

# Preliminary Ecological Assessment (PEA)

## and Bat Surveys at

# The Folly, Thornbury

December 2023



Document titlePEA & Bat Survey – The Folly, ThornburyRevision number0.1



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### **1** Executive summary

- 1.1.1 In July 2023, MPEcology were commissioned by Mr P Nicholls to undertake a Preliminary Ecological Assessment (PEA) and daytime inspection for bats of a structure known as the Folly. The structure in the grounds of Park House in Thornbury was being used as a garden equipment store.
- 1.1.2 A Phase 1 habitat survey and daytime inspection for bats was carried out by MPEcology on the 7th July 2023. A note of the habitats in relation to the UK Habitat Classification as well as incidental observations of plant and animal species were also made.
- 1.1.3 The structure was subject to a daytime inspection on the same visit. During the visit the building was searched by an experienced, licensed bat worker to locate evidence of current or past bat roosts, in the form of bats, droppings, staining, feeding signs, and/or remains of bats. The Folly was considered to offer a moderate potential for roosting bats and further surveys were scheduled. Dusk emergence surveys were undertaken to investigate use of the building by bats on the 17th July 2023 and 3rd August 2023. A static detector was also deployed to remotely monitor an upper storey roof space.
- 1.1.4 Tytherington Quarry Site of Special Scientific Interest (SSSI) is the nearest statutory designated site to the Folly, located approximately 2.74km to the south-east. No direct or indirect impact to any of the statutory designated sites is envisaged by the proposed development. The potential for indirect impact to sites of European significance including the Severn Estuary (4.2km to the west) due to increased recreational visits or habitat loss is considered de minimis.
- 1.1.5 The Folly is a small building hidden in the gardens of Park House. The ground floor of the structure is used as a garden store whilst its immediate surroundings are used as a deposit for excess building materials and green waste.
- 1.1.6 Surveys failed to find any evidence of use of the building or nearby trees by roosting bats.
- 1.1.7 The nearest Great Crested Newt record identified was over 1.6m to the north. The nearest pond identified was >650m to the north and the presence of Great Crested Newts is not considered likely due to the absence of potential breeding habitat in proximity to the site.
- 1.1.8 Planting a small lawn as well as trees and shrubs will increase the cover of semi-natural habitat (leading to >10% net gain) although the impact on biodiversity is considered negligible.
- 1.1.9 It is recommended that a precautionary approach is taken during demolition of the property. The roof should be stripped by hand and if any evidence of roosting bats is found, further advice sought.



## 2 Introduction

#### 2.1 Background

- 2.1.1 In July 2023, MPEcology were commissioned by Mr P Nicholls to undertake a Preliminary Ecological Assessment (PEA) and daytime inspection for bats of a structure known as the Folly. The structure (hereafter also referred to as 'the site') was in the grounds of Park House in Thornbury and was being used as a garden equipment store. An initial visit identified the structure as offering a moderate potential for roosting bats and therefore, further emergence surveys were scheduled.
- 2.1.2 Park House and the Folly are located off Thornbury High Street and although in an urban location, are linked to open countryside immediately to the west. The site falls within the administrative boundary of South Gloucestershire Council (National Grid Reference ST 6360 9001).



Figure 1: Location of the site.

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#### 2.2 Purpose of this document

2.2.1 The purpose of the report is to provide an overview of potential ecological constraints to planned development at the site.



## 3 Legislation, planning policy and guidance

#### 3.1 The Conservation of Habitats and Species Regulations 2017

- 3.1.1 Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the 'Habitats Directive' and the Birds Directive (Council Directive 2009/147/EC (which codifies Directive 79/409/EEC) for rare, vulnerable and regularly occurring migratory bird species and internationally important wetlands. The requirements of the Habitats Directive and the Birds Directive are transposed into UK legislation by 'The Conservation of Habitats and Species Regulations 2017, commonly known as the 'Habitats Regulations'.
- 3.1.2 The Habitats Regulations allow for the designation of both Special Protection Areas (SPAs) for birds and Special Areas of Conservation (SACs) for the protection of other species and habitats. These protected areas are collectively known as the Natura 2000 network of sites. Species listed under the Habitats Regulations are known as European Protected Species (EPS) and are afforded a higher level of protection. EPS including Great Crested Newts, Otter and all species of bat are fully protected under UK law making it an offence to kill, injure or disturb EPS and to destroy any place used for rest or shelter.

