DCS ECOLOGY

Bat Survey Report

1-4 Church Close

Church Lane

Sproughton

IP8 3BD

Report for

Nicholas Jacob Architects

on behalf of

Ben Shove of Team AB Limited

May 2023

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Executive Summary

DCS Ecology was commissioned by Nicholas Jacob Architects on behalf of Ben Shove of Team AB limited to conduct two bat emergence surveys at 1-4 Church Close, Church Lane, Sproughton, IP8 3BD (grid reference: TM 1245 4501, hereafter referred to as the Site) to inform an application (DC/23/00870) as to whether a Natural England (NE) European Protected Species (EPS) Mitigation Licence is required for proposed works. This was recommended following a preliminary ecological appraisal conducted by DCS Ecology Ltd on the 5th January 2023, which assessed the greenhouse as being of negligible potential, the western and northern outbuildings as low potential and the Church Close House as high potential.

The site is approximately 0.5ha (4,800 sq meters) in extent, comprising of an existing house (Church Close), two outbuildings to the north and west, a garden and driveway, bordering a road along two sides and residential housing along the remaining two. The existing house is a Grade II listed former rectory currently subdivided into four dwelling units (1-4).

Two bat surveys (2x emergence) of the main dwelling using equipment such as infrared cameras to record each building were carried out between May and June 2023 by DCS Ecology, which recorded one brown long-eared (*Plecotus auritus*) bat, one soprano pipistrelle (*Pipistrellus pygmaeus*) and one common pipistrelle (*Pipistrellus pipistrellus*) within Church Close House (the main building).

No works impacting the house or bats roosting within should be undertaken until a Bat Mitigation Licence (A13 or 'Full Licence') has been granted by Natural England.

1 Introduction

1.1 *Background*

Two bat (emergence/return to roost) surveys of 1-4 Church Close, Sproughton, were undertaken for Nicholas Jacob Architects on behalf of Ben Shove of Team AB Limited in May and June 2023 by DCS Ecology Ltd. Full planning permission for the conversion of the northernmost outbuilding, the creation of a new dwelling within the grounds to the south, the demolition of the western outbuilding, and the change of use of the existing Grade II listed house from four residential flats to two dwellings is currently awaiting a decision (as of May 2023) from Mid-Suffolk and Babergh Council (DC/23/00871). This was proposed in order to make the property commercially viable for the owners.

Two emergence surveys were undertaken to inform a detailed mitigation strategy and whether a European Protected Species (EPS) Mitigation Licence for bats will be required from Natural England. (NE) prior to the commencement of a building conversion. Previous survey results (see DCS Ecology Ltd, 2023) are taken into account in the assessment of potential impacts of the development on bats.

Two surveys (2x emergence or "dusk" surveys) were undertaken with the assistance of infra-red and thermal imaging cameras in 2023; one in May, one in June. Dusk Surveys began between 20 minutes before sunset and finished at least one hour and thirty minutes after sunset. Four surveyors undertook each survey, and the lead surveyor holds a Nature England level 2 bat licence. Buildings surveyed included the existing house (Church Close), the western outbuilding and the northern outbuilding. A minimum of two common pipistrelles, one soprano pipistrelle and one brown long-eared bat was recorded emerging from Church Close House (the main building) during these surveys.

1.2 *Legislative Context*

All bat species and their roosts are protected under the Wildlife and Countryside Act 1981 (as amended) (WCA) and the Conservation of Habitats and Species Regulations 2010 (as amended). Under this legislation it is an offence to intentionally or recklessly:

- Capture, injure or kill a bat;
- Disturb a bat;
- Destroy or obstruct access to a bat roost.

The National Planning Policy Framework (NPPF) 2021 places responsibility on Local Planning Authorities (LPAs) to aim to conserve and enhance biodiversity in and around developments. Section 40 of the NERC Act requires every public body to "have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". Biodiversity, as covered by the Section 40 duty, is not confined to habitats and species of principal importance but refers to all species and habitats. However, the expectation is that public bodies would refer to the Section 41 list (of species and habitats) through compliance with the Section 40 duty.

1.3 *Survey Objectives*

The objectives of this survey were:

1.1. To determine the current bat roosting status of 1-4 Church Close.
1.2. Identify species and numbers, and locations where possible, should roosting bats be recorded.
1.3. To make recommendations for habitat enhancement, precautionary measures, and mitigation, if required.

1.4 *Site description*

The site is located within Sproughton, a medium-sized village located approximately 4.0km west of Ipswich town centre, Suffolk (grid reference TM 1245 4501, see figure 1). The site area is approximately 0.5ha (4,800 sq metres) in extent, comprising of an existing house (Church Close), outbuildings and garden area. Church Close was a Grade II listed former rectory originally built in the late 15th century with amendments and extensions over the centuries (Historic England, 1988), subdivided into four flats. It was no longer in use at the time of the survey.

The outbuildings are an old barn to the north of site and a greenhouse to the west, the former present since before 1881 and the latter a mix of pre-1881 and 1881-1902 (NJ Architects, 2022). The grounds comprised of hard standing (gravel driveway), cultivated planting, amenity grassland, small orchard (with immature fruit tree), unmowed improved grassland (formerly amenity grassland), trees (both mature and newly planted) and shrubs.

Immediately bordering site to the north and east were public pavements and roads (Church Lane and Low Street), beyond which were several listed buildings, a church, and the River Gipping 85m east. The River Gipping provides good foraging opportunities for a number of terrestrial and semi-terrestrial animals, such as bats (attracted to water sources by emerging insects). A row of mature trees between site and the River Gipping created potential commuting opportunities for bats (that rely on linear features to navigate) between site and potential foraging locations.

Two ponds were highlighted within a 500m search radius using MAGIC, providing local drinking opportunities for bats and further foraging options.
To the south and west was 1960s housing estate that made up the majority of Sproughton Village, which extended several hundred metres before reaching the village outskirts.

The A14 dual carriageway, approx. 500m east of site, interrupted linear features leading eastward from site and had the potential to impact commuting bats.

Multiple habitats in the wider area contained foraging and roosting opportunities for bats. The majority of priority habitats found locally are situated close to the River Gipping, including semi-improved grassland, floodplain grazing marsh and an area of ancient woodland (Hazel Wood) was ~670m north-east of site. Approximately 750m west of site was a lake surrounded by deciduous woodland.

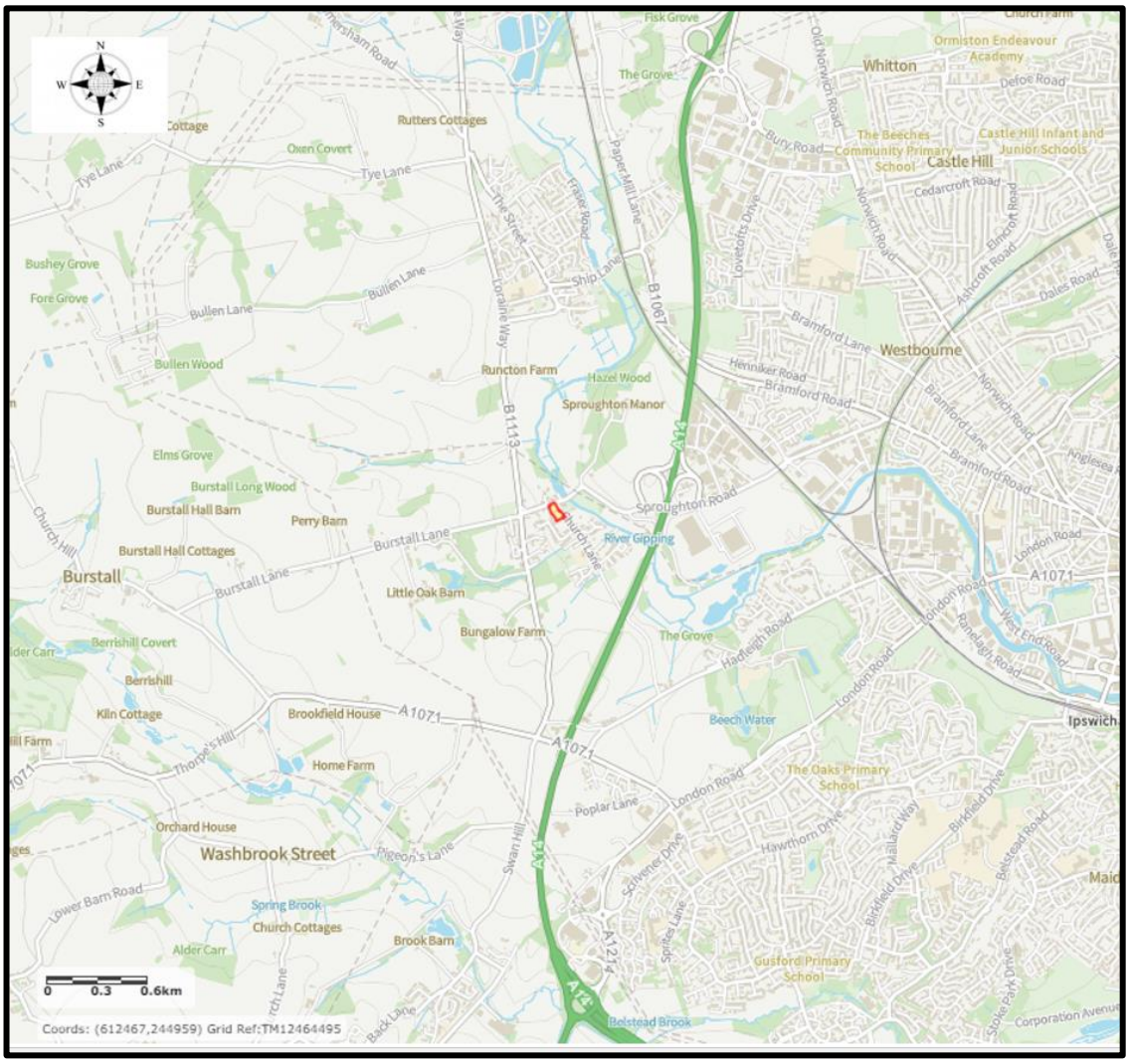

Figure 1. Site location (outlined in red). © Crown Copyright and database rights 2023 OS licence number 100064616

1.5 *Proposals and Potential Impacts*

Development proposals include the demolition, restoration, conversion and extension to the existing structures on site.

