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# **Bat Scoping and Emergence Survey Report**

**Kirdford Village Hall**

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## **Report Summary**

1. The Ecology Co-op was commissioned by Edwina Phipps to undertake a Bat Scoping Assessment and emergence surveys at Kirdford Village Hall. The purpose of this report is to present the findings of the appraisal and identify potential ecological constraints and opportunities in relation to a proposal to remove and replace the roof as well as extending the building.
2. An assessment of the site was carried out by Sam Lunn, BSc (Hons), MSc, ACIEEM, and Natural England Level 2 class bat licence holder on the 10<sup>th</sup> May 2023.
3. This site is situated on the main road within the rural village of Kirdford, Sussex. It comprises the village hall and two detached outbuildings surrounded by mown modified grassland and hardstanding car park.
4. A confirmed roost, given the presence of approximately 200 long-eared droppings, was identified across two roof voids. The external features of the building were assessed as having moderate suitability to support roosting bats. Habitat within the zone of influence of the proposals was considered to be of potential value to bats for foraging/commuting/dispersal purposes. Therefore, in accordance with current guidelines, three emergence surveys were recommended to determine the type of roost present in the voids and the presence/likely absence of other roosting bats externally.
5. A total of four bat roosts were identified: two common pipistrelle roosts and one *Myotis* sp. (*likely Whiskered*) roost, each used by single/low numbers of bats, were identified using the roof tiles on the southern and northern faces of the building throughout the three surveys; in addition, a single brown long-eared bat was recorded emerging from the property under a ridge tile on the northern elevation and it is considered that the building supports a day roost for a small number of this species (DNA analysis of droppings confirm this is a brown long-eared roost). Other bats including soprano pipistrelle, noctule, serotine and a *Myotis* sp. were detected foraging or passing through the garden of the property.
6. The proposed repairs will see the destruction of two common pipistrelle day roosts, one day roost for *Myotis* sp. and one day roost for brown long-eared.
7. As the destruction of the roost features used by bats and disturbance of bats cannot be avoided and, in the absence of mitigation, this could potentially result in harm to individual bats, a European Protected Species (EPS) licence will be required for the development to legally proceed. Based on the results of the survey, a full EPS licence would be required.
8. An outline Bat Mitigation Strategy is set out within this report and includes the following elements:
  - installation of bat boxes on trees



- **a pre-commencement check of the roof void by the ecologist**
- **timing of tile removal and disturbance works between mid-March and October (inclusive)**
- **supervision of roof/hanging tile removal by the ecologist**
- **creation of replacement roosting opportunities elsewhere on the site.**



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### 1 INTRODUCTION

#### 1.1 Purpose of the Report

The Ecology Co-op has been commissioned to undertake a bat scoping assessment and three emergence surveys at Kirdford Village Hall by Edwina Phipps. This report presents the findings of a walkover survey and building inspection for occupation by bats, undertaken by Sam Lunn, BSc (Hons), MSc, ACIEEM and Natural England Level 2 bat survey class licence holder on the 10<sup>th</sup> May 2023 and three subsequent emergence surveys.

Whilst this report has maintained a focus on assessing potential impacts upon roosting bats and bat activity within the proposal's zone of influence, it has also considered the potential for any other protected/notable species and/or habitats to be adversely affected. Recommendations for further surveys that are likely to be required to inform a planning application and Ecological Impact Assessment are provided, if necessary. Where appropriate, measures to avoid, mitigate and/or compensate for significant adverse effects are outlined.

#### 1.2 Background

The site is located at Kirdford Village Hall, Village Road, Kirdford, Sussex RH14 0LY. The central grid reference for the site is TQ 017267.

The site comprises the Kirdford Village Hall surrounded by well-maintained modified grassland as well as a hardstanding car park. There are two detached outbuildings to the rear of the hall in the south-east corner. An aerial view of the site is illustrated in Figure 1 **Figure 1**.

The proposed development/project includes a complete re-roof, incorporating a new storage area into the roof void, as well as extending the village hall on the western side to improve facilities.



**Figure 1.** Aerial image showing the location of Kirdford Village Hall (outlined in white) within the context of the overall site, outlined in red. Image produced courtesy of Google maps (map data ©2023 Google).



**Figure 2.** Proposed development plans for Kirdford Village Hall, courtesy of S.R. Burrell MRICS, drawing no. 70391/PEL/Draft1, dated May 2023.

### 1.3 Policy and Legislation

Legal protection applying to all bat species in the UK and any other species relevant to this appraisal, is outlined in Appendix 1 of this report.

The results of this survey will be used to determine the need for further surveys, impact avoidance measures and/or an appropriate mitigation/compensation strategy to ensure compliance with UK wildlife legislation, policy and best practice.

## 2 METHODOLOGY

The methodologies used for this survey are in accordance with the bat survey guidelines produced by the Bat Conservation Trust<sup>1</sup>. Where there has been any deviation from the guidelines due to any site-specific constraints or other circumstances, reasoning and justification has been provided.

### 2.1 Desk Study

A search of on-line mapping resources has been undertaken to characterise the local context of the site with respect to semi-natural habitats and linear features of value to foraging and commuting bats.