#### 3.2 Wildlife and Countryside Act 1981 (as amended)

- 3.2.1 The Wildlife and Countryside Act 1981 (as amended) (WCA) is the principal legislation relating to wildlife protection in the United Kingdom. The Act provides for the designation of Sites of Special Scientific Interest (SSSI), which are selected as the best national examples of habitat types, sites with notable species and sites of geological importance.
- 3.2.2 Schedules 1-4 of the Act deal with the protection of wild birds. Schedule 5 of the Act details with the protection of other animal species. Full protection is given under Section 9 of the Act to certain animals listed on Schedule 5, including all species of bats. Partial protection under Section 9 is given to certain other species, including all common species of reptile. Schedule 8 of the Wildlife and Countryside Act details protection for plants and fungi. It is an offense to knowingly cause the spread, into the wild, of plants listed on Schedule 9 of the Act.
- 3.2.3 Special penalties are available for offences related to birds listed on Schedule 1 of the Act and there are additional offences of disturbing these birds at their nests, or their dependent young, as well as the strict protection afforded to birds, their nests and eggs.

#### 3.3 The Countryside and Rights of Way Act 2000

3.3.1 The Countryside and Rights of Way Act 2000 (CRoW Act) primarily deals with the rights of members of the public to access the countryside. The CRoW Act updated and strengthened the legal protection for designated sites (such as SSSIs) as well as certain species. In particular, the CRoW Act strengthened legislation by introducing the offence of 'reckless disturbance'. Section 74 of CRoW Act placed a statutory duty on government departments to have regard to biodiversity conservation and requires the preparation and maintenance of lists of priority species and habitats. Some of the provisions set out in CRoW Act have



been incorporated into amendments to the WCA or have been superceded by the Natural Environment and Rural Communities Act 2006 (NERC 2006).

#### 3.4 National Planning Policy Framework (NPPF) (2018)

- 3.4.1 The revised National Planning Policy Framework (NPPF) was published in July 2018 and sets out the framework by which government intends growth to be achieved, whilst protecting the natural and historic environment for future generations. In particular paragraph 175 states:
- 3.4.2 When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:
  - if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
  - development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
  - development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
  - development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.



## 4 Methodology

#### 4.1 Desk study

4.1.1 A search for existing records of protected or otherwise notable species within 1km of the site was not commissioned due to the small size of the site. However, GIS resources of Natural England (NE) were used to identify nearby statutory designated sites.

#### 4.2 Extended phase 1 habitat survey

4.2.1 A Phase 1 habitat survey of the site following standard methodology (IEA, 1995) was carried out by MPEcology on the 7<sup>th</sup> July 2023. During the visit, each distinct habitat type was mapped and target noted according to categories set out by the Joint Nature Conservation Committee (JNCC, 2010). A note of the habitats in relation to the UK Habitat Classification<sup>1</sup> as well as incidental observations of plant and animal species were also made.

#### 4.3 Daytime building inspection for bats

4.3.1 The Folly was subject to a daytime inspection on the same visit. During the visit the building was searched by an experienced, licensed bat worker in order to locate evidence of current or past bat roosts, in the form of bats, droppings, staining, feeding signs, and/or remains of bats.

#### 4.4 Emergence surveys

- 4.4.1 Dusk emergence surveys were undertaken to investigate use of the building by roosting bats. Dusk visits were undertaken on the 17<sup>th</sup> July 2023 and 3<sup>rd</sup> August 2023.
- 4.4.2 The survey followed good practice guidelines<sup>2</sup>, with dusk visits beginning fifteen minutes before sunset and continuing for approximately one and a half hours. Surveyors taking part in each survey used recordable bat detectors (Anabat Walkabout). All bat calls recorded were analysed using Kaleidoscope / Analook software.

