Bat Survey

‘Elf Hall’, Lady Hall, Millom

4th August 2025

Report No. 0825/1

Report commissioned by;

Kevin Pike
‘Elf Hall’
Roanlands Brow
Lady Hall
Millom

Report prepared by;

South Lakes Ecology
Survey and Habitat Management

Tamsin Douglas MSc MCIEEM
13 Rydal Road
Ulverston LA12 9BU
07751 566848

mail@southlakesecology.co.uk

Executive Summary

‘Elf Hall’ is a detached property near to Lady Hall on the Duddon Estuary. It comprises a timber-framed bungalow and two detached outbuildings. All are in very poor repair, and are to be demolished prior to construction of a replacement dwelling on the site.

A Preliminary Roost Assessment (PRA) report was carried out in May 2025 by another consultancy (Arbtech report, 19th May 2025), which concluded the main house had moderate scope to host bats ,and the outbuildings had negligible scope. The following report was commissioned to complete the bat survey, and involved a brief re-inspection of the property and two dusk bat emergence surveys to establish whether bats are using, or have used it for roosting purposes, and whether this proposed development will have any negative impacts on individual bats, or the local bat population.

The buildings affected by the proposed development were re-inspected externally prior to the first dusk survey for evidence of bat activity. No sign of bat activity was noted, but several potential roosting locations were identified all round the building. These were considered to have potential to support a regular roost, but unlikely to support a significant roost – concurring with the conclusion of the PRA that the property had moderate scope to host bats.

Surrounding habitat is dark and sheltered, with many good feeding areas nearby (wetland, woodland edge, farmland and grassland) – providing good quality for foraging and commuting bats.

Four day roosts were identified during the survey. Ten bats (mostly common pipistrelle, but one soprano pipistrelle amongst them) were seen emerging from a ridge roost on the eastern gable during the first survey, and a soprano pipistrelle emerged from another roost site on the northern section of the building. This ridge was damaged between the two surveys and so no bats were seen on that elevation on the second survey, but two soprano pipistrelles were observed leaving from separate locations on the north and north-west elevations of the main building.

As bats have been proven to use the building for roosting, the demolition will require a protected species licence to proceed legally. The licence application will need to be prepared by a licenced and experienced ecologist, and can be submitted to Natural England once planning consent is obtained. The licence paperwork will detail all required mitigation measures required to ensure that bats are not at risk during the demolition, and alternative roosting provision is available after the demolition is complete.

Surrounding habitat is dark and sheltered, and so external lighting on the new building should be minimal to ensure no impacts on the dark skies around the property (any lighting installed should be downward facing and on a sensor).

Contents

1 Introduction

1.1 Site description

'Elf Hall' is a detached property in a rural location near to Lady Hall, Millom. It is situated on the west bank of the Duddon Estuary at SD188 858, and roughly 10m AOD.

The property has not been occupied for a while, and is in a very poor state of repair. The building is single storey with timber framework supporting a pitched roof with cement tiles. There is a detached garage and shed to the north and west of the main building. The buildings are surrounded by mature trees, damp grassland (overgrown garden) and agricultural land. The Duddon estuary is nearby, as are extensive woodlands and large areas of wetland habitat.

Figure 1 shows the location of 'Elf Hall'. Satellite imagery of the surrounding habitat and the area immediately surrounding the property is presented in figure 2. Photographs of the building are included in the appendices to this report.

1.2 Proposed works

All buildings will be demolished and a replacement building constructed on the site. The building is in a very poor state of repair, and demolition will be carried out as soon as practicable.

1.3 Aims of survey

This survey was commissioned to accompany a planning application to Cumberland Council.

A previous scoping report was carried out at the property in May 2025 (Preliminary Roost Assessment, Arbtech report, 19th May 2025). This survey found no evidence of bats, but concluded that the main building had moderate scope to host bats, and the garage and outbuilding had negligible scope. This meant that 2 roost surveys were required to complete the survey on the property.

The aim of the survey is to assess whether bats use, or have used, Elf Hall; and if so how it has been used. From this data an assessment will be made as to whether any particular roost and/or the surrounding bat population would be affected by the proposed development. If they are likely to be affected then appropriate mitigation proposals will be included in this report.