As the surveys found evidence of the use of 1-4 Church Close by roosting bats, the proposals will result in the destruction and loss of bat roosts. Therefore, a Bat Mitigation Licence (A13 or full licence) will be required prior to the start of works and must be adhered to throughout post development.

Bats, particularly common pipistrelle and soprano pipistrelles were recorded foraging within the garden area. Although some habitat is scheduled to be lost by works, the total area to be lost (<0.2ha) create only a negligible negative impact to local bat populations. To minimize the risk of impacts to nearby roosts and foraging / commuting bats, lighting recommendations have been detailed in Section 5.

1.6 *Bat Ecology*

There are eighteen species of bat found in the UK, of which seventeen are known to be breeding. Thirteen species have been recorded in Suffolk, five of these are subject to National Biodiversity Action Plans: these are lesser horseshoe (*Rhinolophus hipposideros*), barbastelle (*Barbastella barbastellus*), noctule (*Nyctalus noctula*), brown long-eared (*Plecotus auritus*), and soprano pipistrelles (*Pipistrellus pygmaeus*).

Bats are the only flying mammal, their wings have a similar structure to the hand and arm of a human, with skin stretched between long fingers and the body. In Britain, bats range in size from 4-7g (pipistrelles) to 40g (noctules).

Bats are found around the world and many species eat fruit and nectar; however, all British bats are insectivorous. Bats utilise different methods to hunt (such as catching insects on the wing and gleaning), hunt a variety of prey species (including midges, beetles and spiders), and use echolocation, passive hearing, and vision to find their prey at night (passive hearing is used by gleaning bats that capture non-flying insects on the ground or trees). Echolocation is a very sophisticated sonar system, whereby bats emit short, high frequency sounds and use the information/echoes returning to them to construct an image of their environment and locate their prey.

Roosts provide bats with shelter from predators and variable weather conditions. Bats will use different roost sites throughout the year, which are selected based on current physiological requirements. These roosts can be used for hibernation, reproduction, and as transient day roosts. Bats will utilise natural roost sites (including tree-holes, caves, and cavities in exposed rocks) and those provided by human construction (such as houses), which mimic natural roost sites. Opportunities are abundant within residential housing; bats can use roof spaces, cavity walls, window frames, weatherboarding, tiles, and many other crevices and cavities. Roost sites are often near foraging habitat or commuting routes, most likely this is near woodland or water, however roost sites can, and have, been found in apparently isolated locations.

Foraging habitat generally consists of any habitat which attracts invertebrate prey, such as trees, hedgerows, woodland, scrub, rivers, and waterbodies and open areas such as grassland (particularly where this is grazed, as livestock attract some invertebrates). Linear features such as

hedgerows, woodland edges and rides, tree lines and rivers are typically used for commuting between roosting locations and foraging habitat, particularly by smaller bat species which seek cover from predators and shelter from weather. Such corridors are also used by migratory bat species, such as Nathusius' pipistrelle *Pipistrellus nathusii* and noctule *Nyctalus noctula* when moving longer distances between maternity and hibernation areas. As such, the conservation of these habitat features, as well as their protected roost sites, is very important for bats, and these can be threatened particularly by larger scale development and infrastructure.

2. Methods

2.1. ***Desk Study***

A data search using Magic maps and data received from SBIS (January 2023) was used to review records of designated sites and protected / priority species and habitats within a defined search area from the centre of the site. The search radius was 1 km for statutory designated sites, non-statutory designated sites, and protected / priority species (excluding bats where the radius was extended to 2 km in accordance with best practice guidance[1]), and 500 m for priority habitats. The respective search radii were considered suitable for the scale and type of the proposed development.

The designated sites included within this search were as follows:

- Special Areas of Conservation (SAC);
- Special Protection Areas (SPA);
- Ramsar Sites;
- Sites of Special Scientific Interest (SSSI);
- National Nature Reserves (NNR);
- Local Nature Reserves (LNR); and
- County Wildlife Sites (CWS).

The following data sources were used, contacted and/or reviewed:

- Suffolk Biological Information Service (SBIS), data supplied by Greenlight Environmental Consultancy limited;
- Multi Agency Geographic Information for the Countryside (MAGIC)[2];
- Species and habitats of principal importance in England, Section 41 of the Natural Environment and Rural Communities Act 2006[3]; and
- Suffolk BAP (SBAP)[4].

[1] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

[2] http://magic.defra.gov.uk accessed 01/04/2022

[3] http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx accessed 19/07/2022

[4] https://www.suffolkbis.org.uk/biodiversity/speciesandhabitats accessed 19/07/2022

2.2. ***Field Survey***

Habitat Assessment - Preliminary Ecological Appraisal

A Preliminary Roost Assessment was carried out by Duncan Sweeting LCG (Natural England Bat Class Survey Licence Level 2 (WML-CL18) and Gemma Kitchin BSc (Hons), on the 05th January 2023 in accordance with standard best practice methodology for roost assessments set out by the Bat Conservation Trust (BCT). Weather conditions during the survey were overcast (100% cloud cover), a gentle breeze (Beaufort Scale 3), and a temperature of 10°C, with good visibility for all accessible external areas of the building.

The objectives of the survey were to:

- Determine the presence or likely absence of bats;
- Locate any bat roosts present and determine the species (where possible);
- Estimate the size of the bat roost (i.e. small / moderate / large);
- Identify access / egress points to and from potential / confirmed roosts;
- Assess potential flight paths to and from potential / confirmed roosts in terms of the arrangement of current vegetation and lighting layout; and
- Determine the status and seasonal usage of any roosts present.

The buildings were surveyed externally, and internally where possible, for their suitability to support roosting bats according to Bat Conservation Trust Good Practice Guidelines (Collins, 2016). The buildings were systematically searched for potential bat roost features (PRFs) and any evidence of roosting bats such as fur staining, urine splashes, droppings, smoothness at entry points and feeding remains. A torch, extendable mirror, binoculars, endoscope and thermal imaging camera was used to investigate accessible features where necessary.

The survey gives particular attention to the following PRFs:

- Gaps between ridge tiles and ridge and roof tiles, usually where the mortar has fallen our or the tiles are broken or lifted;
- The ridge area of the roof (particularly between the ridge beam and roofing material);
- Lifted lead flashing associated with roof valleys, ridges and hips, or where lead flashing replaces tiles;
- Spaces between external weatherboarding / cladding and the timber frame or walls;
- Gaps behind window frames, lintels and doorways including the main doors;
- Tenon and mortise joints between truss beams and braces and the principal support columns;
- Cracks and crevices in timbers;
- Gaps between stones or bricks (especially where purlins enter the wall and by the wall plate); and
- Surfaces such as the ground, ledges, windows, sills or walls, machinery or stored material within the barns (which should be searched for bat droppings and/or urine sports or stains)

[5] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

Following completion of the external and internal surveys, each building / structure is classified in one of the following categories:

• **Confirmed bat roost**: Presence determined from evidence of bats;
• **High potential**: A structure 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, conditions and surrounding habitat

• **Moderate potential**: A structure with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and surrounding habitat but is unlikely to support a roost of high conservation status;
• **Low potential**: A structure with one or more potential roost sites that could be used by individual bats opportunistically. These sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger number of bats (i.e. unlikely to be suitable for maternity or hibernation); or
• **Negligible potential:** No habitat features likely to be used by roosting bats.

2.3. Emergence / Return to Roost Surveys 2023

Two survey visits were undertaken by ecologists Duncan Sweeting LCG (Natural England bat class licence WML-CL18) and Gemma Kitchin BSc (Hons) on the 22nd May and 15th June 2023. The survey was conducted following methods described by The Bat Conservation Trust (Collins, 2016) and interim guidance (BCT May 2022).