#### 4.5 Static detector survey

4.5.2 Use of the building by bats was also investigated using a static detector (Anabat Express). Placement of a detector was undertaken between the 17<sup>th</sup> July to the 3<sup>rd</sup> August (17 consecutive nights).

#### 4.6 Surveyor

The lead surveyor and author of this report was Matthew Pickard (BSc., MSc.), an ecologist with over 20 years environmental consultancy experience, a Chartered Environmentalist

<sup>&</sup>lt;sup>1</sup> https://ukhab.org/

<sup>&</sup>lt;sup>2</sup> Collins, J. (ed) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1



(CEnv), full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and a licensed bat (CL18-2015-12416-CLS) and great crested newt surveyor.

### 4.7 Survey limitations

4.7.1 Seasonal timing was not considered to be a constraint to assessment of the site.



## **5** Baseline Conditions

#### 5.1 Statutory Designated Sites

- 5.1.2 Tytherington Quarry Site of Special Scientific Interest (SSSI) is the nearest statutory designated site to the Folly, located approximately 2.74km to the south-east. Designated sites identified within 5km of the Folly were as follows:
  - **Tytherington Quarry (geological) SSSI** Carboniferous limestone with an exposed sediment-filled underground watercourse fissure of Rhaetian age. Fissure sediments are considered of key importance for the study of late Triassic vertebrate biotas;
  - **Buckover Road Cutting (geological) SSSI** Brinkmarsh Formation strata exposed in the Buckover Cutting presenting exposures of late Wenlock age horizons. The site lies approximately 2.95km to the north-east;
  - **Brinkmarsh Quarry (geological) SSSI**3.95 an important locality for the study of Silurian palaeontology and palaeogeography, well-known to geologists for over 150 years. The site lies approximately 3.95km to the north-east;
- 5.1.3 The only site of biological interest within 5km was the Severn Estuary approximately 4.21km to the west. The Severn Estuary is afforded protection under the following designations:
  - Severn Estuary Special Protection Area (SPA) An estuary with a large tidal range supporting extensive intertidal mud and sand-flats, rocky platforms and islands. The estuary supports over-wintering or on-passage bird populations of European importance including: Bewick's Swan (*Cygnus columbianus bewickii*); Curlew (*Numenius arquata*); Dunlin (*Calidris alpina alpina*); Pintail (*Anas acuta*); Redshank (*Tringa totanus*); Shelduck (*Tadorna tadorna*); and Ringed Plover (*Charadrius hiaticula*). In addition, the site qualifies as a wetland of international importance for regularly supporting an assemblage of at least 20,000 waterfowl;
  - Severn Estuary Ramsar An estuary supporting over-wintering birds, feeding and nursery grounds for a diverse assemblage of fish, as well as providing passage to spawning rivers for migratory fish including Salmon (*Salmo salar*), Sea Trout (*Salmo trutta*), Sea lamprey (*Petromyzon marinus*), Twaite Shad (*Alosa fallax*) and Eel (*Anguilla Anguilla*);
  - Severn Estuary Special Area of Conservation (SAC) Annex I habitats forming a primary reason for site selection: 1130 Estuaries; 1140 Mudflats and sandflats not covered by seawater at low tide; and 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*). Annex I habitats present as a qualifying feature: 1110 Sandbanks which are slightly covered by sea water all the time; and 1170 Reefs. Annex II species that are a primary reason for site selection: 1095 Sea lamprey (*Petromyzon marinus*); 1099 River lamprey (*Lampetra fluviatilis*); and 1103 Twaite shad (*Alosa fallax*); and
  - Severn Estuary SSSI The SSSI encompasses extensive areas of mudflat and sandbanks as well as saltmarsh and adjacent neutral and improved grasslands used



by overwintering wildfowl. The SSSI forms the basis of the Severn Estuary SPA and Ramsar site.

5.1.4 No direct or indirect impact to any of the statutory designated sites is envisaged by the proposed development. The potential for indirect impact to sites of European significance including the Severn Estuary SPA, SAC and Ramsar site due to increased recreational visits or habitat loss is considered *de minimis*.

