
Preliminary Ecological Appraisal

Land to rear of 49 High Street, Lakenheath

for

Montague Jamieson

3 May 2022

Client

Montague Jamieson

Planning authority

West Suffolk 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	
<p>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.</p> <p>Etienne Swarts, ACIEEM</p>	
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SUMMARY

Greenlight Environmental Consultancy Ltd. has been commissioned to carry out a Preliminary Ecological Appraisal for a proposed development at land rear of 49 High Street, Lakenheath, Suffolk, IP27 9DS (grid reference: TL 71432 82775).

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 conversion and extension of the existing structures on site to create a new residential dwelling.

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.

Further surveys for bats are required prior to works commencing to inform an ecological impact assessment of the site and an appropriate 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	Four statutory and three 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	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.
Bats	Moderate bat roosting potential in the outbuilding (building one) and low bat roosting potential in the cart lodge (building two). Low value commuting and foraging habitat on site.	Potential destruction of bat roosts if present in the buildings onsite. Low scale loss and potential light disturbance of commuting and foraging habitats on site.	<u>Further surveys required</u> At least two activity surveys to be undertaken on the outbuilding (building one) between May-September. At least one activity survey to be undertaken on the cart lodge (building two) between May-August. At least two hibernation surveys to be undertaken on the outbuilding (building one) between December-February. The outcome of the surveys will inform a detailed mitigation strategy and

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
			whether an EPS Mitigation Licence will be required from Natural England. <u>Mitigation</u> Any lighting schemes will comply with Bat Conservation Trust and CIE 150:2003 guidance.
Breeding birds	Nesting habitats for shrub, tree and building nesting birds present on site. No suitable barn owl foraging habitat on site.	Low scale loss of nesting habitat on site. Potential disturbance to breeding birds.	<u>Mitigation</u> Works to any shrub, 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 one integrated swift box and one small bird box on site.
Great crested newts	Unsuitable terrestrial habitats on site. No ponds within 250m of the site. No GCN records within 2km.	No impacts predicted.	None required.
Other animals	N/A	Potential harm to animals.	<u>Mitigation</u> Porous hedgehog friendly fencing will be used within and around the site. Rough sawn planks placed inside any open excavations. Night lighting of the construction site will be minimised as far as possible. 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 12th April 2022 by Lucy Reed and Ebonie Lambo-Hills – independent, qualified and experienced ecologists. Survey conditions were as follows: 17°C, 10mph 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:

Water vole *Arvicola amphibius*

Otter *Lutra lutra*

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 along the high street in the village of Lakenheath, Suffolk with the A1065 located approximately 4.3km east of the site and the nearest town of Brandon approximately 5.7km northeast.
- 2.3. The site is enclosed by residential dwellings to the north, east and west and churchyard to the south. The wider surroundings are comprised of a mixture of residential dwellings, heathland and arable fields lined with hedgerows and ditches.



Figure 1
Satellite image of site surroundings, site indicated by red line.
Image © Google, date accessed 25/04/22

3. DESCRIPTION OF THE DEVELOPMENT

- 3.1. The proposals are for the conversion and extension of the existing structures onsite.

4. PROTECTED SITES

Statutory

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

- i. Maidcross Hill SSSI, approximately 0.9km east.

“A sizeable area of very dry Breck grassland on a range of soil types, including the grassland covering a nearby reservoir. Past gravel workings have left areas of bare ground which are at various stages of recolonisation. Lack of grazing has permitted bracken and gorse scrub to invade some areas. Four nationally and one locally rare plant species occur on this site.”

- ii. Maidcross Hill LNR, approximately 0.9km east.

“Maids Cross Hill, an expansive sandy Warren and on the outskirts of Lakenheath Village. The site falls within the Breckland Site of Special Scientific Importance (SSSI) It is a valuable and important remnant of Brecks heathland.”

- iii. Lakenheath Poor Fen SSSI, approximately 0.9km west.

“Lakenheath Pools Fen is an area of species-rich fen meadow with areas of damp calcareous and neutral grassland. It lies on the transition between the Breckland sands and the fen basin. Although a relatively small fragment, it represents a once extensive tract of similar vegetation that is now lost to arable cultivation. The rich flora includes one rare and one uncommon species, whilst the dykes and ditches support a good variety of aquatic plants.”

- iv. Pashford Poor Fen, Lakenheath SSSI, approximately 1.5km northeast.

“Pashford Pools Fen, on the Breckland/Fen edge, is a mosaic of several different habitats supporting a great diversity of plants and animals. It consists of an area of unimproved, species rich mesotrophic meadow containing a number of hollows, some of which are occupied by pockets of spring-fed fen and marshy grassland. At one end of the site birch woodland has become established and there are also small areas of willow scrub and reedbed.”

- 4.2. The proposed development falls outside of all SSSI Impact Risk Zones relating to residential developments, being a residential development under 100 units.

Non-statutory

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

i. Underly Bank CWS, approximately 0.4km southwest.

“This chalk embankment comprises sections of unimproved calcareous grassland (Priority habitat) together with areas of scrub. Species previously recorded here include nationally scarce sickle medick and large-flowered hemp-nettle, the latter of which has been recorded in Suffolk at only a small number of sites in the north west. Hound's tongue, a Breckland species considered near threatened, has also been recorded here in the past. The site supports a range of invertebrates including common butterflies such as clouded yellow, brimstone, meadow brown and painted lady.”

ii. Lakenheath Cemetery CWS, approximately 0.5km northeast.

“Lakenheath Cemetery supports a diverse range of flora associated with lowland dry acid grassland (Priority habitat) and unimproved grassland such as sheep sorrell, biting stonecrop, common restharrow, mouse-ear hawkweed and early forget-me-not, as well as a number of mosses and lichens. This is the only Suffolk site in which yarrow broomrape, a Nationally Rare species, is recorded. Around twenty spikes were recorded here initially (in 1990), with fewer numbers being seen in more recent years.”

iii. Cauldle Farm and Broom Road Fields CWS, approximately 0.7km southeast.

“This network of arable field margins (Priority habitat) is situated to the south of Lakenheath and bordered by Lakenheath Airbase (SSSI) and Maidscross Hill (SSSI). The margins support a population of grape hyacinth, which is a Red Data Book species and found only on approximately twenty sites in the UK, on Breckland. The field margins and anti-car furrows are colonised by a number of other rare Breckland grassland species such Breckland speedwell. The particularly rare fingered speedwell has also been recorded growing on the banks in the past.”