The inspection survey and ensuing report follow guidance and structure provided by Bat Conservation Trust (Bat Surveys Good Practice Guidelines, 4th edition, 2023).

Figure 1. Location Map

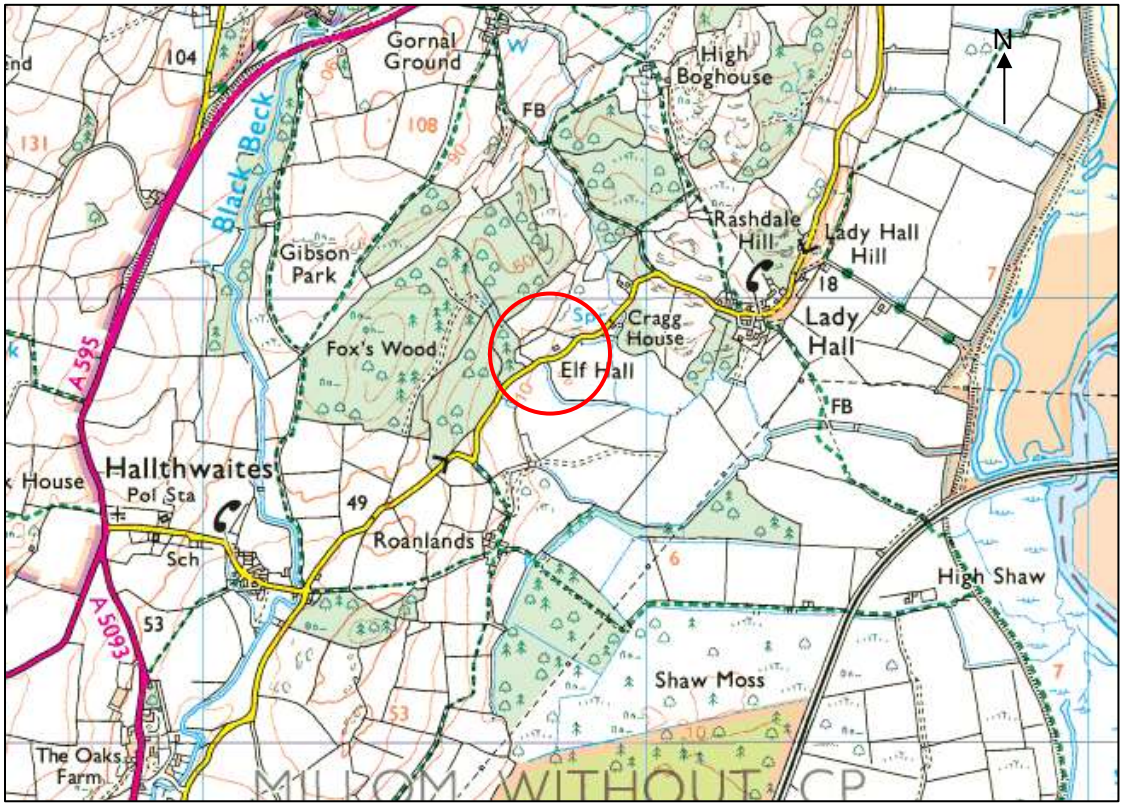

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Figure 2. Aerial photograph showing surrounding habitat

Red circle indicates location. (Imagery date 2023)

2 Methods

2.1 Desktop data search

A search of current literature (including the Bat Conservation Trust publication 'The Distribution Atlas of Bats in Britain and Ireland', Cumbria Biodiversity Data Centre's Mammal Atlas and 'Mammals of the British Isles') was done, looking for bat records in the 10km gird square in which the property is situated.

An internet search was also carried out, noting any land with statutory designations within 5km of 'Elf Hall'. Reasons for any relevant land designations were researched to check whether bats were important features. A search was also carried out for local EPS (European Protected Species) licences for disturbance to bats (this will give further indication of species present in the area). Searches for statutory designations, and relevant citations were done on a DEFRA website www.magic.defra.gov.uk .

No data search was commissioned as a PRA had already been carried out on the site.