Surveyors watched potential roost features and building entry/exit points on every aspect of the buildings from stationary positions and recorded bats emerging or returning to roost. Using bat detectors, the surveyors noted species, number of bats, roost locations, and access points where possible. Surveyor locations are shown in Appendix I; these locations were chosen based on the position of previously identified access points and ensuring full coverage of the buildings. Where possible, bat activity surrounding the surveyed buildings (commuting, foraging etc.), including flight direction, flight height, and number of bats, was also recorded.

Dusk Surveys started at least 20 minutes before sunset and continued for 90 minutes after sunset (or until light levels became insufficient to accurately survey bat activity) in accordance with best practice guidelines (Collins, 2016). Night vision aids were used to assist dusk surveys, which is an accepted alternative to dawn surveys under interim guidance notes (BCT May 2022).

Survey timings can be found in Appendix IV (raw data).

The surveys were carried out within the optimal weather conditions for bat surveys; with temperatures at sunset above 10°C, no or little rain, and little/gentle breeze.

Equipment used on surveys included Wildlife Acoustics EMT Pro 2 (with tablet or Ipad), Batlogger M, Canon XA40 4K infra-red Camcorders, Sannce 4-channel 360° infra-red cameras, Guide Track Pro 19 thermal imaging cameras and Anabat Swift static detectors. Recorded bat calls were analysed using Anabat insight/Kaleidoscope and video footage using i-catcher software.

Results

2.4. *Desk Study*

SBIS data search (2023)

- A preliminary data search was undertaken on the 9th January 2023 by DCS Ecology Ltd., using data supplied by Suffolk Biodiversity Information Service (SBIS), see Appendix V.
- The data search returned 46 records of bat species within 2km of the Site.
- These included three records of serotines (*Eptesicus serotinus*), one *Myotis* spp., nine of noctules (*Nyctalus noctula*), eight of Daubenton's bat (*Myotis daubentonii*), twenty-one of pipistrelles (*Pipistrellus* spp.), twelve of which were specified as Common Pipistrelle (*Pipistrellus pipistrellus*), and eight as Soprano Pipistrelle (*Pipistrellus pygmaeus*), and four Brown long-eared (*Plecotus auritus*) bats within 2km of the site.
- The majority of these were along the river Gipping, with several soprano pipistrelle, common pipistrelle, and Daubenton's recorded within 100m north-east of site at Sproughton Mill.

Magic Map data search (January 2023, extended May 2023)

- In January 2023 DCS Ecology Ltd. conducted a data search of all bat EPS applications within 7km of the site using MAGIC system (see table below and map in Appendix V). This was extended to 10km on 09/05/23.
- The search returned ten records of past and current bat licence applications being submitted (details are in table below) consisting of common pipistrelle, soprano pipistrelle, brown long-eared and Natterer's.
- The nearest record to site (EPSM2012-4026) was ~1.6km east of Site at grid ref. TM14114491 (, a common pipistrelle, soprano pipistrelle, Natterer's and brown long-eared resting place). This was the only record within 2km of the site boundary.

MAGIC Map Data - Bat EPS licences within 10km of Site

Case reference of granted application	*Species group to which licence relates*	*Impacts breeding site*	*Impacts resting place*	*Grid Ref*	*Nearest Location*
EPSM2012-4026	*C-PIP; SPIP; NATT; BLE*	*N*	*Y*	*TM14114491*	*Hadleigh Road, Ipswich*
2016-26782-EPS-MIT	*C-PIP*	*N*	*Y*	*TM05884710*	*Church Farm*
2016-26782-EPS-MIT-1	*C-PIP*	*N*	*Y*	*TM05884710*	*Church Farm*
2018-33609-EPS-MIT	*C-PIP*	*N*	*Y*	*TM17484240*	*Ipswich*
2018-34459-EPS-MIT	*C-PIP*	*N*	*Y*	*TM15694389*	*Ipswich*
2018-37839-EPS-MIT	*C-PIP*	*N*	*Y*	*TM16414492*	*Ipswich*
2014-140-EPS-MIT	*C-PIP S-PIP*	*N*	*Y*	*TM17494340*	*Rose Hill, Ipswich*
2014-4374-EPS-MIT	*BLE*	*N*	*Y*	*TM08594192*	*Chattisham*
EPSM2012-5184	*C-PIP; BLE*	*N*	*Y*	*TM10794021*	*Folly Lane*
EPSM2012-4573	*C-PIP; BLE*	*N*	*Y*	*TM15814821*	*Thurleston Lane*
2020-49650-EPS-MIT	*C-PIP S-PIP*	*N*	*Y*	*TM05984040*	*Woodland's Road*
2014-1038-EPS-MIT	*BLE C-PIP*	*N*	*Y*	*TM20494300*	*Ipswich*
2016-25709-EPS-MIT	*C-PIP S-PIP*	*N*	*Y*	*TM09405401*	*Needham Market*
EPSM2013-6102	*C-PIP;S-PIP;BLE*	*N*	*Y*	*TM20464434*	*Kesgrave*
EPSM2011-2890	*C-PIP;S-PIP*	*N*	*Y*	*TM04284141*	*Hadleigh*
EPSM2013-6380	*C-PIP;BLE*	*N*	*Y*	*TM20494290*	*Ipswich*

2017-29900-EPS-MIT	***BARB BLE C-PIP***	***N***	***Y***	***TM09083725***	***Capel St Mary***
EPSM2013-5916	***C-PIP; BLE***	***N***	***Y***	***EPSM2013-5916***	***Ipswich***
2019-41601-EPS-MIT	***BARB C-PIP S-PIP***	***N***	***Y***	***TM07615031***	***Offton***
2019-42539-EPS-MIT	***BARB BLE C-PIP NATT S-PIP***	***Y***	***Y***	***TM18404961***	***Valley Farm***
2018-33889-EPS-MIT	***BARB BLE C-PIP NATT S-PIP***	***N***	***Y***	***TM17783876***	***Freston***
2019-39154-EPS-MIT	***BLE C-PIP***	***Y***	***Y***	***TM18793841***	***Freston***

For species abbreviation definitions, please see Appendix VII

2.5. *Field Survey*

Survey Timings Summary and Weather Conditions

Survey Date	Survey Type	Temperature start (°C)	Temperature end (°C)	Precipitation	Wind Speed (mph)	Cloud Cover (%)
22/05/22	Emergence	16.1	7.8	Nil	4	0
15/06/22	Emergence	16.7	13.8	Nil	1	0

Roost Habitat and building Assessment – (PEA January 2023)

The Site comprised of Church Close House, two outbuildings, a greenhouse, and a mixture of managed (to north) and unmanaged (to south) garden habitats.
The buildings were assessed as:

- **CHURCH CLOSE HOUSE**: High bat roosting potential, due to multiple PRFs and access points such as lifted and misshapen pig tiles, lifted ridge tiles, holes in soffit boarding.
- **NORTHERN OUTBUILDING:** Low bat roosting potential, due to multiple openings, lifted ridge tiles and bat droppings, but poor internal atmospheric conditions and lack of potential roost features, such as crevices in timber beams, loose building material, or inter-space cavities.
- **WESTERN OUTBUILDING:** Low bat roosting potential. No signs of bats, but some PRFs such as gaps under ridge tiles where mortar had broken away were present.
- **GREENHOUSE**: Negligible bat roosting potential, as it was over exposed to light ingress and lacked PRFs.

Habitats on the site grounds, such as mature trees and rough grassland, provided good foraging opportunities for bats, although these habitats were small and the area to be lost (<0.2ha) create only a negligible negative impact to local bat populations. No potential roost features were observed on trees onsite.
Linear features including a mature tree line leading east provide commuting bats. Habitats in the surrounding area including parkland, ancient woodland, rivers, grazing marsh and gardens and grassland were suitable for foraging and roosting bats. The River Gipping in particular provided drinking opportunities and the high density of emergent insects would provide excellent foraging opportunities for bats.
Other evidence of protected species onsite included bird nests, found in trees surrounding the property.

No living bats were observed during the survey.

Emergence / Return to Roost Surveys

Maps of surveyor locations, and emergence points can be found in Appendices I and II respectively.

22/05/2023 – Sunset 20:58 hrs

During the first survey, identified species recorded (including those not associated with the building) included common pipistrelle, brown long-eared bats, soprano pipistrelle, serotine, and noctule bats. The majority of activity onsite consisted of foraging soprano pipistrelle, which were recorded foraging throughout both the north and southern gardens onsite. Bat activity was considered moderate, with periodic activity from 21:08 through to 22:19 hrs.

One soprano pipistrelle was observed by surveyor 1 emerging at 21:08 hrs from behind the western most chimney stack of Church close, with the suspected roost location being the lead flashing or adjacent tiles surrounding the chimney (see appendix II).

Common pipistrelles dominated the activity recorded at the site, the majority of which were foraging amongst the northern and southern garden areas, particularly along areas bordering mature beech trees and buildings onsite. Activity was consistent throughout the night. The maximum number of soprano pipistrelles observed at any one time was three, while only single individuals of the other recorded bat species were noted.

Cameras positioned on the western building and northern outbuilding recorded no emergences.

No other bat species were recorded emerging during the survey.