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 Dry Acid Grassland, Lowland Heathland, Lowland Fens, Deciduous Woodland, Lowland Calcareous Grassland and Parkland BAP Priority Habitat. The closest of which, is Deciduous Woodland located approximately 220m west of the site.

Field study

- 5.2. The habitats on the site are of low ecological value, being mainly hardstanding with encroaching vegetation and garden shrubs.
- 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.

Buildings (UK Habitat Classification u1b5)

- 5.5. There are two buildings on site. Please refer to the bat section detailed below for further information.

Other developed land (UK Habitat Classification u1b6. Secondary codes: 11 – scattered trees, 17 ruderal/ephemeral, 115 – track, 1150 – flowerbed)

- 5.6. The site features an area of concrete and compacted gravel hardstanding across the site, with encroaching ruderal and garden vegetation. Species present include nettle *Urtica dioica*, common daisy *Bellis perennis*, sweet violet *Viola odorata*, variegated yellow archangel *Lamium galeobdolon* subsp. *argentatum*, yellow corydalis *Pseudofumaria lutea*, common dandelion *Taraxacum officinale*, rosebay willowherb *Chamerion angustifolium*, ragwort *Senecio jacobaea*, hairy bittercress *Cardamine hirsuta*, ivy-leaved toadflax *Cymbalaria muralis*, red valerian *Centranthus ruber*, forget-me-not *Myosotis* sp., prickly sow thistle *Sonchus asper*, cleavers *Galium aparine*, *Euphorbia* sp., white dead-nettle *Lamium album*, red dead-nettle *Lamium purpureum*, wood sorrel *Oxalis acetosella* and cowslip *Primula veris*.

- 5.7. A flower/shrub bed is present to the south of the site with several trees and shrubs present including: rose *Rosa* sp., Leyland cypress *Cupressus x leylandii*, elder *Sambucus nigra*, bay laurel *Laurus nobilis* and Mexican orange *Choisya ternata*.

Built linear features (UK Habitat Classification u1e. Secondary codes: 68 – mortared wall, 69 - fence)

- 5.8. The site features a mix of brick and flint walls and timber fences along the boundaries.





Photo 1, looking northeast across the site towards the western boundary wall.



Photo 2, looking east across the site.



Photo 3, looking west across the site.



Photo 4, looking south across the site from the northwest corner.

6. PROTECTED AND NOTABLE SPECIES

Desktop review

Data search

6.1. The biodiversity data search within 2km of the site indicated 1,533 species records.

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

12 barn owl *Tyto alba* records, with the most recent from 2016.

24 swift *Apus apus* records, with the most recent from 2017.

34 hedgehog *Erinaceus europaeus* records, with the most recent from 2021.

78 bat records, with the most recent from 2018, including common pipistrelles *Pipistrellus pipistrellus*, soprano pipistrelles *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, serotines *Eptesicus serotinus*, noctules *Nyctalus noctula*, Daubenton's *Myotis daubentonii*, 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. There are two buildings located on site, as indicated in Figure 3 and photos 5-14.

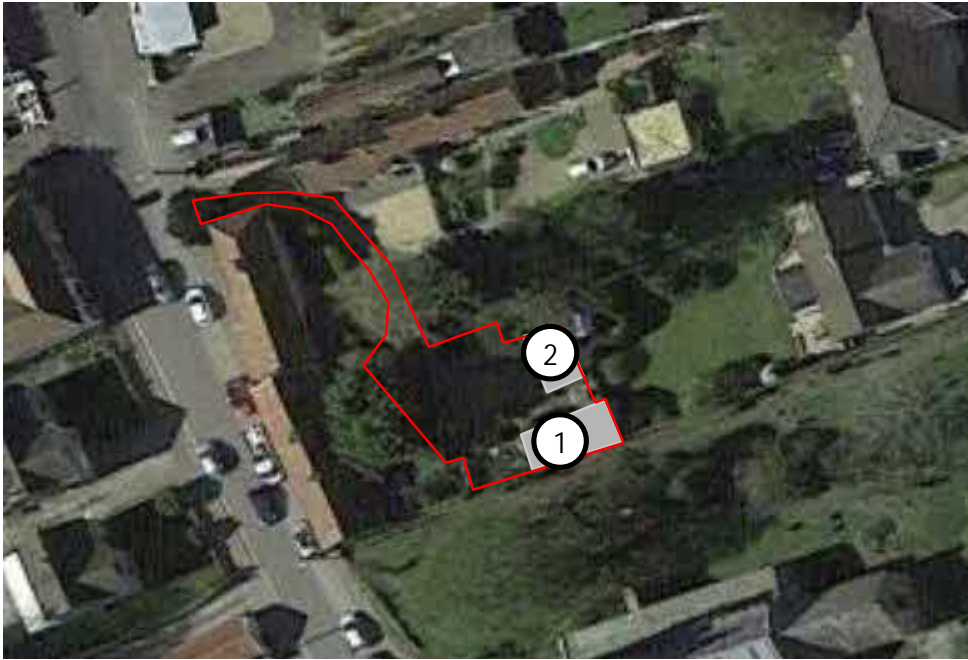


Figure 3
Location and numbering of buildings located on site.
Image © QGIS, date accessed 29/04/22

Outbuilding – building one

- 6.5. The outbuilding is a stone, flint and brick construction with a pitched, clay pantile roof. There are large windows and doors on the northern and western aspects with some open and some being covered with plastic sheeting.
- 6.6. The roof features numerous lifted and missing sections of tiles, particularly on the south aspect which provides both access into the building and roosting opportunities for crevice dwelling bats. There is a gap in the brickwork on the eastern aspect at the apex, which could be used for access and/or roosting opportunity.
- 6.7. Internally, the building is split into two levels. The bottom level contains several cracks in the walls and gaps around timber joists, which provide suitable roosting opportunities for crevice dwelling bats. Five bat droppings consistent in size and texture of pipistrelle *Pipistrellus* sp. were observed scattered within the lower level of the building.
- 6.8. The upper level was only accessible from the ladder due to health and safety concerns regarding the floor. The upper level is open voided approximately 3m to the ridge. The roof is lined with bitumen felt and features modern sawn timbers with ridge beam. The missing roof tiles and

open windows allow an abundant level of light into the building. There are several cracks in the stonework which could be used by crevice dwelling bats.

- 6.9. Roosting opportunities are present under slipped, missing and/or raised roof tiles, within cracks in the brickwork and along the ridge.
- 6.10. The cracks within the stonework, particularly at the lower level are also considered to have low suitability for hibernating bats.
- 6.11. The outbuilding is assessed as moderate summer and low hibernation roost suitability for bats due to its location, roosting features and signs of bats.