2.2 Surveyor information

The emergence surveys were undertaken by Tamsin Douglas MCIEEM, experienced ecologist (holds Natural England Bat Class Licence – registration number 2015-10308-CLS-CLS), with assistance from Mike Douglas and James Findlay (both experienced surveyors).

2.3 Field survey

2.3.1 Daytime inspection

A brief re-inspection of the building to identify possible roosting and nesting locations and access routes to these locations was carried out immediately prior to the first dusk survey on 3rd July by Tamsin Douglas and Mike Douglas.

The external inspection was carried out, where necessary, using ladders, 10 x 42 binoculars, endoscope (Teslong T450S) and a 1 million candlepower torch. The weather was overcast, humid and calm.

The building inspection involves a detailed internal and external daylight search for evidence of current or past use of the building by bats. Outside, particular attention is paid to the ground and ledges under any potential access points, weather boarding, hanging tiles, eaves, cracks and crevices in walls, and under tiles/slates. Internal inspections focus on areas around and below any potential roosting spots, ledges and lintels, behind crumbling render, and on and around roof timbers.

Evidence from a search which would indicate presence of bats includes-

- Roosting bats
- Corpses
- Droppings and urine staining on and around potential roosting areas (further evidence derived from amount and freshness of droppings)
- Droppings, staining and/or scratch marks at potential roost entrances
- Cleaner areas of woodwork, areas free of cobwebs suggesting bat activity such as crawling or flying
- Feeding detritus- such as moth wings

- Chattering or squeaking noise from roosting bats.

A general assessment is also made of the suitability of the surrounding habitat for bats, and connectivity to other areas of good quality foraging and commuting habitat.

Direct evidence of bats can be hard to detect and, as such, during the preliminary roost assessment the building is also appraised for its potential to host roosting bats. This potential is based on several factors:

- Presence of suitable internal or external features for roosting bats, and good access routes to these features
- Number of bats that these features could support
- Suitable conditions for roosting either in active season or for hibernation (humidity, temperature, exposure)
- Surrounding foraging and commuting habitat, connectivity to good habitat features
- Proximity to known roosts (especially for hibernation of species such as pipistrelles)

A detailed assessment had already been made of the property (Arbtech report 19th May 2025), classing the main building as having moderate scope to host bats, and requiring a minimum of 2 dusk roost surveys.

2.3.2 Roost surveys

During the dusk roost survey, all suitable elevations of the property are observed for a standard period after sunset (dawn surveys are not required as standard under the new guidance). Surveys are carried out between May and September, when bats are most active. Surveyors watch all potential roosting locations to see if any bats emerge. Bat detectors (personal and static), digital recording devices and night-vision aids (thermal imaging scopes and infra-red cameras) are used to aid detection and identification of any emerging bats.

A hibernation survey typically involves a detailed inspection of possible roosting sites using torch, mirror and endoscope, and can involve deploying static bat detectors. The survey is carried out in mid-winter, typically in January and February. The exact parameters of the survey depend on the nature of the site.

Two dusk emergence surveys were carried out on 3rd July and 28th July 2025. Locations of surveyors are shown in figure 4 (in section 3.2.3 below).

Table 1. Emergence survey details.

	Survey Start	Survey End	Temperature	Weather
3rd July 2025	21.32 (sunset 21.47)	23.17	15°C	Overcast, humid, wind F2 (dropping through survey). Brief drizzled 21.37 for 2 mins otherwise dry.
28th July 2025	21.03 (sunset 21.18)	22.48	15.5 - 14°C	Sky 6/8 cloud, increasing through survey. Dry, calm.

Tamsin Douglas used an Echometer Touch 2 Pro and Android tablet to record, James Findlay/ Mike Douglas used an Echo Meter Touch with iPad to record. A Hik Micro Owl thermal imaging scope and Nightfox whisker infra-red cameras were also deployed, along with Anabat static detectors (swift and express). Any bat echolocation recorded was analysed using Kaleidoscope software. Video footage was analysed manually.

3 Results

3.1 Desktop search

3.1.1 Designated sites

There is a large amount of designated land within 5km of 'Elf Hall', and also within 2km of the property.