15/06/2023- Sunset 20:53 hrs

During the second survey, the species recorded were common pipistrelle, soprano pipistrelle, serotine, brown long-eared bats and noctules. Bat activity was slightly lower than the first survey but consistent throughout the survey. Only individual bats were ever recorded at a given time during the survey.

As the previous emergence originated from the western section of the house, a surveyor was placed in the courtyard amongst the western outbuildings facing the western gable of Church Close House. It was noted that this surveyor noted no vocalizations from the western outbuilding or any other evidence to suggest that bats are roosting within.

There were **two recorded emergences of common pipistrelle** bats. The first emerged at 21:37 hrs from the mid-chimney stack or the roof valley behind before flying northwards. Photo reference 15 in Appendix III shows the emergence (a thermal imaging camera POV). The second common pipistrelle emerged at 21:44 hrs from lead flashing or adjacent tiles around the western most chimney stack (photo reference 11 and 12).

A single brown long-eared bat was recorded emerging at 23:13 hrs from roof tiles on the western roof section. As surveyors positioned to the north of the building did not see or detect bats flying towards the building it adds further evidence that the bat emerged rather than flew over the roof area.

Two non-target protect species were recorded during the second survey, a hedgehog (*Erincaeus europaeus*) and a male stag beetle (*Lucanus cervus*), photo reference 16 and 17 respectively.

Hedgehogs and stag beetles are listed as a UK 'Priority Species' under S41 of the NERC Act (2006) and have limited protection under Schedule 5 (stag beetles) and 6 (hedgehogs) of the Wildlife and Countryside Act (1981) as amended. It is emphasized that recommendations for hedgehogs outlines within the Preliminary Ecological Appraisal (DCS Ecology, 2023) must be adhered to during and post construction, including maintaining accessibility for hedgehogs throughout site, providing refugia such as hedgehog boxes, and precautionary working practices.

2.6. ***Survey Limitations***

The eastern elevation was directly on the boundary of site and so a surveyor could not be placed directly east (where there was a road). However, as any bats emerging from that elevation could be seen by surveyor 2 and surveyor 4 (first survey), this was not considered a significant impact on the findings of the survey.

3. Conclusions and Recommendations

3.1. *Conclusions*

At least two common pipistrelles, a soprano pipistrelle and a brown long-eared were found to be roosting within Church Close between the 22nd May 2023 and 15th June 2023. As only low numbers of each species were recorded, these were concluded to be day roosts.

The following emergences were recorded:

Date	Species	Emergence location	Roost type
22/05/23	Soprano pipistrelle x1	Lead flashing or tiles surrounding western chimney.	Day
15/06/23	Common pipistrelle x1	Lead flashing or tiles surrounding middle chimney.	Day
	Common pipistrelle x1	Lead flashing or tiles surrounding western chimney.	
	Brown long-eared x1	Roof tiles on western section of building	

Roosting locations are considered to be lead flashing around the middle and western chimney stacks and adjacent peg and ridge tiles.

3.2. *Recommendations*

The proposals are to divide Church Close for the conversion of a northern outbuilding, demolition of a western outbuilding, erection of a new dwelling and the subdivision, alteration and extension of the existing dwelling into two separate units. This will result in the disturbance and destruction of day roosts for a low number of common pipistrelles, soprano pipistrelles and brown long-eared bats, and without appropriate mitigation could also result in the injuring and killing of bats. **Therefore, a Natural England European Protected Species Bat Mitigation Licence (A13 or 'Full Licence)** will be required prior to any works which may impact Church Close House.

This licence agreement is likely to include compensatory bat roosts and detailed precautionary working methods to minimize the risk of harm to any bats during the works such as an integral bat tube or tubes, ridge tile bat cavities, bat boxes, and a sensitive wildlife lighting plan.

4. Validity Duration of Data

Information Source	Date Undertaken	Valid Until	Comments
Bat Dusk Emergence/Dawn Re-entry Survey (For Planning)	**June 2023**	**June 2025 (2 years)**	**Bats are known as a transient species and can move roost sites both within and between years.**
Bat Dusk Emergence/Dawn Re-entry Survey (For Mitigation Licensing)	**June 2023**	**June 2024 (1 year)**	**Natural England requires information from the most recent survey season to inform a licence application.**

5. References

5.1. *Literature*

Altringham, J.D. (2003) British Bats. Harper Collins Publishers, 77-85 Fulham Palace Road, Hammersmith, London, W6 8JB. ISBN 000 220147 X.

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http://www.suffolkbis.org.uk/biodiversity/speciesandhabitats/specieslist

http://www.suffolkwildlifetrust.org

6. Appendices

Appendix I – Surveyor location maps

Figure 2: Surveyor locations and camera positions within Church Close (survey 22/05/23)

Figure 3: Surveyor locations and camera positions within Church Close (survey 15/06/23)

Appendix II- Bat Emergence Points and Activity Maps

Figure 4- Bat activity for dusk surveys 22/05/23 and 15/06/23

Appendix III- Survey Images

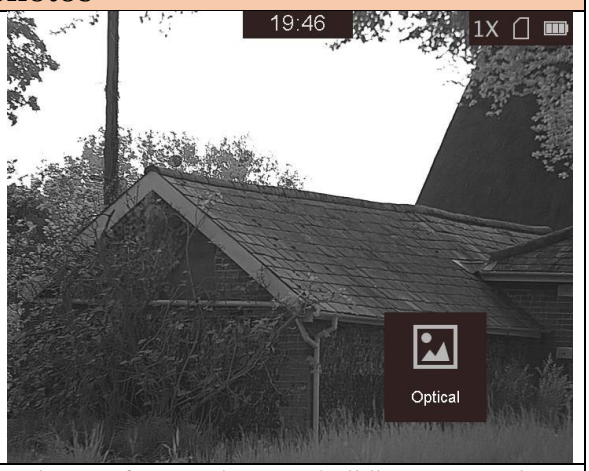
<table>
<tr><th colspan="2">Survey photos</th></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>Photo ref 1. Northern outbuilding camera view 15/06/23 from Thermal imaging camera, south and east elevations of western section.</td><td>Photo ref 2. Northern outbuilding camera view 15/06/23 from infrared camera, south and east elevations of western section.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Photo ref 3. Church Close House southern elevation and garden</td><td>Photo ref 4. Church Close House northern elevation</td></tr>
<tr><td>  </td><td> 
</td></tr>
<tr><td>Photo ref 5. Thermal imaging camera position 15/06/23 recording southern elevation of southern extension.</td><td>Photo ref 6. View from thermal imaging camera 15/06/23</td></tr>
</table>

Photo ref 7. South and east elevations of south-east section of house.

Photo ref 8. Southern elevation of southern extension

Photo ref 9. South and west elevations of southern and western sections of house.

Photo ref 10. View of house from courtyard, showing western elevations.

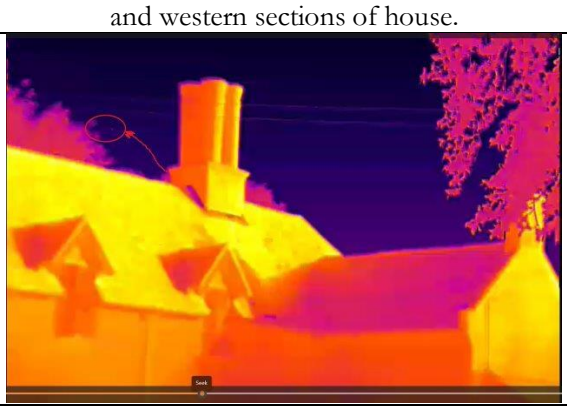


Photo ref 11. Common pipistrelle emergence 15/06/23 at 21:44 hrs, emerging from lead flashing or tiles near lead flashing of western-most chimney stack

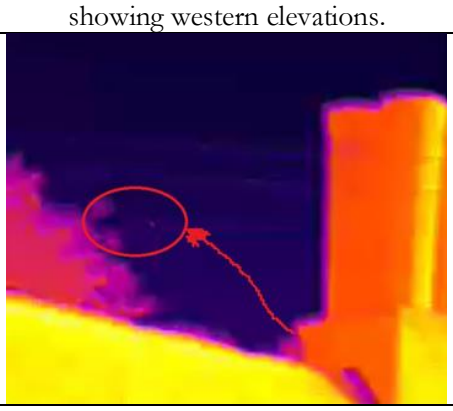


Photo ref 12. Close up of previous image, with bat circled in red

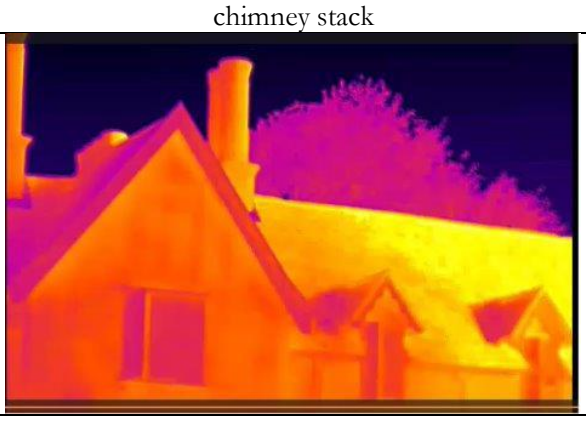


Photo ref 13. Thermal imaging viewpoint 15/06/23 of the mid-section of the northern elevation.