Photo 5, north and west aspects of the outbuilding, looking southeast.



Photo 6, south and east aspects of the outbuilding, looking northwest from the adjacent churchyard.

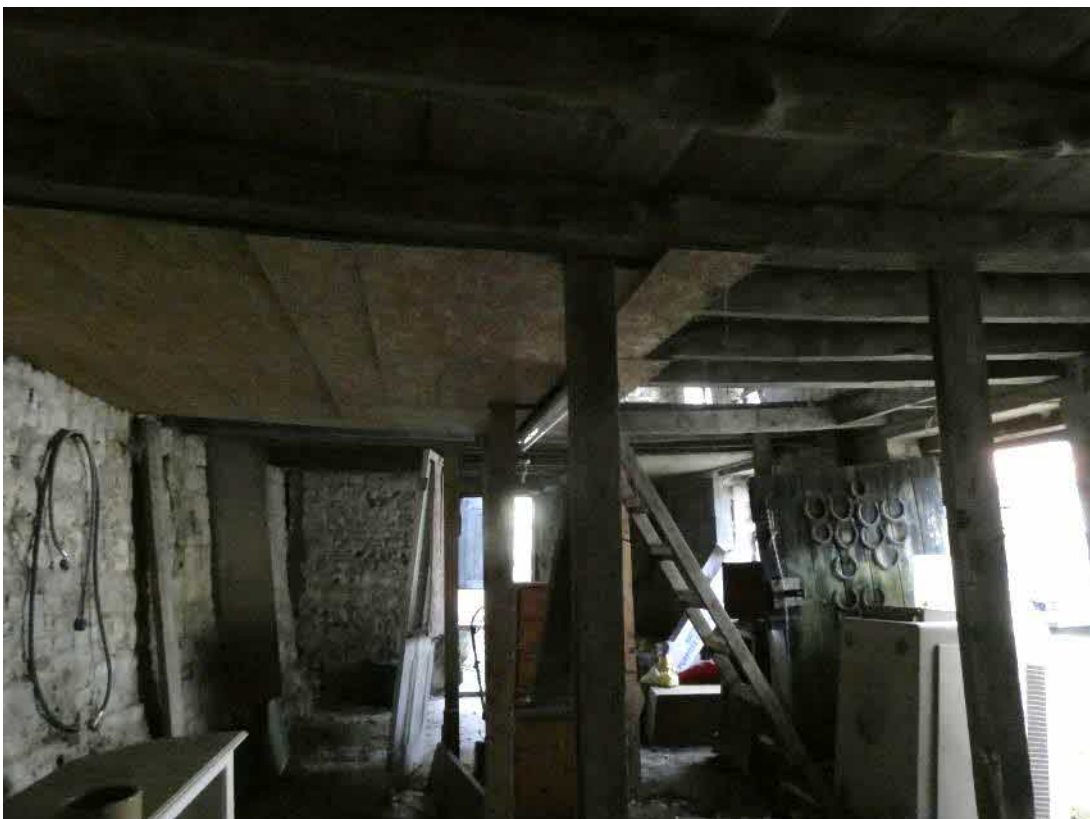


Photo 7, internal view of the lower level of the outbuilding, looking west.



Photo 8, example of one of the gaps around the timber floor joists in the outbuilding which could be used by crevice dwelling bats.



Photo 9, example of a crack in the stonework of the outbuilding on the lower level.



Photo 10, internal view of the upper level of the outbuilding, with bitumen lined roof.



Photo 11, gap at the eastern apex which could be used for access and/or roosting opportunity.

Cart lodge – building two

- 6.12. The cart lodge is a breezeblock and stone construction with a pitched, clay pantile roof. The building is open fronted on the western aspect which creates a light and draughty environment.
- 6.13. The roof features several lifted/slipped tiles and is lined with bitumen felt, which could offer suitable roosting opportunities for crevice dwelling bats.
- 6.14. Internally, there are a couple of cracks in the stonework that could offer suitable roosting opportunities for crevice dwelling bats. The light and draught from the open aspects limits the suitability for roosting bats internally, such as at the ridge.
- 6.15. A single pipistrelle dropping was observed within the cart lodge.
- 6.16. Roosting opportunities are present under slipped, missing and/or raised roof tiles and within cracks in the brickwork.
- 6.17. The cart lodge is not suitable for hibernating bats due to the open and draughty environment which would create a fluctuation in temperatures during the winter months.
- 6.18. The outbuilding is assessed as low summer and negligible hibernation roost suitability for bats due to its location, roosting features and signs of bats.



Photo 12, west and south aspects of the car port, looking northeast.



Photo 13, internal view of the carport.



Photo 14, crack in the stonework of the carport.

Trees

- 6.19. 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

- 6.20. The site itself provides low value foraging habitat for bats over shrubs and trees.
- 6.21. The landscape immediately adjacent to the site is considered of low to moderate value for foraging and commuting bats, with linked gardens to the north, east and west, and the churchyard to the south. Residential dwellings adjacent the site and within Lakenheath and the adjacent church have the potential to provide roosting opportunities for bats.

Birds

- 6.22. 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.
- 6.23. The following bird species were observed during the site visit:

Red listed:

House sparrow	<i>Passer domesticus</i>
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Amber listed:

Song thrush	<i>Turdus philomelos</i>
Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>

Green listed:

Blackbird	<i>Turdus merula</i>
Blue tit	<i>Cyanistes caeruleus</i>
Collard dove	<i>Streptopelia decaocto</i>
Goldfinch	<i>Carduelis carduelis</i>
Great tit	<i>Parus major</i>
Magpie	<i>Pica pica</i>
Robin	<i>Erithacus rubecula</i>

- 6.24. The site provides suitable nesting habitats for shrub, tree and building nesting species. A fledgling song thrush was observed inside the outbuilding onsite, however no nest was observed, and an adult female was observed within the churchyard where the nest is likely located.

- 6.25. The site provides potential breeding habitat for the following Red listed species: house sparrow.
- 6.26. The site provides potential breeding habitat for the following Amber listed species: woodpigeon, song thrush and wren.
- 6.27. No signs of barn owl were found on the site and no foraging habitat is present.

Great crested newts

- 6.28. There are no ponds within the survey site or 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).
- 6.29. The terrestrial habitats on the site are considered predominantly unsuitable for GCN, consisting of hardstanding, with suboptimal ruderal and shrubs.
- 6.30. Terrestrial habitats adjacent the site include a mixture of unsuitable (residential dwellings with associated gardens and hardstanding) and suitable (churchyard) GCN foraging, commuting and hibernating habitats.
- 6.31. The site falls within the Green risk zone 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” (Natural England, 2021).

