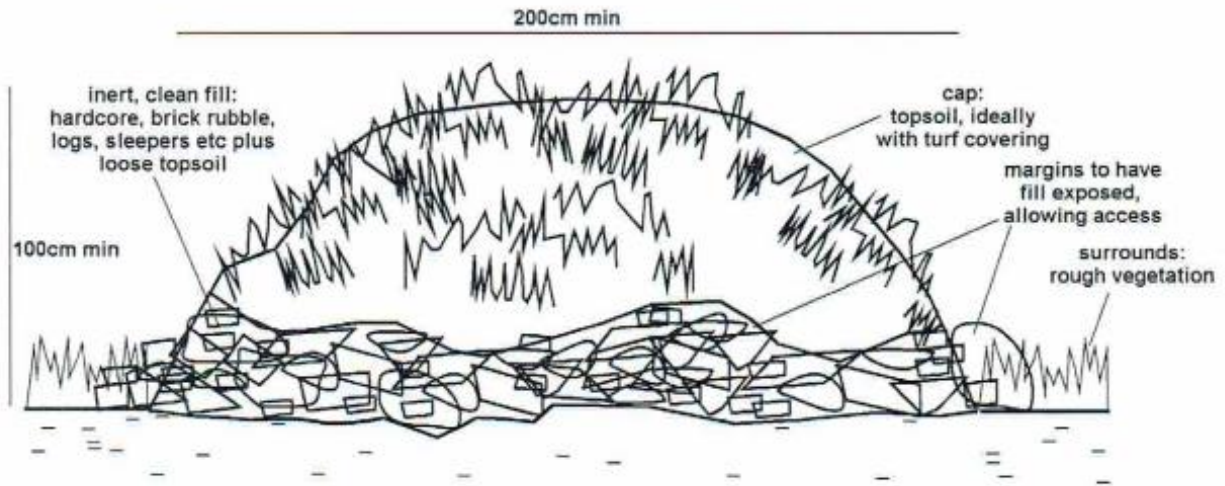
At least one hedgehog friendly fence panel should be located on each side of your garden, to provide unimpeded access.

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.



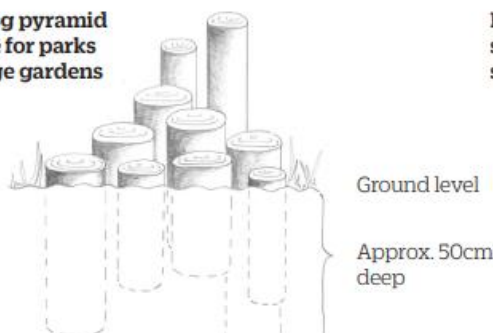
Source: English Nature (2001) *Great Crested Newt Mitigation Guidelines*, Peterborough.

- ▶ 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

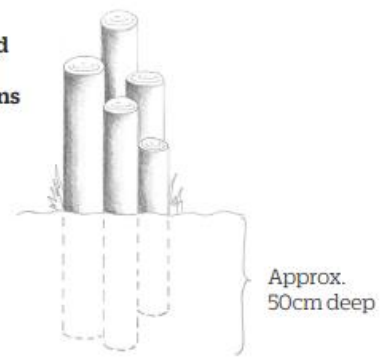
Your log pyramid will also benefit a range of other species including fungi, dead wood invertebrates and the animals that feed on them. It will be a great place for foraging small mammals, basking reptiles and potentially solitary bees.



**Large log pyramid  
suitable for parks  
and large gardens**





**Log pyramid  
suitable for  
small gardens**



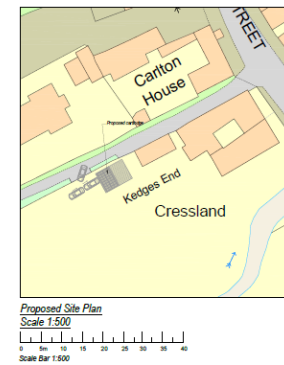
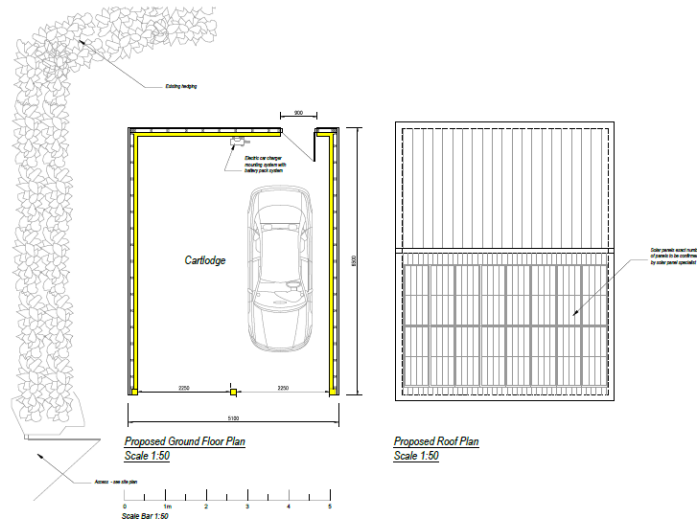
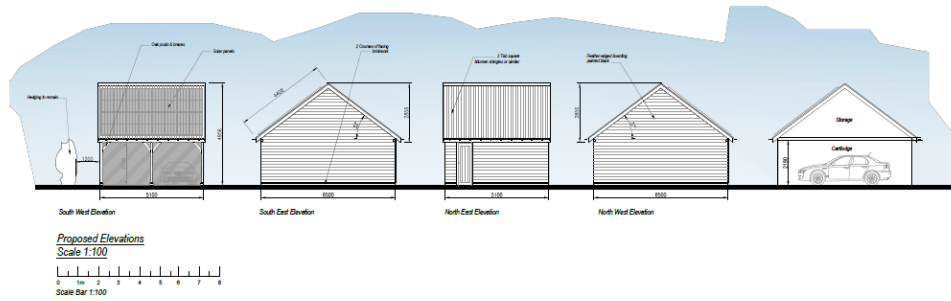
Peoples Trust for Endangered Species (2022) *Build a log pyramid for stag beetles*. London

## Appendix J Bee Bricks

(images sourced from [www.nhbs.com](http://www.nhbs.com) and [www.greenandblue.co.uk](http://www.greenandblue.co.uk))

Bee post	Bee bricks
	
<b>Recommended bee brick installation</b> (Sourced from NHBS <a href="http://www.nhbs.com">www.nhbs.com</a> )	
<ul style="list-style-type: none"><li>• 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.</li><li>• Bee posts will be positioned 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.</li></ul>	

## **Appendix K Proposed plans**



- Notes**
1. Drawing not to be scaled
  2. All measurements to be checked on site
  3. Any construction work carried out prior to receiving all necessary approvals for planning and/or building regulations is entirely at the householder's/clients risk

Existing Walls  
Proposed Walls



REV B - Design changes - 09/10/2023  
REV A - Design changes - 26/11/2022

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**daking designs ltd**  
architectural designers

Project: Proposed Detached Carlodge at Kedges End, The Street, Kersey, Ipswich, Suffolk, IP11 4DT		
Drawing Details: Proposed Floor Plans, Elevations & Site Plans		
Date: Nov 2022	Drawn: She Drawing @ A1	Drawn: BOW
Number: 476-001	Rev: B	