#### 5.2 Habitats

5.2.1 The Folly is a small building hidden in the gardens of Park House. The ground floor of the structure is used as a garden store whilst its immediate surroundings are used as a deposit for excess building materials and green waste.

#### Trees

- 5.2.2 Trees and shrubs immediately north and west of the Folly hide the structure from the rest of the gardens at Park House. The trees include a Lime (*Tilia* sp), Hornbeam (*Carpinus betulus*), Holly (*Ilex aquilinum*) and Box (*Buxus sempervirens*). Smaller shrubs include Bay (*Laurus nobilis*), Privet (*Ligustrum ovalifolium*), Snowberry (*Symphoricarpos albus*), Butcher's-broom (*Ruscus aculeatus*) and Laurel (*Prunus laurocerasus*).
- 5.2.3 Heavily shaded ground beneath the tree cover supported a sparse flora largely dominated by Ivy (*Hedera helix*) with Herb-robert (*Geranium robertianum*), Cleavers (*Galium aparine*), and occasional Stinking-iris (*Iris foetidissima*), Green Alkanet (*Pentaglottis sempervirens*) and Spanish Bluebell (*Hyacinthoides x massartiana*).

| <b>Photo 1</b> : Lime at the north-eastern edge of the site (TN1 of Figure 2).  |
|---|
| <b>Photo 2</b> : Trees and shrubs form a visual barrier between the garden of Park House and the Folly (TN1 & 5 of Figure 2). |



#### Amenity grassland (Modified grassland)

- 5.2.4 The gardens of Park House immediately north-west of the site supported mown amenity grassland dominated by Perennial Ryegrass (*Lolium perenne*) with Springy Turf-moss (*Rhytidiadelphus squarrosus*), Yorkshire-fog (*Holcus lanatus*), Red Fescue (*Festuca rubra*), Dandelion (*Taraxacum officinale* agg) and Creeping Buttercup (*Ranunculus repens*).
- 5.2.5 The well-established lawn typically attained a species count of  $<9/m^2$ .

#### Buildings

5.2.6 The Folly was a stone-built structure with a pantile roof constructed against high garden walls. Please refer to Appendix 1 for further detail.



**Photo 3**: The roof of the Folly (TN3 of Figure 2) was largely hidden by Russian-vine (*Fallopia baldschuanica*).

#### Waste materials

5.2.7 Waste materials dominated the immediate surroundings of the structure.



#### **Ruderal vegetation**

5.2.8 Compost bays constructed using sheets of corrugated tin were noted immediately west of The Folly. The bays were being used to compost leaf litter and other green waste from the gardens and older bays supported sparse cover of opportunistic plant species.





**Photo 5**: Compost bays dominate open ground immediately west of the Folly (TN4 of Figure 2). Garlic Mustard (*Alliaria petiolata*) and Herb-robert were the dominant opportunistic species. A few plants of Nettle (*Urtica dioica*) were also noted.





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| Target note (TN) | Description  |
|------------------|--|
| 1                | Garden trees. A Lime with a multi-stemmed trunk. No potential for roosting bats.   |
| 2                | Waste materials. Waste and stored building materials dotted with a few small trees and shrubs.   |
| 3                | Building. The Folly, a stone-built structure with pan tiled roof used as a garden equipment store. Please refer to Appendix 1 for greater detail.  |
| 4                | Compost bays. Compost bays divided using corrugated tin roofing sheets.<br>Opportunistic plants dominated by Herb-robert and Garlic Mustard formed sparse<br>cover.  |
| 5                | Garden trees. A Hornbeam dominated the tree cover although Holly, Yew, Bay and Box were also present. No potential for roosting bats.  |
| 6                | Amenity grassland. A modified grassland largely dominated by Perennial Ryegrass,<br>Yorkshire-fog and Springy Turf-moss with Red Fescue and Sweet Vernal-grass. Herb<br>cover was infrequent. The sward typically attained <9 species / m <sup>2</sup> . |

#### Table 5.1 Phase 1 habitat survey target notes

#### 5.3 Desk study

5.3.1 Given the small size of the site, a Gloucester Centre for Environmental Records (GCER) data search for the site was not commissioned. However, GIS resources of Natural England were used to investigate designated sites.