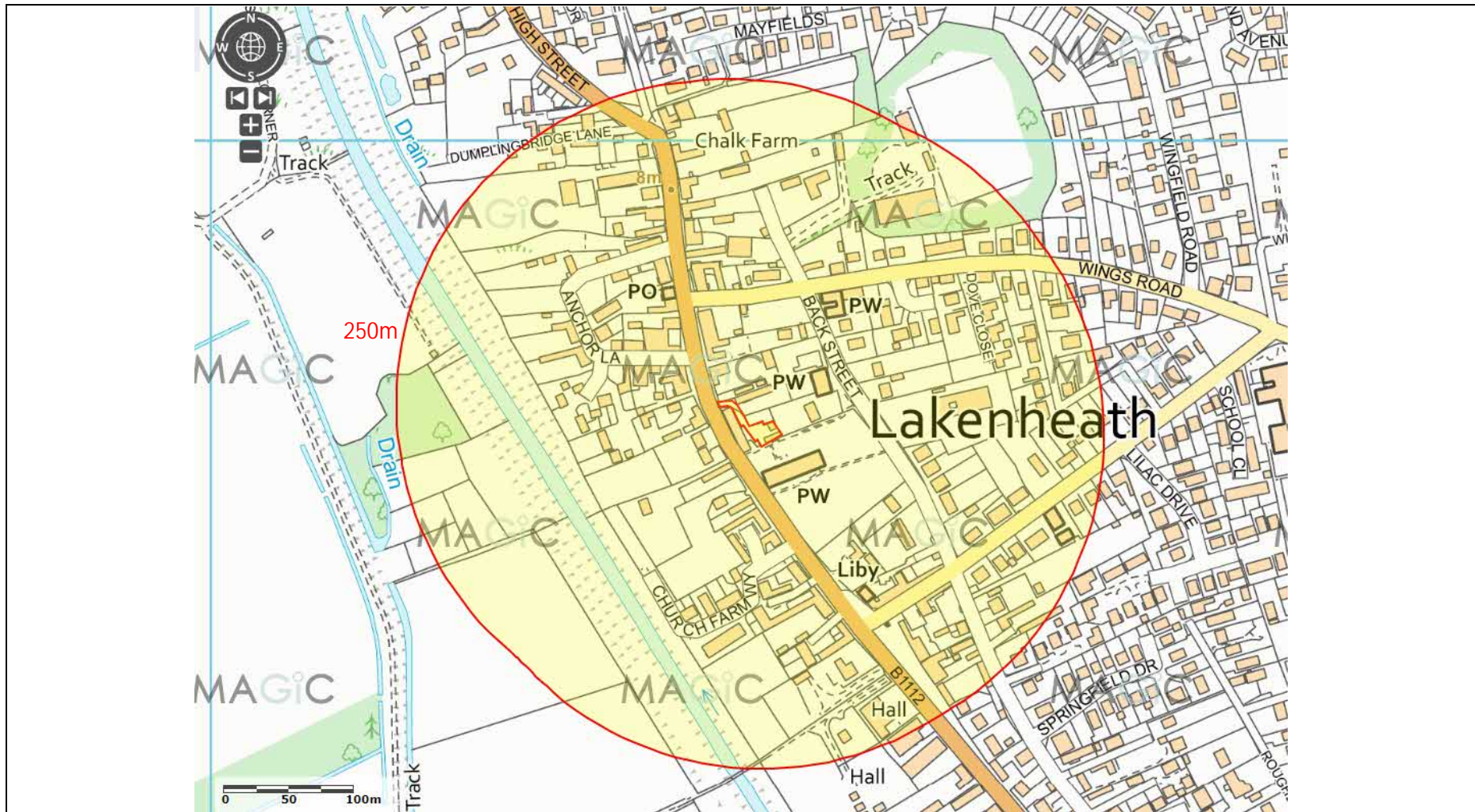


Figure 4
Ponds within 250m of the proposed site.
Image © MAGIC, date accessed 03/05/22

7. DISCUSSION AND CONCLUSIONS

Protected sites

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

The closest statutory protected site (Maidcross Hill SSSI), is located approximately 0.9km east and designated for its dry Breckland grassland.

The closest non-statutory protected site (Underly Bank CWS), is located approximately 0.4km southwest of the site and designated for its unimproved chalk grassland.

- 7.2. The proposed development falls outside of any SSSI Impact Risk Zones relating to residential developments.
- 7.3. The proposed development is expected to have no effects on statutory or non-statutory protected sites or their qualifying features, owing to its relatively small scale, distance to protected sites and limited predicted impacts beyond the area of works.

Habitats

- 7.4. The proposed works will require a small amount of vegetation clearance with a majority of the site comprised of hardstanding. Some areas of tall ruderal/ephemeral vegetation and flowerbeds containing shrubs and trees may need to be cleared for the development.
- 7.5. No priority habitats will be affected by the proposed development. This is expected to result in a low scale loss of nesting habitat for shrub and tree nesting birds, and a low scale loss of foraging features for bats. Please refer to the bat section below for predicted impacts on buildings with potential bat roosts.
- 7.6. 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 (≥ 5 species), hedgerows and trees around the site (see Appendix H 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.

Bats

- 7.7. The proposed works will require the conversion of the buildings on site, which has the potential to materially modify or destroy potential bat roosting locations, if present.
- 7.8. The following surveys/mitigation are required to determine if any bat species are present, the nature of their use of the building(s) and any roosting locations:
- i. At least two bat activity survey (comprised of a dusk emergence and a dawn return-to-roost survey) to be conducted on the outbuilding (building one) between May and September. Please note, at least one survey must be conducted between May and August.
 - ii. At least one bat activity survey (comprised of a dusk emergence survey) to be conducted on the cart lodge (building two) between May and August.
 - iii. At least two bat hibernation surveys to be conducted on the outbuilding (building one) between December and February.
 - iv. If bats are found to be present and roosting within any building(s), further activity surveys and a European Protected Species Mitigation Licence may be required for the development.
 - v. Any lighting schemes will follow guidance from the Bat Conservation Trust and CIE 150:2003. Warm-white (long wavelength) lights with UV filters will be fitted as close to the ground as possible. Lighting units will be angled below 70° and equipped with movement sensors, baffles, hoods, louvres and horizontal cut off units at 90°.
- 7.9. The outcomes of further activity surveys will inform the detailed recommended mitigation for bats. We consider that the proposed development will be able to accommodate this in the form of alternative roosting opportunities, as required.
- 7.10. 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 traditional type 1F bitumen is used.