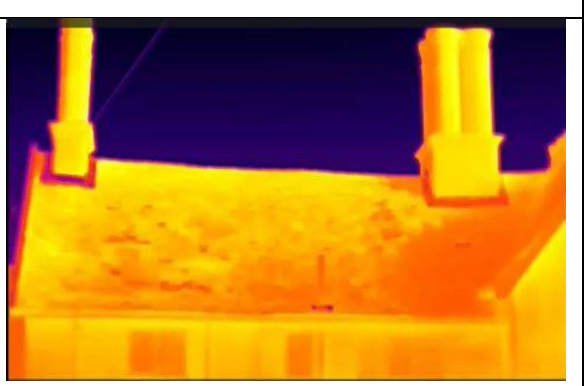


Photo ref 14. Thermal imaging viewpoint 15/06/23 of the eastern section of the northern elevation

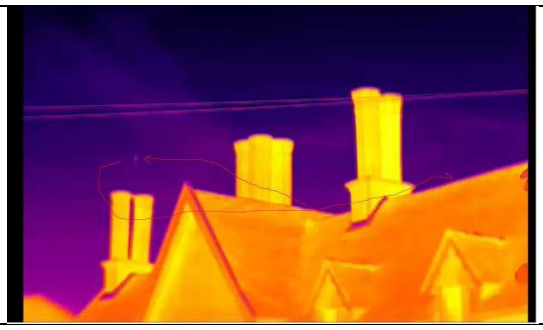


Photo ref. 15. Common pipistrelle emergence from lead flashing on middle chimney or roof valley behind 15/06/23

Photo ref. 16. Hedgehog *Erinaceous europaeus* observed on 15/06/23

Photo ref. 17. Male stag beetle *Lucanus cervus* observed during survey 15/06/23

Photo ref 18. Forest bug *Pentatoma rufipes* nymph. Flying insects during the survey demonstrated good local foraging opportunities for bats.

Appendix IV – Bat Survey Results

Surveyor Results – 22/05/2023 (Sunset – 20:53)

Surveyor 1: DS					
SURVEY START: 20:30		**Detector / Recorder:** Echo metre touch 2 Pro and Samsung tablet.		**Additional equipment:** Railfox whisper IR, Guide 19 Thermal imaging camera, CANON XA40 infrared camera	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:08	**SPIP**	**1**	**1**	**Emerging**	**Seen emerging from area above dormer end (western end) on northern elevation.**
21:11	*SPIP*	1	1	Foraging	
21:07	*NOC*	1	4	Foraging	
21:09	SPIP	1	1	Foraging	
21:24	SPIP	2	3	Foraging	
21:24	CPIP	1	1	Foraging	
21:32	SPIP	3	Multiple passes	Foraging	
21:38	SPIP	1 or 2	continuous	Foraging	
21:51	SERO	1	1	Foraging	Seen over Church Lane
22:01	NOC	1	1	Foraging	
22:11-15	NOC	1	1	Foraging	
22:18	SERO	1	1	Foraging	
SURVEY END: 22:25					

Surveyor 2: GS					
SURVEY START: 20:30		**Detector / Recorder:** Echo metre touch 2 Pro and Samsung tablet.		**Additional equipment:** CANON XA40 infrared camera	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:07	SPIP	1	1	Foraging	Flew west to east
21:11	*NOC*	1	1	Foraging	HNS
21:16-17	*NOC*	1	1	Foraging	HNS Continuous activity.
21:18-19	NOC	1	1	Foraging	HNS
21:21-22	SPIP	1	1	Foraging	HNS
21:22-23	NOC	1	1	Foraging	HNS. Continuous activity.
21:26	NOC	1	1	Foraging	HNS
21:26	SPIP	1	1	Foraging	HNS
21:32	CPIP	1	2	Foraging	HNS
21:38	CPIP	1	1	Foraging	HNS
21:46	NOC	1	1	Foraging	HNS
21:47	NOC	1	1	Foraging	HNS
21:47	BLE	1	1	Foraging	HNS
21:50-51	NOC	1	1	Foraging	HNS
21:51-53	SERO	1	1	Foraging	HNS
21:54-55	NOC	1	1	Foraging	HNS
21:56	SERO	1	1	Foraging	HNS
21:57	NOC	1	1	Foraging	HNS
21:59	Chiroptera sp.	1	1	Foraging	HNS
21:59	CPIP	1	1	Foraging	HNS
22:01	SERO	1	1	Foraging	HNS
22:02	NOC	1	1	Foraging	HNS
22:06	SERO	1	1	Foraging	HNS
22:07	NOC	1	1	Foraging	HNS
22:07	CPIP	1	1	Foraging	HNS Continuous activity.
22:08	CPIP	1	1	Foraging	HNS
22:08	Chiroptera sp.	1	1	Foraging	HNS
22:09-10	NOC	1	1	Foraging	HNS Continuous activity.
22:12	NOC	1	1	Foraging	HNS

22:13	Chiroptera sp.	1	1	Foraging	HNS
22:13-15	NOC	1	1	Foraging	HNS. Continuous activity.
22:15	Chiroptera sp.	1	1	Foraging	HNS
22:15	NOC	1	1	Foraging	HNS
22:16	CPIP	1	1	Foraging	HNS
22:18-19	SERO	1	6	Foraging	HNS
22:19	NOC	1	1	Foraging	HNS
22:19	SPIP	1	1	Foraging	HNS
22:19	NOC	1	1	Foraging	HNS
SURVEY END: 22:25					

Surveyor 3: ET					
SURVEY START: 20:30		**Detector / Recorder:** Echo metre touch 2 Pro and Batlogger M		**Additional equipment:** IR, Guide 19 Thermal imaging camera, CANON XA40 infrared camera	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:11	SPIP	2	6	Foraging	Foraging west of house.
21:12	*SPIP*	1	11	Foraging	Foraging in garden continuous for over an hour
21:17	*NOC*	1	4	Foraging	
21:25	BLE	1	1	Foraging	HNS
21:45	SERO	1	1	Commuting	
21:48	NOC	1	9	Foraging	HNS
21:51	SERO	1	5	Foraging	31-27 KHz
22:01	NOC	1	4	Foraging	
22:06	CPIP	1	4	Foraging	
22:07	NOC	1	7	Foraging	Until 22:11
22:16	NOC	1	3	Foraging	
SURVEY END: 22:25					

Surveyor 4: GK					
SURVEY START: 20:30		**Detector / Recorder:** Echo metre touch 2 Pro and Bat logger M		**Additional equipment:** Guide 19 Thermal imaging camera, CANON XA40 infrared camera	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:07	**SPIP**	**1**	**1**	Commuting	First seen flying eastwards towards church.
21:08	*SPIP*	1	1	Foraging	
21:10	*CPIP*	1	4	Foraging	
21:11	NOC	1	1	Foraging	
21:11	CPIP	2+	3	Foraging	
21:17-22:09	NOC	1	5+	Foraging	Infrequent passes by foraging noctules
21:25	CPIP	2+	Multiple passes	Foraging	
21:26	CPIP	1	continuous	Foraging	
21:26	SPIP	1		Foraging	
21:30-57	SERO	1	1	Foraging	
21:35	BLE	1	1	Foraging	HNS
21:45	NOC	1	1	Foraging/ commuting	HNS
21:50	NOC	1	1	Foraging/ commuting	HNS
21:49	SERO	1		Foraging	Looping south of house
21:48	CPIP	2		Foraging	Harmonising
21:52-54	SERO	1		Foraging	
22:04	SERO	1		Foraging	
22:00-end of survey	CPIP	1	5+	Foraging	Activity decreased but continued until end of survey
22:13	SERO	1		Foraging	
SURVEY END: 22:25					

Surveyor Results –15/06/2023 (Sunset – 21:17)

Surveyor 1: DS					
SURVEY START: 20:55		**Detector / Recorder:** Echo metre touch 2 Pro and Samsung tablet.		**Additional equipment:**	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:37	**CPIP**	**1**	**1**	**Emerging**	**Seen and heard between surveyor 2 to surveyor 1.**
21:48	*NOC*	1	1	Foraging	Between surveyor 1 and surveyor 2.
21:52	*CPIP*	1	1	Foraging	To north.
21:58	SPIP	1	1	Foraging	
22:00	NOC	1	1	Foraging	HNS
22:07	CPIP	1	2	Foraging	
22:10	SPIP	1	1	Foraging	HNS
22:14	CPIP	1	1	Foraging	
22:14	SPIP	1	2	Foraging	
SURVEY END: 22:50					