#### 5.4 Protected, rare or notable plant species

5.4.1 No protected or otherwise notable plant species were noted from the study area. However, Russian-vine *Fallopia baldschuanica*), a non-scheduled invasive species was noted smothering the roof of the Folly and hybrid Bluebell (*Hyacinthoides x massartiana*) was noted from the grounds.

#### 5.5 Amphibians

- 5.5.1 The study area falls within an area of low suitability for Great Crested Newts (Green zone containing sparsely distributed Great Crested Newts (GCN), less likely to contain important pathways of connecting habitat for this species)<sup>3</sup>. The nearest confirmed waterbody with GCN identified using data available via DEFRA<sup>4</sup> was approximately 1.6km to the north.
- 5.5.2 No waterbodies are present within the site and given the distances to nearby ponds (650m to the north-west and 850m south) as well as barriers to movement, Great Crested Newts are not considered likely to occur within the property.

<sup>&</sup>lt;sup>3</sup> https://www.data.gov.uk/

<sup>&</sup>lt;sup>4</sup> https://magic.defra.gov.uk/



#### 5.6 Reptiles

5.6.1 The shaded nature of habitats associated with the site would not be expected to support reptiles.

#### 5.7 Invertebrates

5.7.1 Habitat associated with the proposed construction area was considered of limited potential for invertebrates, with trees forming the focus of interest.

#### 5.8 Breeding birds

5.8.1 Common breeding birds may be associated with trees at the periphery of the site. No incidental observations were made during the site visit.

#### 5.9 Bats

#### Data search

5.9.1 Gloucestershire supports a diverse bat fauna and a range of bat species would be expected to occur locally. EPS licencing records available via Defra (Magic map) identified six licences relating to Common Pipistrelle (*Pipistrellus pipistrellus*), Brown Long-eared (*Plecotus auritus*) and Natterer's bat (*Myotis nattereri*). Others including species such as Lesser Horseshoe (*Rhinolophus hipposideros*) would be expected locally.

#### **Daytime inspection**

5.9.2 No evidence of roosting bats was found during daytime inspection of the Folly (please refer to Appendix 1). Potential roost features of the structure were largely associated with an open loft void with potential for night-roosting. An assessment of Moderate roost potential triggered further surveys (please refer to Appendix 2).

#### **Emergence / static detector surveys**

- 5.9.3 Five species of bat were incidentally recorded during surveys: Common Pipistrelle, Noctule (*Nyctalus noctula*), Serotine (*Eptesicus serotinus*), Brown Long-eared and a species of *Myotis*. However, no evidence of roosting was discovered in the target. Appendix 2 provides further detail of the surveys.
- 5.9.4 Deployment of a static detector within the loft void of the Folly (accessible to bats via a broken window) failed to identify any activity between the 17<sup>th</sup> and 26<sup>th</sup> July 2023. Given the absence of droppings as well as absence of calls, the loft void was not considered to be used by roosting bats.

#### 5.10 Badgers

5.10.1 No evidence of use of the site by Badger (*Meles meles*) was found.

#### 5.11 Other mammals of conservation concern

5.11.1 Mammals such as Hedgehog (*Erinaceus europaeus*) may occur locally although stored waste materials within the grounds of the Folly were not considered likely to offer refuge.



## 6 Assessment

#### 6.1 Proposed development plan

6.1.1 It is proposed that the existing building is refurbished and a new extension created immediately to the west. The footprint of the new extension would lie over existing compost bays. Building waste to the north of the existing building would be cleared to create a garden. The proposals largely avoid impacts to existing trees.

#### Figure 3: Proposals



#### 6.2 Important ecological features

#### Habitats

- 6.2.1 The footprint of the proposals largely falls over existing composting bays and piles of stored waste materials.
- 6.2.2 In terms of Biodiversity Net Gain (BNG), the site falls under the small sites exemption. However, the creation of a small garden over land currently used for composting and storing waste materials easily achieves 10% BNG.