Birds

- 7.11. The proposed works are expected to result in a low scale loss of bird nesting habitat through conversion of the buildings and clearance of vegetation.
- 7.12. Any works affecting bird nesting habitat such as management of shrubs, trees or buildings would ideally need to be conducted outside the main nesting season, which lasts from March

to August. If work is planned during the bird nesting season, 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 integrated swift box installed on the converted building (Schwegler Brick Nest Box Type 25 – Appendix F).
- ii. One small bird box installed onsite (Schwegler 1B or 2H Nest Box – Appendix F).
- iii. A soft landscaping scheme to include the planting of new native species-rich (≥ 5 species), hedgerows and trees around the site (see Appendix H for suggested species).

7.14. Natural England and Local Planning Authorities (“LPA”) have recognised a significant decline in swift populations across the country, and are actively endorsing integrated swift boxes to provide a net gain in biodiversity, as is encouraged by NPPF 2021.

Great crested newts

7.15. The proposed works are not expected to result in a loss of terrestrial or aquatic habitats for GCN.

7.16. GCN are most likely to use suitable terrestrial habitat within only 250m of a breeding pond (English Nature, 2001) and we consider it highly unlikely that GCN would be present on site.

7.17. We predict no impact on GCN as a result of the development plans, and no further surveys are necessary.

Other animals

7.18. 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 G for examples).

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

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.

Lighting of the construction site at night will be minimised as far as practicable, to reduce the risk of possible disruption to nocturnal animals such as bats [REDACTED].

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 (Butcher et al., 2020). 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, 2016).

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

- Bat droppings

- Stains around roosting places and entrance points

- Urine marks

- Prey remains

- Areas devoid of cobwebs

- Live or dead bats

- Suitable cracks and crevices for bats to enter

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

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

Negligible roost suitability for bats. These buildings have no potential roosting features for bats, or very few or minor features in an isolated or unsuitable location such that the presence of a bat roost is considered highly unlikely. Such buildings usually fall into two main types: generally, well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall, or without an attic space; or those which contain some or all of the above features, but are both draughty and thick in cobwebs

or contain strong odours such as solvents, diesel etc. It must be borne in mind that a building from this latter group can become suitable for bats following refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment. When no suitable habitats for bats are found, no further surveys or European Protected Species (“EPS”) mitigation licence are required.

Low roost suitability for bats. Buildings in this category have one or more potential roost sites that could be used by individual bat opportunistically. These buildings do not however provide suitable conditions (such as space, shelter, temperature, humidity, or light and noise disturbance) to be used on a regular basis by a large number of bats. Structures with low roost suitability for bats will require one dusk emergence or one dawn re-entry survey conducted between May and August to assess their current use by bats.

Moderate roost suitability for bats. These buildings contain one or more potential roosting sites which could be regularly used by bats owing to their size, shelter, protection and conditions. These buildings are however unlikely to support a roost of high conservation status (maternity roost or hibernation roost). Structures with moderate roost suitability for bats will require two surveys, one dusk emergence and one dawn re-entry survey conducted between May and September with at least one of the surveys undertaken between May and August, to assess their current use by bats.

High roost suitability for bats. This group includes buildings with one or more potential roost sites which are obviously suitable for use by a larger number of bats on a regular basis and potentially for longer periods of time owing to their size, shelter, protection and conditions. These buildings may support a roost of high conservation status (maternity roost or hibernation roost) and will require three activity surveys to assess their current use by bats. The surveys should include at least one dusk emergence and at least one dawn re-entry survey (the third survey can either be at dusk or dawn) and should be conducted between May and September with at least two of surveys undertaken between May and August.

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

An evaluation system was applied to the trees using the following criteria:

Negligible roost suitability for bats. Trees unlikely to be used by roosting bats.

Low roost suitability for bats. A tree of sufficient size and age to contain Potential Roosting Features (“PRFs”), but with none seen from the ground or features seen with only very limited roosting potential.

Moderate roost suitability for bats. A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.

High roost suitability for bats. A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection and surrounding habitat.

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.

Negligible commuting and foraging potential for bats. Habitat features unlikely to be used by commuting or foraging bats.

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 [REDACTED]

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 1.

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 1, 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.

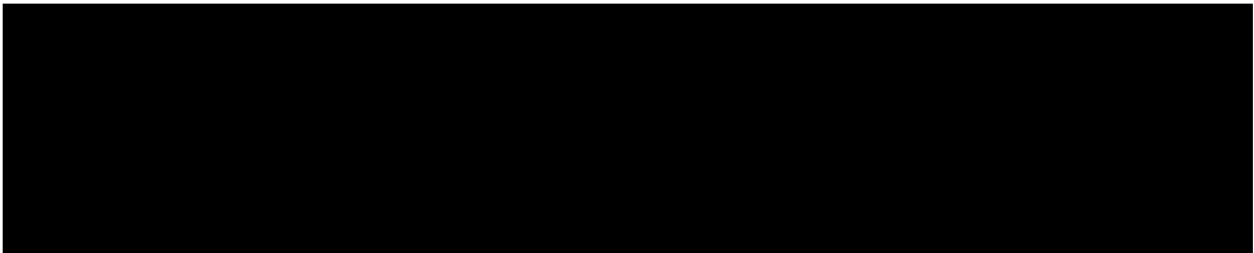
White-clawed crayfish inhabit streams and rivers with a moderate flow rate, and lakes. Clear, well-oxygenated water is preferred. Typical habitat features include crevices in rocks, gaps between stones, submerged plants and tree roots.