A total of four SSSIs, one NNR (National Nature Reserve), one SPA (Special Protection Area) and three SAC (Special Areas of Conservation) are found within 5km of the property. Although these may support bat populations, none of them detail bats in the supporting citations. The closest protected site to the property is Duddon Mosses SSSI and SAC, less than 500m to the south. The property is in the SSSI Impact risk zone for this site – but the scale and nature of the proposals mean that there is no requirement for the LPA to consult with Natural England about this project.

3.1.2 Protected species

Eight species of bat are currently known to breed in Cumbria, with a further two species that have been recorded within the county. All species of bat in the UK are fully protected under UK and European law.

Table 2. Status of bats in Cumbria

Species	Status in Cumbria
Whiskered bat *Myotis mystacinus*	Widespread, but uncommon. Maternity and hibernation roosts recorded.
Brandt's bat *M.brandtii*	Widespread, but uncommon. Maternity and hibernation roosts recorded.
Natterer's bat *M.nattereri*	Widespread. Maternity and hibernation roosts recorded.
Daubenton's bat *M.daubentonii*	Widespread. Strongly associated with still or slow moving water. Maternity and hibernation roosts recorded.
Noctule *Nyctalus noctula*	Widespread, but uncommon. Rarely associated with buildings. Breeding roosts recorded.
Leisler's bat *N.leisleri*	Rare. Only a confirmed bat detector record in Cumbria.
Common pipistrelle *Pipistrellus pipistrellus*	Widespread. Roosts often associated with modern buildings, forages in a variety of habitats. Maternity and hibernation roosts recorded.
Soprano pipistrelle *P.pygmaeus*	Widespread. Only recently separated as a species from common pipistrelle, often associated with waterbodies, though forages in wide range of habitats. Maternity and hibernation roosts recorded.
Nathusius' pipistrelle *P.nathusii*	Rare. Recently added to Cumbria's list of bats. No confirmed breeding roosts recorded yet.
Brown long-eared bat *Plecotus auritus*	Widespread, but uncommon. Often associated with older buildings with good roof space. Maternity and hibernation roosts recorded.

The literature search provided records of summer roosts for 4 species of bats within the hectad SD18 (10km square) in which Elf Hall is located. These are whiskered/ brandt's bat (hard to distinguish), natterer's bat, pipistrelle and brown long eared bat. The CBDC Mammal Atlas had recent (post-2000) confirmed records in SD18 for the species above, as well as; daubenton's bat and noctule.

The internet search looking at nearby granted EPS (European Protected Species) licenses for bats produced one record within 5km – which was for day roosts of brandt's bat, common pipistrelle, daubenton's bat and soprano pipistrelle approximately 1km from the property.

Bats are generally an under-recorded group, and as such biological records such as those above can only be used as a guide to illustrate potential distributions in the area, and are not definitive.

3.2 Field survey

3.2.1 Habitat assessment

The property is surrounded by a mixture of grassland, agricultural land, woodland and wetland – all of which provide good foraging opportunities for bats. The area is dark, and relatively sheltered from prevailing winds by the mature trees.

Bats can fly several kilometres to their feeding grounds, often following linear features such as hedgerows. Sheltered areas, particularly around water, tend to have greater amounts of invertebrate prey, and as such are sought out by foraging bats.

The property is considered to provide good quality feeding opportunities for bats, with high quality habitat features providing links to other feeding areas.

3.2.2 Roosting assessment

Table 3: Factors affecting the probability of a building being used by bats in summer

Factors increasing probability	Disused or little used; largely undisturbed Large roof void with unobstructed flying spaces Large dimension roof timbers with cracks, joints and holes Uneven roof covering with gaps, though not too draughty Entrances that bats can fly in through Hanging tiles or wood cladding, especially on south-facing walls Rural setting Close to woodland and/or water Pre-20th century or early 20th century construction Roof warmed by the sun
Factors decreasing probability	Urban setting or highly urbanised area with few feeding places Small or cluttered roof void (esp. for Plecotus) Heavily disturbed Modern construction with few gaps around soffits or eaves (but be aware these may be used by pipistrelles in particular) Prefabricated with steel and sheet materials Active industrial premises Roof shaded from the sun

(Taken from A. Mitchell-Jones, 2004)

Building construction

A detailed description of the property is provided in the Preliminary Roost Assessment report (Arbtech 15th May 2025). The re-inspection in July found the building to be in a similar condition – with numerous potential roosting opportunities identified around large openings in the roof structure. These were not considered likely to support a significant roost, but could be used as a regular roost site.