Surveyor 2: MG					
SURVEY START: 20:55		**Detector / Recorder:** Echo metre touch 2 Pro with Ipad with Batlogger M		**Additional equipment:**	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:37	**CPIP**	**1**	**1**	**Foraging**	**SNH. Flying northwards. Likely same bat surveyor 1 saw emerge.**
21:45	*NOC*	1	1	Foraging	
21:48	*NOC*	1	1	Foraging	
21:49	*NOC*	1	1	Foraging	
21:52	*NOC*	1	1	Foraging	
21:55	*NOC*	1	1	Foraging	
21:57	CPIP	1	1	Foraging	Heading southwards
22:03	NOC	1	2	Foraging	
22:04	CPIP	1	3	Foraging	
21:07	NOC	1	1	Foraging	
21:08	SPIP	1	1	Foraging	
21:10	SPIP	1	1	Foraging	
22:16	SPIP	1	2	Foraging	Flying southwards
22:35	CPIP	1	2	Foraging	
22:39	CPIP	1	2	Foraging	
22:43	CPIP	1	2		
SURVEY END: 22:50					

Surveyor 3: ET					
SURVEY START: 20:55		**Detector / Recorder:** Echo metre touch 2 Pro with Samsung tablet and Bat logger M		**Additional equipment:** Railfox whisper IR, CANON XA40 infrared camera	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:37	*CPIP*	1	1	Commuting	
21:44	***CPIP***	**1**	**1**	**Emergence**	
21:45	NOC	1	15+	Foraging	
21:56	SPIP	1	9	Foraging / commuting	Continuous until 22:35
21:57	CPIP	1	6	Foraging	Continuous / periodic until 22:35
22:02	Chiroptera spp.	1	1	Foraging / commuting	
22:04	SERO	1	1	Foraging	
22:13	**BLE**	**1**	**1**	**Emergence**	
22:34	SPIP	1	2	Foraging / commuting	
22:40	CPIP	1	4	Foraging	
SURVEY END: 22:50					

Surveyor 4: GK					
SURVEY START: 20:55		**Detector / Recorder:** Echo metre touch 2 Pro with Ipad and Batlogger M.		**Additional equipment:** Guide 19 Thermal imaging camera, CANON XA40 infrared camera	
Time	**Species**	**# Bats**	**# Passes**	**Activity**	**Notes**
21:40	CPIP	1	1	Commuting	Heading eastwards
21:40-22:40	*CPIP and SPIP*	1+	Multiple	Foraging and commuting	Almost continuous soprano and common pipistrelle activity through-out survey.
21:44-47	*CPIP*	1	1	Foraging	Looping in south garden. Continuous
21:46-53	*NOC*	1	3	Foraging	
21:55	NOC	1	1	Foraging	
21:56	SPIP	1	1	Foraging	
22:13	**BLE**	**1**	**1**	Foraging / possible emergence	Between surveyor 3 and surveyor 4.
22:04	SERO	1	1	Foraging	HNS
22:07	NOC	1	1	Foraging	
22:12	CPIP	1	1	Foraging	Seen fly over roof valley
22:15	CPIP	1	1	Foraging	
22:17	CPIP	1	1	Foraging	
SURVEY END: 22:50					

Appendix V - Data Search Results

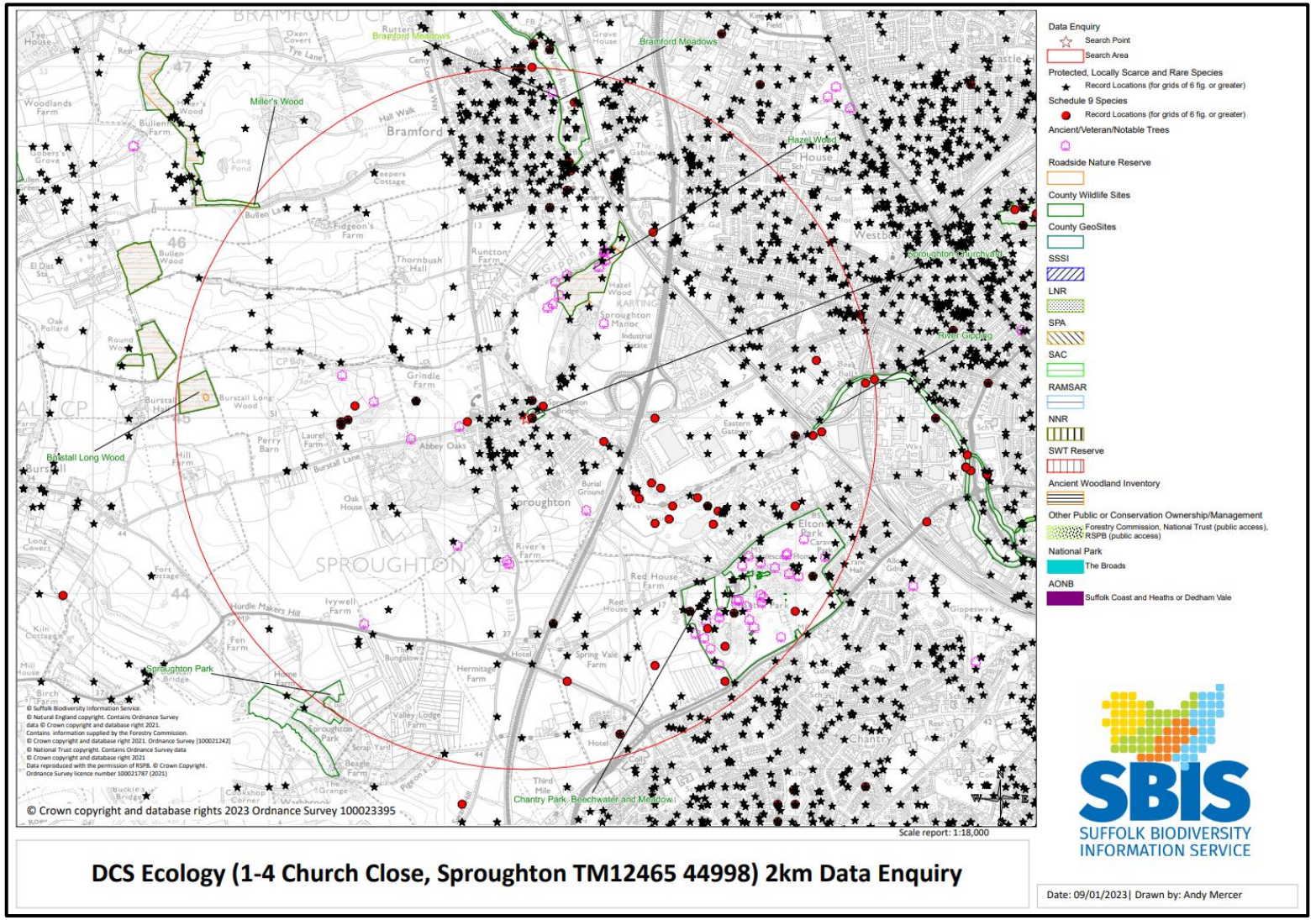


Figure 6: *Protected species records, Statutory and Non-Statutory Designated Sites within 2km of the Site*