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

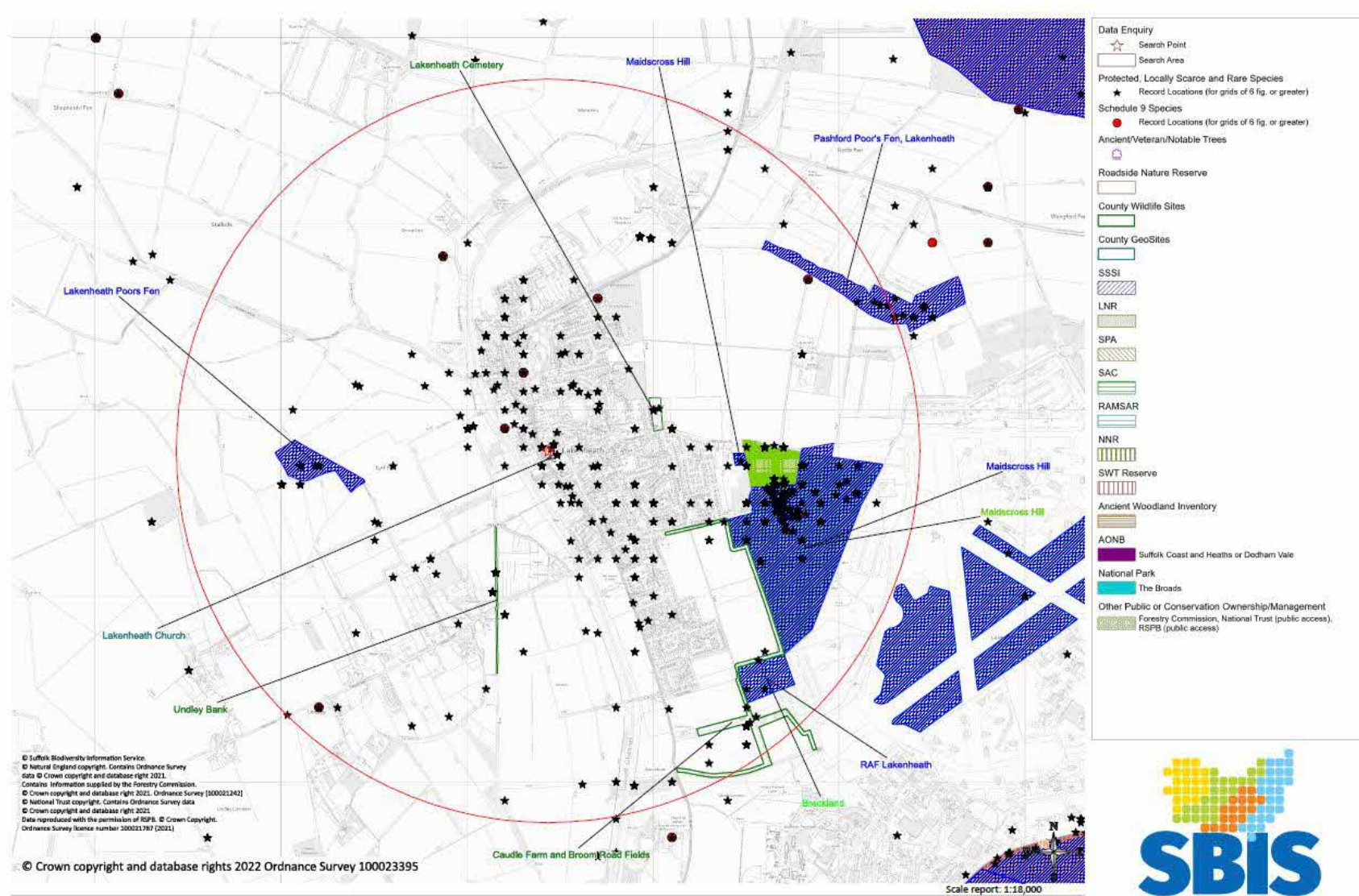
Particular regard was made to the nature of the proposed development and the potential of impact upon any other protected species, species which are nationally or locally scarce, or species subject to other conservation designations such as Red Data Book or Priority S41 species, from the development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

Constraints

The field survey was conducted during the sub-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



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Scale report: 1:18,000

Greenlight (Land to rear of 49 High Street, Lakenheath TL71433 82779) 2km Data Enquiry

Date: 28/03/2022 | Drawn by: Andy Mercer



Appendix C

Protected sites citations

SSSI citations

COUNTY: SUFFOLK SITE NAME: MAIDSCROSS HILL

DISTRICT: FOREST HEATH

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

Local Planning Authority: FOREST HEATH DISTRICT COUNCIL

National Grid Reference: TL 726825 Area: 45.16 (ha.) 111.60 (ac.)

Ordnance Survey Sheet 1:50,000: 143 1:10,000: TL 78 SW

Date Notified (Under 1949 Act): 1975 Date of Last Revision: –

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:

Description and Reasons for Notification:

A sizeable area of very dry Breck grassland on a range of soil types, including the grassland covering a nearby reservoir. Past gravel workings have left areas of bare ground which are at various stages of recolonisation. Lack of grazing has permitted bracken and gorse scrub to invade some areas. Four nationally and one locally rare plant species occur on this site.

Maidscross Hill contains well developed areas of calcareous and acidic grassland, as well as some intermediate areas. Much of the acidic grassland is dominated by vigorous Sand Sedge *Carex arenaria* with relatively few other species. The calcareous grassland is shorter, though somewhat tussocky and is dominated by Red Fescue *Festuca rubra*, Bent grasses *Agrostis spp.* and Crested Hair-Grass *Koeleria macrantha*. It contains many other associated species including Ladies Bedstraw *Galium verum*, Lesser Meadow Rue *Thalictrum minus*, Bird's-foot Trefoil *Lotus corniculatus* and Hop Trefoil *Trifolium campestre*.

The intermediate areas are dominated by coarser grasses such as False Oat Grass *Arrhenatherum elatius* and Timothy *Phleum pratense*. Despite this, they contain a good range of associated species including Yellow Oat Grass *Trisetum flavescens*, Wild Carrot *Daucus carota*, Smooth Tare *Vicia tetrasperma* and Smooth Hawks Beard *Crepis capillaris*. In some parts, weed species Cleavers *Galium aparine*, White Melilot *Melilotus alba* Nettles *Urtica dioica* and Wild Parsnip *Pastinaca sativa* have invaded this grassland.

Small scale gravel extraction has been practised on Maidscross Hill for many years. The more recently worked areas are still largely bare but with a great variety of small annual plants growing on them, including Sand Catchfly *Silene conica*, Small Medick *Medicago minima*, Sand Cat's-tail *Phleum arenarium* and Thyme-leaved Sandwort *Arenaria serpyllifolia*. Sand Sedge is invading some of these areas. The older gravel

COUNTY: SUFFOLK SITE NAME: LAKENHEATH POORS FEN

DISTRICT: FOREST HEATH

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

Local Planning Authority: FOREST HEATH DISTRICT COUNCIL

National Grid Reference: TL 701827 Area: 4.95 (ha.) 12.23 (ac.)