Evidence of bats

No evidence of bats was seen on the re-inspection.

3.2.3 Summary of suitability of site for bats

Based on the evidence above, and using published guidance (summarised below) this report concurs with the original assessment made in the PRA that 'Elf Hall' has moderate potential for roosting bats, and surrounding habitat has high suitability for commuting and foraging bats.

The property was assessed as having low potential to host hibernating bats, based on type and exposure of roosting features present, connectivity of habitat and proximity of known roosts.

As a result of this assessment a minimum of 2 summer roost surveys were carried out.

Table 4: Summary of site suitability for bats.

Suitability	Roosting habitat-summer	Commuting/ foraging habitat
None	No habitat features on site likely to be used by bats at any time of the year.	No features found that are likely to be used
Negligible	No obvious habitat features on site likely to be used by roosting bats, however a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No habitat features on site likely to be used, but there remains a small degree of uncertainty.
Low	A structure with one or more potential roost sites, suitable for opportunistic use. Unlikely to be used by large numbers of bats or on a regular basis.	Habitat that could be used by small numbers of commuting or foraging bats, but isolated and not well connected to other suitable features.
Moderate	Structure with one or more potential roost sites, that could be used by bats – but unlikely to support roost of high conservation status.	Continuous habitat connected to wider landscape that could be used by bats for foraging and/ or commuting.
High	Structure with one or more roost sites that are obviously suitable for larger numbers of bats on a more regular basis or for a longer period of time.	Continuous high-quality habitat that is well connected to the wider landscape and likely to be used regularly by foraging and/or commuting bats. Site near to and well connected to known bat roosts.

Table based on Table 4.1 of 'Bat Surveys for Professional Ecologists', BCT 2023

3.3 Roost surveys

During the first dusk emergence survey ten bats were seen to emerge from the ridge on the eastern gable of the main building, and one from the northern eaves.

The first bat seen was a common pipistrelle at 21.32 (15 minutes before sunset) emerging from the ridge on the eastern gable. A soprano pipistrelle emerged from the eaves of the building at 21.35 (exact location not determined). A further 9 bats emerged from the ridge -

most of which were common pipistrelle, but at least one was a soprano pipistrelle (7 were recorded on the thermal imaging device, which was re-located after the first emergences as it had been focussed on another part of the building).