#### Species

Bats

6.2.3 No evidence to suggest use of the building by roosting bats was found.

#### **Great Crested Newts**

6.2.4 As a European Protected Species (EPS), the presence of Great Crested Newts (GCN) in ponds close to a development site pose a potential constraint to development. However, the nearest pond identified was >650m to the north. The presence of Great Crested Newts is not considered likely due to the absence of potential breeding habitat in proximity to the site.



## 7 Conclusion

- 7.1.1 The proposed development involves the renovation and extension of an existing property. The principal impact of the development will be temporary disturbance to an area of land currently used to store garden and building waste.
- 7.1.2 Planting a small lawn as well as trees and shrubs will increase the cover of semi-natural habitat (leading to a net gain) although the impact on biodiversity is considered negligible.
- 7.1.3 No impact to protected species including bats or Great Crested Newts is envisaged. However, it is recommended that a precautionary approach is taken during demolition of the property. The roof should be stripped by hand and if any evidence of roosting bats is found, further advice sought.



## 8 References

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## 9 Appendices

## Appendix 1: Daytime inspection for bats

| 1 – The wall of The Folly lacked any crevice<br>features with potential for roosting bats.<br>Clay pan tiles were tightly overlapped and<br>covered in Russian-vine. The south-facing<br>roof pitch was completely covered by<br>Russian-vine and not accessible to bats. |
|---|
| 2 – A small section of tile at the north-<br>western corner of the building could be<br>inspected and was not considered likely to<br>be used by bats.  |
| 3 – A broken window offered a flyway<br>access to the upper floor of the structure.   |





4 – Internally, a lathe and plaster finish was damaged in places. Holes allowed inspection using a torch as well as an endoscope. No evidence of bats was found. The undisturbed floor of the void lacked any bat droppings.



#### **Appendix 2: Emergence surveys**

#### Visit 1 – Dusk emergence survey 17.07.2023

Sunset was expected at 21:20hrs. The weather conditions during the survey were considered suitable for bat activity: clear and dry with a temperature of 15°C and a light breeze (6mph west-south-westerly) at the start of the survey. By the end of the survey the temperature had dropped to 14°C (5mph west-south-westerly). One surveyor (M Pickard) monitored the building. A Sony AX53 night-shot video recorder with supplementary IR lighting was also used to monitor the structure.

#### Location of surveyor



Two species of bat were recorded during the survey: Common Pipistrelle and Serotine.

The first bat recorded was a Common Pipistrelle flying arriving from the north-east at 21:44hrs. A second Common Pipistrelle arrived at 21:49hrs. A Serotine was observed passing the site from north to south-west at 22:19hrs. A Serotine was recorded but not seen at 22:26hrs. Common Pipistrelle passes were recorded regularly for the rest of the survey.

No bats emerged from the building.

#### Visit 2 – Dusk emergence survey 03.08.2023

Sunset was expected at 20:56hrs. The weather conditions during the survey were considered suitable for bat activity: cloudy and dry with a temperature of 16°C and a light breeze (6mph north-westerly) at the start of the survey. By the end of the survey the temperature had dropped to 15°C. One surveyors monitored the building. One Sony AX53 night-shot video recorder with supplementary IR lighting was also used.

Four species of bat were recorded during the survey: Common Pipistrelle, Noctule, Brown Long-eared (based on geographical location) and a species of Myotis.



The first bat recorded was a pass by a Common Pipistrelle (north to south) at 21:09hrs. An unseen Noctule pass was incidentally recorded at 21:10hrs and again at 21:25hrs. A Brown Long-eared closely followed by a Myotis passed The Folly from north-east to south-west at 21:28hrs. A second Borwn Long-eared was recorded flying north-south at 21:46hrs. Common Pipistrelle were recorded foraging beside tree cover of the wider area regularly during the survey.

No bats emerged from the property.

#### Static detector survey

No bats recorded 17 July to 3<sup>rd</sup> August 2023. The detector was deployed at the broken window of the building with the microphone facing into the building.