Ordnance Survey Sheet 1:50,000: 143 1:10,000: TL 78 SW,
1:10,560: TL 68 SE

Date Notified (Under 1949 Act): 1958 Date of Last Revision: N/A

Date Notified (Under 1981 Act): 1985 Date of Last Revision: N/A

Other Information:

The site boundary has been adjusted by a deletion.

The site is managed as a nature reserve by the Suffolk Trust for Nature Conservation.

Reasons for Notification:

Lakenheath Poors Fen is an area of species-rich fen meadow with areas of damp calcareous and neutral grassland. It lies on the transition between the Breckland sands and the fen basin. Although a relatively small fragment, it represents a once extensive tract of similar vegetation that is now lost to arable cultivation. The rich flora includes one rare and one uncommon species, whilst the dykes and ditches support a good variety of aquatic plants.

The areas of grassland are grazed by cattle and are dominated by Common Quaking-grass *Briza media*, Crested Hair-grass *Koeleria cristata* and False Oat-grass *Arrhenatherum elatius*. There are many species of flowering plant associated with this vegetation including Marsh Orchid *Dactylorhiza incarnata*, Sneezewort *Achillea ptarmica*, Marsh Pennywort *Hydrocotyle vulgaris*, Small Scabious *Scabiosa columbaria*, Skullcap *Scutellaria galericulata* and Cuckoo Flower *Cardamine pratensis*. The nationally rare, Marsh Pea *Lathyrus palustris* and the locally rare Milk Parsley *Peucedanum palustre* are present and the site is also notable for the occurrence of the locally uncommon Creeping Willow *Salix repens*.

The main dyke on the site contains Broad-leaved Pondweed *Potamogeton natans*, Water Violet *Hottonia palustris* and Cyperus Sedge *Carex pseudocyperus*. The other ditches are only seasonally flooded but they support a range of plants including the uncommon Lesser Water Plantain *Baldellia ranunculoides*, Brookweed *Samolus valerandi* and Water Mint *Mentha aquatica*.

workings, particularly the tops of mounds and other very well drained areas support lichens and moss-dominated heath with small herbs such as Striated Catchfly *Silene Conica*.

Maidscross Hill is not currently grazed except by rabbits and the lack of sufficient grazing has allowed bracken and considerable amounts of gorse and hawthorn scrub to invade. Although this has meant the loss of some grassland the scrub has provided additional nesting habitat for birds.

The rare plant species found on Maidscross Hill are associated with the more open, calcareous grassland. They are Breckland Wild Thyme *Thymus serpyllum*, Spanish Catchfly *Silene otites*, Grape Hyacinth *Muscari neglectum* and Sickle Medick *Medicago falcata*.

COUNTY: SUFFOLK SITE NAME: LAKENHEATH POORS FEN

DISTRICT: FOREST HEATH

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

Local Planning Authority: FOREST HEATH DISTRICT COUNCIL

National Grid Reference: TL 701827 Area: 4.95 (ha.) 12.23 (ac.)

Ordnance Survey Sheet 1:50,000: 143 1:10,000: TL 78 SW,
1:10,560: TL 68 SE

Date Notified (Under 1949 Act): 1958 Date of Last Revision: N/A

Date Notified (Under 1981 Act): 1985 Date of Last Revision: N/A

Other Information:

The site boundary has been adjusted by a deletion.

The site is managed as a nature reserve by the Suffolk Trust for Nature Conservation.

Reasons for Notification:

Lakenheath Poors Fen is an area of species-rich fen meadow with areas of damp calcareous and neutral grassland. It lies on the transition between the Breckland sands and the fen basin. Although a relatively small fragment, it represents a once extensive tract of similar vegetation that is now lost to arable cultivation. The rich flora includes one rare and one uncommon species, whilst the dykes and ditches support a good variety of aquatic plants.

The areas of grassland are grazed by cattle and are dominated by Common Quaking-grass *Briza media*, Crested Hair-grass *Koeleria cristata* and False Oat-grass *Arrhenatherum elatius*. There are many species of flowering plant associated with this vegetation including Marsh Orchid *Dactylorhiza incarnata*, Sneezewort *Achillea ptarmica*, Marsh Pennywort *Hydrocotyle vulgaris*, Small Scabious *Scabiosa columbaria*, Skullcap *Scutellaria galericulata* and Cuckoo Flower *Cardamine pratensis*. The nationally rare, Marsh Pea *Lathyrus palustris* and the locally rare Milk Parsley *Peucedanum palustre* are present and the site is also notable for the occurrence of the locally uncommon Creeping Willow *Salix repens*.

The main dyke on the site contains Broad-leaved Pondweed *Potamogeton natans*, Water Violet *Hottonia palustris* and Cyperus Sedge *Carex pseudocyperus*. The other ditches are only seasonally flooded but they support a range of plants including the uncommon Lesser Water Plantain *Baldellia ranunculoides*, Brookweed *Samolus valerandi* and Water Mint *Mentha aquatica*.

COUNTY: SUFFOLK SITE NAME: PASHFORD POORS FEN,
LAKENHEATH

DISTRICT: FOREST HEATH

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

Local Planning Authority: FOREST HEATH DISTRICT COUNCIL, Suffolk County
Council

National Grid Reference: TL 732835 Area: 12.2 (ha.) 30.1 (ac.)

Ordnance Survey Sheet 1:50,000: 143 1:10,000: TL 78 SW

Date Notified (Under 1949 Act): 1972

Date Notified (Under 1981 Act): 1995

Other Information:

The majority of the site is managed as a nature reserve by the Suffolk Wildlife Trust.

Description and Reasons for Notification:

Pashford Poors Fen, on the Breckland/Fen edge, is a mosaic of several different habitats supporting a great diversity of plants and animals. It consists of an area of unimproved, species rich mesotrophic meadow containing a number of hollows, some of which are occupied by pockets of spring-fed fen and marshy grassland. At one end of the site birch woodland has become established and there are also small areas of willow scrub and reedbed.

Management of the neutral grassland is by mowing followed by cattle grazing in some areas. The dominant grass in the sward is Sweet Vernal-grass *Anthoxanthum odoratum*. A variety of other grasses and herbs are present including Small Scabious *Scabiosa columbaria*, Meadow Saxifrage *Saxifraga granulata*, Lady's Bedstraw *Galium verum* and Red Fescue *Festuca rubra*.