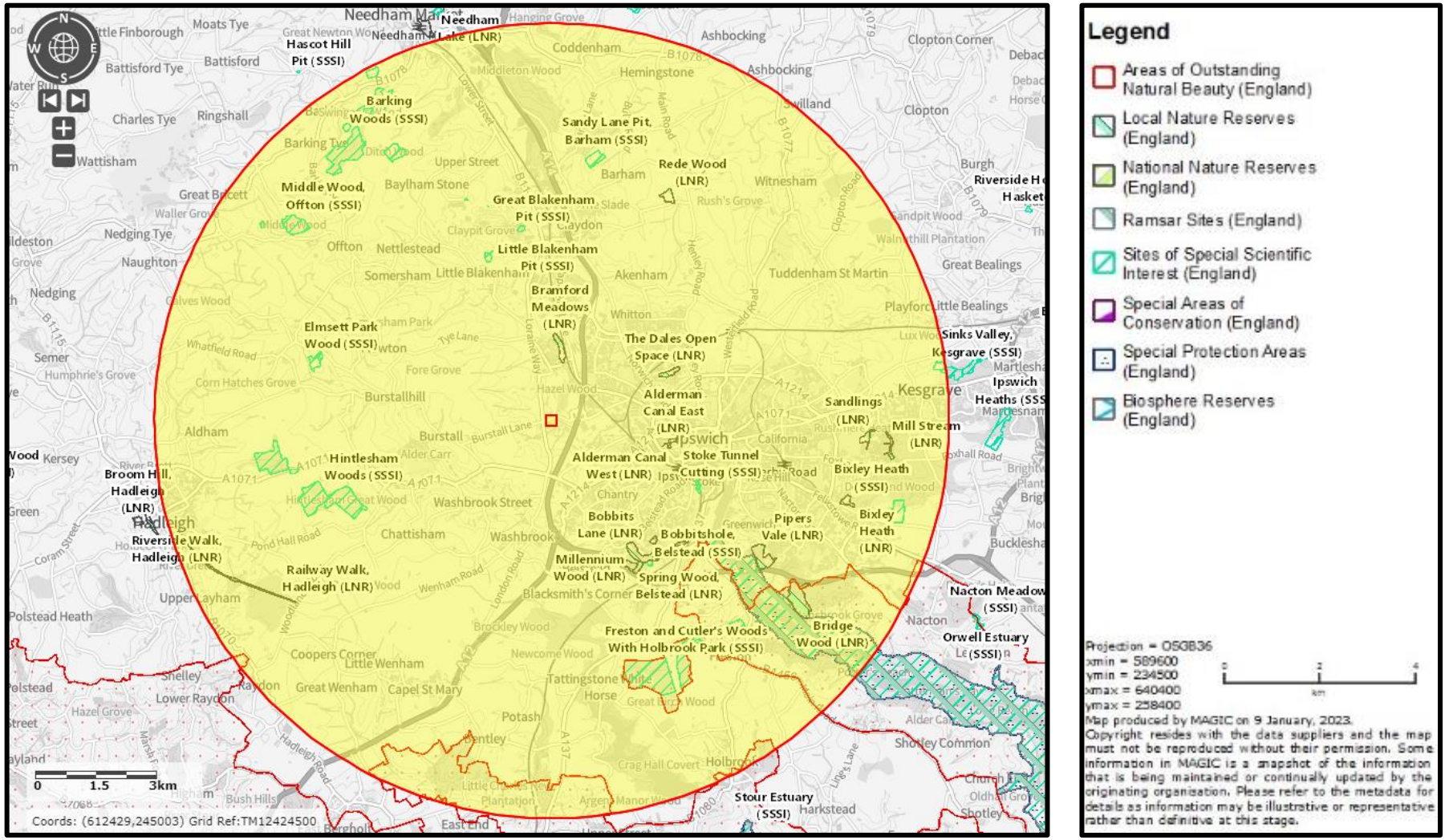


Figure 7: *Statutory Conservation Sites within 10km of the Site*

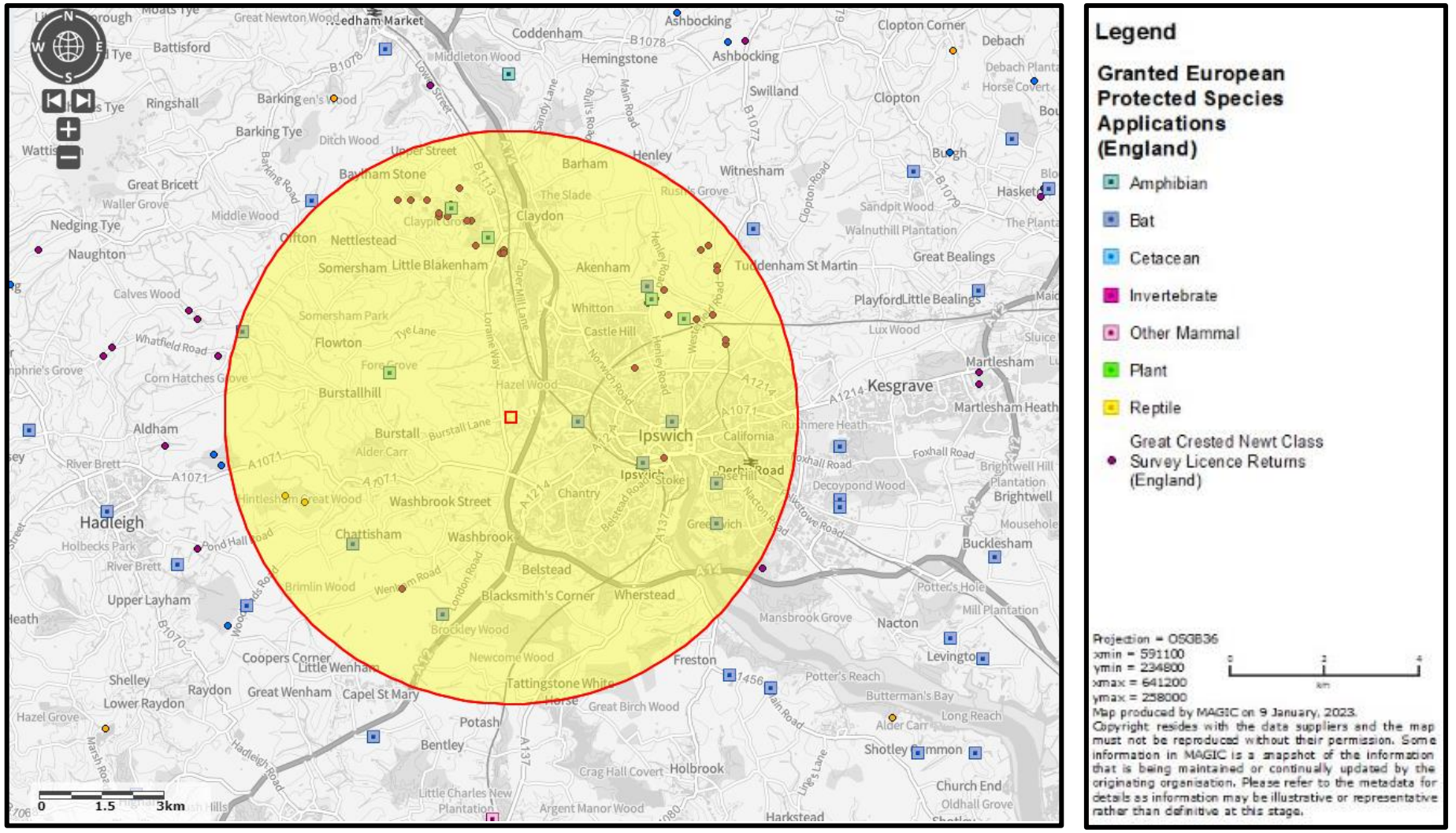


Figure 8: *Protected species recorded on MAGIC within 7km of the Site. Based upon Ordnance Survey (c) Crown Copyright under licence 100064616*

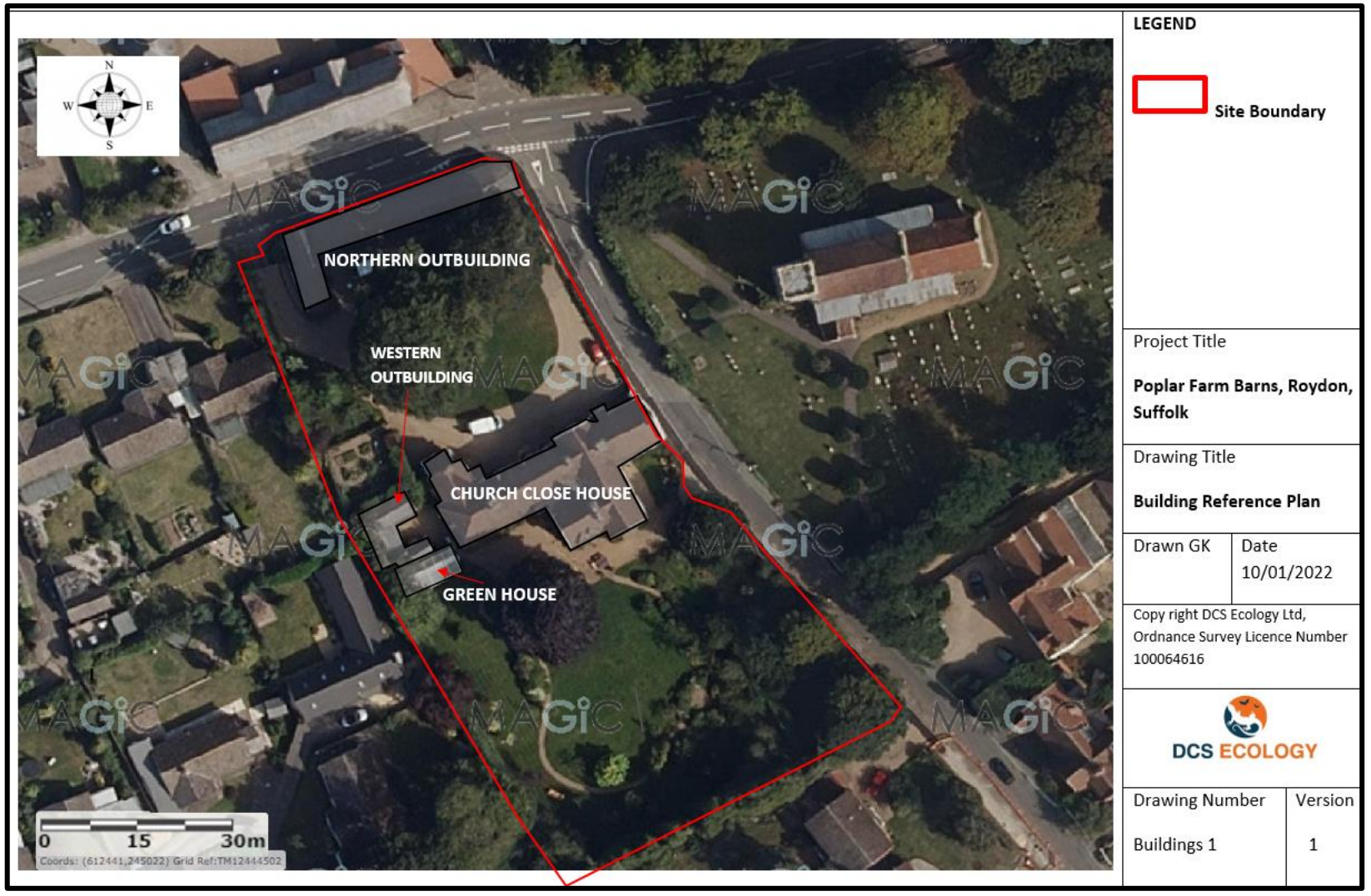


Figure 9: *Building locations. Based upon Ordnance Survey (c) Crown Copyright under licence 100064616*