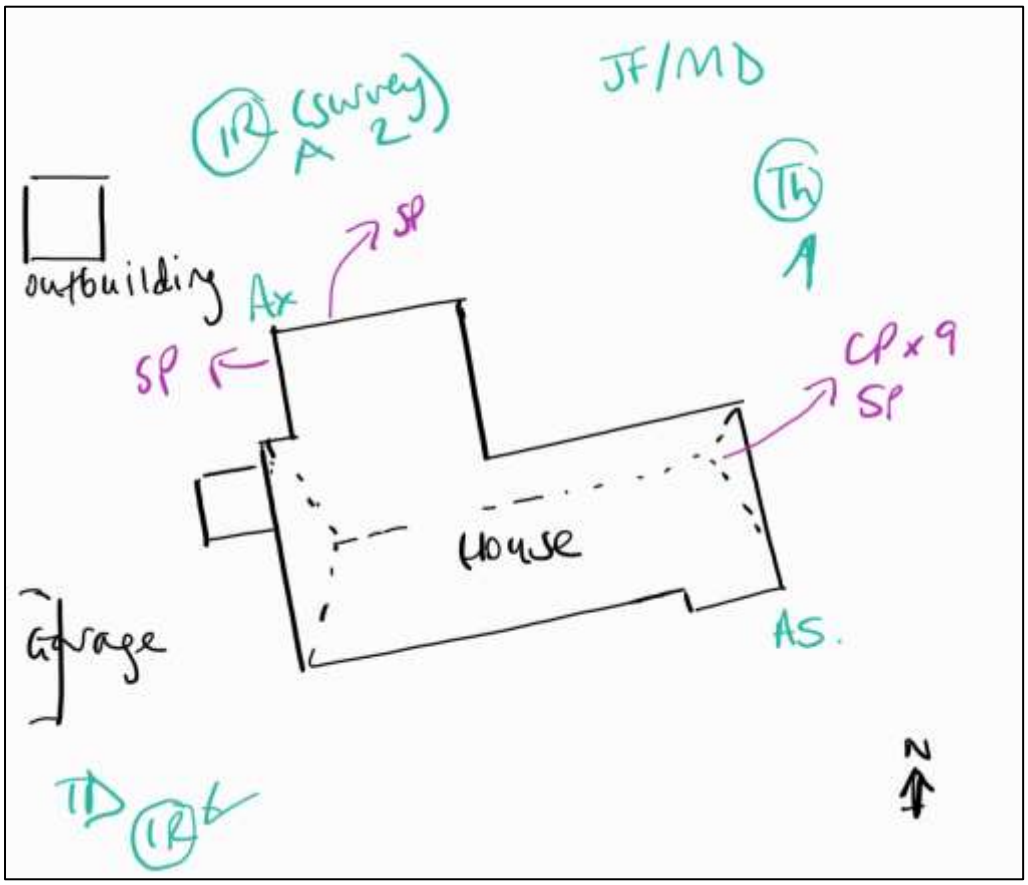
Foraging by both common and soprano pipistrelles was seen and heard throughout the survey, particularly at the rear of the property around the mature trees. Noctule was also heard, and a pass by a Myotis species of bat was seen at the rear and at the front of the property near the end of the survey.

During the second emergence survey, the ridge piece on the roof had been displaced – so this roost was not used. Two soprano pipistrelles were recorded leaving roost sites on the north-west end of the property.

The first bat heard was a common pipistrelle commuting past the property from the east. At 21.31 a soprano pipistrelle emerged from the eaves on the northern side of the building, and shortly afterwards another emerged from the north-west corner.

No further emergences were seen or heard. As in the previous survey, activity was frequent (especially by soprano pipistrelles) all round the property. A few noctule passes were also recorded, as well as both Myotis bats and a brown long-eared bat (which commuted past the property from the west late in the survey).

Figure 3. Sketch showing bat activity and position of surveyors (TD, MD/JF), night vison aids (Th- Thermal imager, IR – infra-red camera, Ax/As – Anabat express/ swift) during emergence surveys.



3.4 Other species

A tawny owl emerged from the gable end of the building during the first dusk survey, though this was not a nest site. No other nesting birds were noted, but the garage, outbuilding and main house all have potential to be used by garden birds such as robin, blackbird and wren.

4 Assessment

4.1 Constraints on survey information

Weather for both dusk surveys was suitable for observing emerging bats and bat activity.

Close access was possible to the all the lower external walls and eaves for the re-inspection, but internal access was not possible. Upper walls and roof could only be inspected using high power torch and binoculars.

The camera was re-positioned partway through the first survey to capture the emergences from the ridge, meaning that one area of the building (NW) wasn't fully covered for the full duration of the first survey. All elevations were fully covered for the second survey.

The ridge piece of the roof had been displaced between the first and second survey – effectively damaging the common pipistrelle roost.

There are no constraints on the inspection or emergence survey likely to impact on the results of this survey.

4.2 Constraints on equipment used

The conditions during the surveys were suitable for survey purposes and for the equipment used.

4.3 Potential impacts of the development

4.3.1 Designated sites

The proposed development will not have any negative impacts on nearby designated sites.

4.3.2 Roosts

Four confirmed current bat roost will be lost or damaged by the proposed development.

Ten bats (9 common pipistrelle and one soprano pipistrelle) emerged from the ridge roost during the first survey. This number is too low to be a maternity roost, and is most likely a group of males and non-breeding females. Unfortunately the damage to the roost site meant that the follow up survey could not corroborate or provide any additional detail to these findings.