Acid marshy grassland occurs in several damp hollows in the area of neutral grassland. A distinct transition zone is present on the edges of these wet areas and is characterised by Saw Sedge *Cladium mariscus* and Great Burnet *Sanguisorba officinalis*. The marshy grassland is dominated by Purple Moor-grass *Molinia caerulea*, Meadowsweet *Filipendula ulmaria* and Reed Canary-grass *Phalaris arundinacea* with Marsh Pennywort *Hydrocotyle vulgaris*, Ragged Robin *Lychnis flos-cuculi* and Blunt-flowered Rush *Juncus subnodulosus*.

The fen consists of areas of tall fen vegetation dominated by Reed *Phragmites australis* and Saw Sedge and areas of invasive birch woodland. The fen flora is relatively rich, especially on mown paths and includes Marsh Marigold *Caltha palustris*, Devil's-bit Scabious *Succisa pratensis* and Purple Small-reed *Calamagrostis canescens*.

A rich invertebrate fauna, especially beetles, is found on the site and this includes the last known British site for one Red Data Book species.

County Wildlife Sites citations

CWS Number	Forest Heath 26
Site Name	UNDLEY BANK
Parish	LAKENHEATH
District	West Suffolk
NGR	TL711819
Description	<p>This chalk embankment comprises sections of unimproved calcareous grassland (Priority habitat) together with areas of scrub. Species previously recorded here include nationally scarce sickle medick and large-flowered hemp-nettle, the latter of which has been recorded in Suffolk at only a small number of sites in the north west. Hound's tongue, a Breckland species considered near threatened, has also been recorded here in the past. The site supports a range of invertebrates including common butterflies such as clouded yellow, brimstone, meadow brown and painted lady.</p>
RNR Number	0
Area	0.66

CWS Number	Forest Heath 27
Site Name	CAUDLE FARM & BROOM ROAD FIELDS
Parish	LAKENHEATH
District	West Suffolk
NGR	TL726817
Description	<p>This network of arable field margins (Priority habitat) is situated to the south of Lakenheath and bordered by Lakenheath Airbase (SSSI) and Maidscross Hill (SSSI). The margins support a population of grape hyacinth, which is a Red Data Book species and found only on approximately twenty sites in the UK, on Breckland. The field margins and anti-car furrows are colonised by a number of other rare Breckland grassland species such as Breckland speedwell. The particularly rare fingered speedwell has also been recorded growing on the banks in the past.</p>
RNR Number	0
Area	5.6

CWS Number	Forest Heath 51
Site Name	LAKENHEATH CEMETERY
Parish	LAKENHEATH
District	West Suffolk
NGR	TL720829
Description	<p>Lakenheath Cemetery supports a diverse range of flora associated with lowland dry acid grassland (Priority habitat) and unimproved grassland such as sheep sorrell, biting stonecrop, common restharrow, mouse-ear hawkweed and early forget-me-not, as well as a number of mosses and lichens. This is the only Suffolk site in which yarrow broomrape, a Nationally Rare species, is recorded. Around twenty spikes were recorded here initially (in 1990), with fewer numbers being seen in more recent years.</p> <p>Arable farmland situated to the north and east of the site is important for Priority bird species such as turtle dove, stone curlew and grey partridge and the site is connected to this wider rural landscape via arable field margins and hedgerow habitat.</p>
RNR Number	0
Area	0.96

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 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 2021 (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.



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).

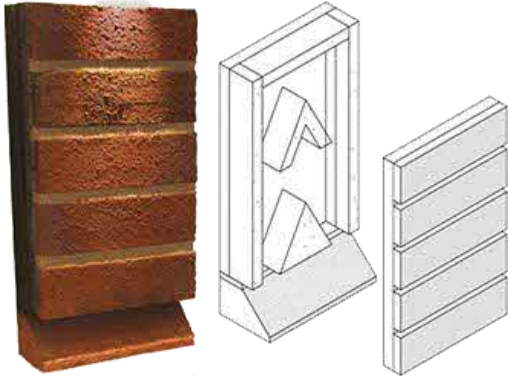
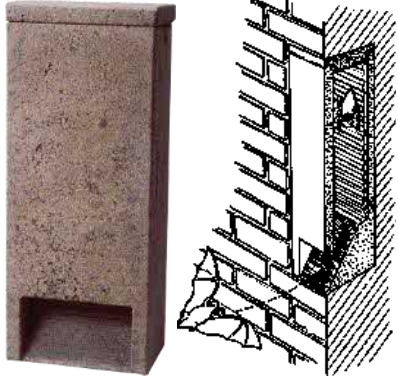


Appendix E

Plant species recorded on site

English name	Scientific name
Bay laurel	<i>Laurus nobilis</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot	<i>Dactylis glomerata</i>
Cowslip	<i>Primula veris</i>
Cranesbill	<i>Geranium sp.</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i>
Elder	<i>Sambucus nigra</i>
Forget-me-not	<i>Myosotis sp.</i>
Ground ivy	<i>Glechoma hederacea</i>
Hairy bittercress	<i>Cardamine hirsute</i>
Ivy	<i>Hedera helix</i>
Ivy-leaved toadflax	<i>Cymbalaria muralis</i>
Leyland cypress	<i>Cupressus x leylandii</i>
Mexican orange	<i>Choisya ternate</i>
Nettle	<i>Urtica dioica</i>
Perennial ryegrass	<i>Lolium perenne</i>
Prickly sow thistle	<i>Sonchus asper</i>
Privet	<i>Ligustrum vulgare</i>
Ragwort	<i>Jacobaea vulgaris</i>
Red dead-nettle	<i>Lamium purpureum</i>
Red valerian	<i>Centranthus ruber</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rose	<i>Rosa sp.</i>
Sweet violet	<i>Viola odorata</i>
Variegated yellow archangel	<i>Lamiastrum galeobdolon subsp. argentatum</i>
White dead-nettle	<i>Lamium album</i>
Willowherb	<i>Epilobium sp.</i>
Wood sorrel	<i>Oxalis acetosella</i>
Yellow corydalis	<i>Pseudofumaria lutea</i>

Appendix F Examples of bat and bird boxes

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

<p style="text-align: center;">Integrated bat box Habibat Bat Box</p> 	<p style="text-align: center;">Integrated bat box 1FR Schwegler Bat Tube</p> 
<p style="text-align: center;">Standalone bat box 2F Schwegler Bat Box (General purpose)</p> 	<p style="text-align: center;">Standalone bat box 1FF Schwegler Bat Box with built-in wooden rear panel</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 Schwegler Brick Nest Box Type 25</p>  <p>Type 25</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 and Manthorpe www.manthorpe.co.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 ≥ 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.

Appendix G

Examples of hedgehog friendly fencing

(images sourced from www.quercusfencing.com and www.jackson-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 H

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>