Bat Results from SBIS search 09/01/23

Common Name	Latin Name	Location	Grid Ref	Year	Notes
Myotis Bat species	*Myotis*		TM1275443251	2018	low pop
Daubenton's Bat	*Myotis daubentonii*		TM1183745098	2019	
Daubenton's Bat	*Myotis daubentonii*	River Gipping Bramford	TM127449	2014	Bat detector record
Daubenton's Bat	*Myotis daubentonii*	Bramford River Gipping	TM127463	2014	Seen feeding over water
Daubenton's Bat	*Myotis daubentonii*	Bramford Meadows	TM129460	2014	The Mammal Society
Daubenton's Bat	*Myotis daubentonii*		TM1244	2014	The Bat Conservation Trust
Daubenton's Bat	*Myotis daubentonii*		TM1344	2014	The Bat Conservation Trust
Daubenton's Bat	*Myotis daubentonii*	River corridor adjacent Sproughton Mill	TM1248045100	2008	
Daubenton's Bat	*Myotis daubentonii*	Chantry Park, Beechwater Pond, Ipswich	TM13544380	2005	Bat Box III, peak 45khz + visual (flying).
Noctule Bat	*Nyctalus noctula*		TM1183745098	2019	
Noctule Bat	*Nyctalus noctula*		TM1275443251	2018	low pop
Noctule Bat	*Nyctalus noctula*	South of Sproughton Road	TM1358945086	2018	Flying (Batbox Duet record)
Noctule Bat	*Nyctalus noctula*	Red House Barn, Sproughton	TM131439	2017	Foraging
Noctule Bat	*Nyctalus noctula*		TM1303646472	2016	Bat detector
Noctule Bat	*Nyctalus noctula*		TM127464	2014	Bat detector record & seen feeding high overhead
Noctule Bat	*Nyctalus noctula*	Bramford Meadows	TM128463	2014	The Mammal Society
Noctule Bat	*Nyctalus noctula*	Chantry Park open area south of Hadleigh Rd driveway entrance	TM138442	2005	Bat Box III, Peak at 22kHz + visual (in flight), strong high flight in open area diving, swooping, systematically hunting and gradually moving south to R Gipping. House martins and a hobby too!
Noctule Bat	*Nyctalus noctula*	Chantry Park in vicinity of veterean Turkey Oak due for reduction	TM14024416	2005	Bat Box III, peak at 22kHz, heard only at 20:17
Pipistrelle Bat species	*Pipistrellus*	church, bramford	TM12724630	2018	Flitting around in the roof late at night
Common Pipistrelle	*Pipistrellus pipistrellus*		TM1183745098	2019	
Common Pipistrelle	*Pipistrellus pipistrellus*	Hallfield Drive Sproughton	TM12664518	2019	
Common Pipistrelle	*Pipistrellus pipistrellus*		TM1275443251	2018	low pop
Common Pipistrelle	*Pipistrellus pipistrellus*	South of Sproughton Road	TM1358945086	2018	Flying (Batbox Duet record)

Common Pipistrelle	*Pipistrellus pipistrellus*	Red House Barn, Sproughton	TM131439	2017	Foraging
Common Pipistrelle	*Pipistrellus pipistrellus*		TM1303646472	2016	Bat detector
Common Pipistrelle	*Pipistrellus pipistrellus*		TM128464	2014	Bat detector record
Common Pipistrelle	*Pipistrellus pipistrellus*		TM1144	2014	The Bat Conservation Trust
Common Pipistrelle	*Pipistrellus pipistrellus*	River corridor adjacent Sproughton Mill	TM1248045100	2008	
Common Pipistrelle	*Pipistrellus pipistrellus*	Chantry Park, Beechwater Pond	TM13544380	2005	In flight, Bat Box III at 45kHz
Common Pipistrelle	*Pipistrellus pipistrellus*	Chantry Park, Stable block	TM13654408	2005	Bat Box III, peak 45 kHz + visual
Common Pipistrelle	*Pipistrellus pipistrellus*	Chantry park, mature oak, Cricket Pavilion driveway	TM13704390	2005	Bat Box III, peak 45 kHz
Soprano Pipistrelle	*Pipistrellus pygmaeus*		TM1183745098	2019	
Soprano Pipistrelle	*Pipistrellus pygmaeus*		TM1275443251	2018	low pop
Soprano Pipistrelle	*Pipistrellus pygmaeus*	South of Sproughton Road	TM1358945086	2018	Flying (Batbox Duet record)
Soprano Pipistrelle	*Pipistrellus pygmaeus*		TM1303646472	2016	Bat detector
Soprano Pipistrelle	*Pipistrellus pygmaeus*		TM129460	2014	Bat detector record
Soprano Pipistrelle	*Pipistrellus pygmaeus*	River Gipping Bramford	TM127458	2013	Bat detector record
Soprano Pipistrelle	*Pipistrellus pygmaeus*	River corridor adjacent Sproughton Mill	TM1248045100	2008	
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Chantry Park	TM13544380	2005	Bat Box III at 55kHz + visual (flying)
Brown Long-eared Bat	*Plecotus auritus*		TM1275443251	2018	low pop
Brown Long-eared Bat	*Plecotus auritus*	South of Sproughton Road	TM1358945086	2018	Flying (Batbox Duet record)
Brown Long-eared Bat	*Plecotus auritus*	Rivers Barn, Sproughton	TM123442	2004	Hibernation site
Brown Long-eared Bat	*Plecotus auritus*	2 River Hill Bramford	TM130463	2003	
Serotine	Eptesicus serotinus		TM1275443251	2018	low pop
Serotine	Eptesicus serotinus	River gipping	TM123463	2008	Bat detector record
Serotine	Eptesicus serotinus	River gipping	TM129465	2008	Bat detector record

Appendix VI: Relevant Protected Species Legislation

Species	Legislation	Protection
Bats	▪ Conservation of Habitats and Species Regulations (2010) (as amended) ▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended) ▪ Wild Mammals Act (1996)	It is an offence to: ▪ Intentionally kill, injure or take any bat ▪ Intentionally or recklessly disturb a bat ▪ Intentionally or recklessly damage, destroy or obstruct access to a bat roost
Birds	▪ Wildlife and Countryside Act (WCA) (1981 (as amended)	It is an offence to: ▪ Intentionally kill, injure or take any wild bird ▪ Intentionally take, damage or destroy nests in use or being built ▪ Intentionally take, damage or destroy eggs Species listed on Schedule 1 of the WCA (1981) are afforded additional protection, making it an offence to intentionally or recklessly disturb such species at, on or near an active nest

Appendix VII – List of abbreviations

Bat species abbreviations

Abbreviation	Common name	Latin name
BARB	Barbastelle (bat)	*Barbastella barbastellus*
BLE	Brown long-eared (bat)	*Plecotus auritus*
BRAN	Brandt's bat	*Myotis brandii*
CPIP	Common Pipistrelle bat	*Pipistrellus pipistrellus*
DAUB	Daubenton's bat	*Myotis daubentoniid*
LEI	Lesser noctule / Leisier's bat	*Nyctalus leiseri*
NATT	Natterer's bat	*Myotuis nattereri*
NOC	Common noctule	*Nyctalus noctule*
NPIP	Nathusius's pipistrelle	*Pipistrellus nathusii*
SERO	Serotine (bat)	*Eptesicus serotinus*
SPIP	Soprano pipistrelle (bat)	*Pipistrellus pygmaeus*
WHISK	Whiskered bat	*Myotis mystacinus*

Other abbreviations

Abbreviation	Stands for
BAP	Biodiversity Action Plan
BL	Bat logger M (bat detector)
CIEEM	Chartered Institute of Ecology and Environmental Management
CWS	County Wildlife Site
ECoW	Ecological Clerk of Works
eDNA	Environmental DNA
EMT	Echo metre touch (bat detector)
EPS	European Protected Species
HNS	Heard not seen
IR	Infrared (camera)
JNCC	Joint Nature Conservation Committee
LNR	Local Nature Reserve
MAGIC	Multi-Agency Geographic Information for the Countryside
NBIS	Norfolk Biodiversity Information Service
NE	Natural England
NNR	National Nature Reserve
PEA	Preliminary Ecological Appraisal
PRF	Potential [bat] Roost Feature
RNR	Roadside Nature Reserve
SAC	Special Area of Conservation
SBIS	Suffolk Biological Information Service
SNH	Seen not heard
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TI	Thermal Imaging (Guide IR Track Pro 19 Thermal Imaging)
VC	Video-camera (Canon XA40 infrared)
WCA	The Wildlife and Countryside Act 1981 (as amended)