Two further day roosts used by soprano pipistrelles were confirmed on the second survey.

All of the identified and potential roost sites will be lost as a consequence of the demolition.

4.3.3 Commuting and foraging habitat

The area surrounding 'Elf Hall' is a good foraging location for bats with good connections to adjacent areas of high quality habitat. The proposed development is unlikely to have a detrimental impact on the quality of the foraging habitat for bats, though external lighting for the replacement house should be minimal.

4.4 Legislation and Policy guidance

Bats have declined in numbers dramatically across the UK and Western Europe in recent decades. Key factors linked to their decline are loss of roosting places due to building works and woodland destruction. Other factors implicated in their decline are changes in the countryside resulting in habitat loss and greater fragmentation of foraging habitats, and severing of commuting flightlines due to transport developments and hedgerow destruction.

As a consequence of these significant declines, bats and their roosts are protected under British and European law.

All bats are listed under Annexe IV of the EU Habitats Directive, and some under Annexe II. This law is transposed into English law into the Conservation of Habitats and Species Regulations (2010).

Bats are also protected in the UK under the Wildlife and Countryside Act 1981 (as amended).

As a result of the above legislation it is an offence to;

- Deliberately capture, injure or kill a bat,
- Disturb a bat such that their survival, reproductive capacity, or the well being of the local population is affected
- Intentionally or recklessly disturb a roosting bat, or block access to its roost.

If the proposed works were assessed as likely to commit an offence under the above legislation, then a European Protected Species (EPS) mitigation licence would need to be sought.

Based on the evidence gathered from the two emergence surveys, and the experience of the surveyor, it is likely that an offence will to be committed by the proposed development under the above legislation, and as such an EPS licence will need to be obtained for the proposed demolition.

5 Recommendations and mitigation

5.1 Further survey

No further survey work is required for this project.

The findings of this inspection report are valid provided that work commences within 12 months of the date of this report.

5.2 Avoidance and mitigation measures

5.2.1 Proposals for roost sites and potential roost sites

As described above, there are proven roosts in the building, and as such a protected species mitigation licence will be needed for the demolition to progress lawfully.

Full mitigation will be described in the paperwork for the licence application, but this will include a full re-inspection prior to works starting, watching brief for the removal of the roof area, provision of temporary and permanent roosting provision on site for the displaced bats.

5.2.2 Proposals for foraging and commuting habitat

External lighting for the new property should be minimal, downward pointing and on sensors to ensure dark skies around the property are maintained.

5.3 Mitigation licences

As stated in section 4.4, based on the evidence gained from the surveys, it is considered that the proposed demolition of 'Elf Hall', as described in section 1.2, will require an EPS licence.

The licence needs to be applied for after planning consent is obtained, and a licenced ecologist will need to complete all the relevant paperwork.

5.4 Other species

It is possible that the property could support breeding birds.

Birds and their nests are protected under British and European law, and no work should take place which would displace breeding birds. The main breeding bird season is from 1st March until the end of July.

Demolition is likely to take place before the nesting season, but if delayed then a nesting bird check should be carried out if demolition takes place between mid-March and the end of July.

6 References

Altringham, J.D. (2003) *British Bats* HarperCollins New Naturalist, London.

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Gunnel K., Murphy B. and Williams C. (2013) *Designing for Biodiversity: A technical guide for new and existing buildings*. RIBA Publishing, London

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Middleton N (2019) *Assessing Sites for Hibernation Potential. A Practical Approach, including a Proposed Method & Supporting Notes.* Unpublished course notes.

Mitchell-Jones, A.J. & McLeish, A.P. (2004) *The Bat Workers' Manual* 3rd edition JNCC, Peterborough.

Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines* English Nature, Peterborough

Russ, J (2012) *British Bat Calls* Pelagic Publishing, Exeter

Bat Conservation Trust www.bats.org.uk

JNCC, Bat habitat management pages http://jncc.defra.gov.uk/page-2465

Details on the work done regarding issues with bats and non-bitumen roofing membranes www.**bats**andbrms.co.uk

Details on status of bats in Cumbria http://www.cumberlandbatgroup.org.uk

Cumbria Biodiversity Data Centre, Cumbria Mammal Atlas http://www.cbdc.org.uk/wildlife-in-cumbria/cumbria-mammal-atlas/

Appendices

i) Photographs

Image 1. Front (south) elevation of property.

Note the poor condition of the roof, especially at the western end.

Image 2. Rear (north) elevation of the property.

One bat emerged from the western end of this elevation on survey 2.

Image 3. North-west end of the property, showing the many gaps, and poor state of the roof.

Tawny owl emerged from the gable end on survey 1.

One bat emerged from this area on survey 2.

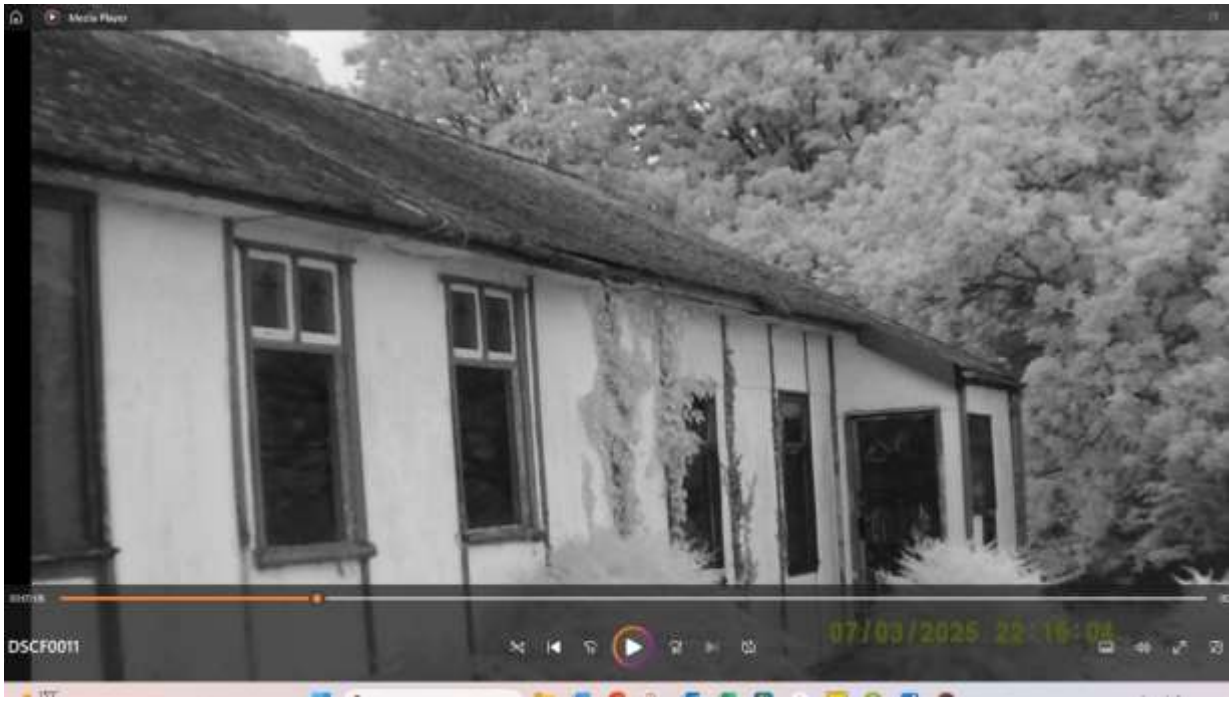
Image 4.
Eastern gable of the property, showing ridge where 10 bats emerged on survey 1.

Image 5.
Garage/ outbuilding to the west of the main house. Negligible scope for bats.

Image 6.
Garage to the west of the main house. No emergences seen.

Images 7&8.
Above - thermal imager view on survey 1, showing emerging pipistrelle.

Below – view form thermal imager on survey 2, showing displaced ridge.



Images 9 & 10.
Above – view from infra-red camera on both surveys.

Below – view from infra-red camera on second survey, where 2 bats seen emerging.