The MAGIC website resource ([www.magic.gov.uk](http://www.magic.gov.uk)) has been used to identify the location of designated sites for nature conservation within 2km and European Protected Species (EPS) licences granted within a 1km radius of the survey site. Priority habitats and ancient woodland, upon the site and within the

<sup>1</sup> Collins, J.(ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3<sup>rd</sup> edn). The Bat Conservation Trust, London.



proposal's zone of influence, have also been identified due to their ecological value and potential to act as important foraging resources for bats.

Priority habitats and ancient woodland are classified as habitats of principal importance. Habitats of principal importance are listed in Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006<sup>2</sup>, which places a duty on Local Planning Authorities to have due regard to biodiversity.

## 2.2 Field Survey

### 2.2.1 Roosting Potential

Bats can use a wide range of features for roosting purposes including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy and loose bark.

A detailed building inspection was carried out, looking for potential access points and Potential Roosting Features (PRFs) that bats could use and any evidence indicating the presence of bats using the building, such as rub marks, feeding remains, staining or droppings. This included a ground-based external inspection around the building and internal inspection of PRFs, such as enclosed loft spaces or roof voids or basements, where safe access was possible. A high-powered torch was used for the internal and external assessment.

The suitability of each feature, or group of features, to support roosting bats has been assessed as either negligible, low, moderate, or high, in accordance with best practice guidance<sup>1</sup> (see Table 1) Any evidence confirming the presence of bats was clearly recorded including photos and samples taken (e.g. droppings), where appropriate. Further surveys have been recommended in accordance with best practice guidance and the surveyor's professional judgement, where evidence of a bat roost or PRFs have been identified that would be adversely impacted by the proposal and where precautionary mitigation alone cannot ensure that bats would not be potentially disturbed or harmed.

**Table 1.** Guidelines for assessing suitability of structures (buildings and trees etc) to support bat roosts

Suitability	Description of roosting habitats
Negligible	A structure that does not support any features that could be used by roosting bats.
Low	A structure that has one or more potential roosting features that could support individual roosting bats opportunistically. These features however lack the space, shelter or appropriate conditions, to support larger numbers of bats (such as a maternity roost).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter and suitable conditions for roosting, but are unlikely to support a roost of high conservation significance.
High	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 potential for longer periods of time due to their size, shelter, protection and conditions.

<sup>2</sup> HM Government (2006). Natural Environment and Rural Communities Act 2006. Available online at: <https://www.legislation.gov.uk/ukpga/2006/16/section/41>.





### 2.2.2 Hibernation Potential

The structure and its associated features were assessed for their suitability to be used by hibernating bats. The assessment was carried out in accordance with guidelines produced by BatAbility<sup>3</sup> and the bat survey guidelines produced by the Bat Conservation Trust<sup>1</sup>. To determine the potential for features to support hibernating bats the following aspects were considered:

- the suitability of features to support roosting bats or to allow access for roosting bats;
- the temperature and humidity conditions likely to be present within the feature during the winter period and the suitability in this respect for it to be used by bats for hibernating;
- the surrounding habitat, in terms of its potential for use by bats outside of the hibernation period for commuting and/or foraging purposes; and
- the presence of known roosts within the structure, or adjacent structures, or surrounding area during the active season.

The potential for use by hibernating bats for each feature, or group of features was assessed as either negligible, low, moderate, or high, in accordance with best practice. Further surveys are recommended where appropriate, considering the feasibility of a hibernation survey for certain PRFs.

### 2.2.3 Foraging and Commuting Potential

The habitats surrounding the site and wider landscape were broadly assessed for their potential to support foraging and commuting bats, and were categorised as negligible, low, moderate or high potential suitability in line with published guidance<sup>1</sup>.

### 2.2.4 Emergence Surveys

Three emergence surveys were undertaken on the 10<sup>th</sup> May, 24<sup>th</sup> May and 8<sup>th</sup> June 2023 using the methodology set out in the best practice guidelines prepared by the Bat Conservation Trust.

The surveys focused upon the gable ends and gaps in the roof tiles across the property using three surveyors and two infrared cameras positioned according to Figure 3. From these positions, surveyors could see all features potentially suitable for roosting bats that were identified during the initial bat scoping survey.

The surveyors recorded any bat activity on or around the potential roosting entry/exit features identified during the scoping survey, using full spectrum handheld bat detectors to identify species through call frequencies. The bat calls were logged and recorded as sonograms for later confirmation of species where necessary.

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<sup>3</sup> Middleton. N. (2019). *Assessing Sites for Hibernation Potential. A Practical Approach, including a Proposed Method & Supporting Notes. Version' Draft/V2.2019.* BatAbility.



**Figure 3.** An aerial image of the site, showing the positions of surveyors (blue dots) and night-vision cameras (orange dots) on 10<sup>th</sup> May 2023 and 8<sup>th</sup> June 2023. Images produced courtesy of Google maps (map data ©2023 Google).



**Figure 4.** An aerial image of the site, showing the positions of surveyors (blue dots) and night-vision cameras (orange dots) on 24<sup>th</sup> May 2023. Images produced courtesy of Google maps (map data ©2023 Google).



## 2.3 Other Protected and/or Notable Species

Any birds identified, or evidence of nesting birds discovered during the site visit, were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern<sup>4</sup> and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981), such as barn owl *Tyto alba*.

Whilst this survey has focussed on bats and no specific searches were made with respect to other protected/notable species, any evidence of such species that was encountered during the site visit was also recorded.

## 3 RESULTS/OBSERVATIONS

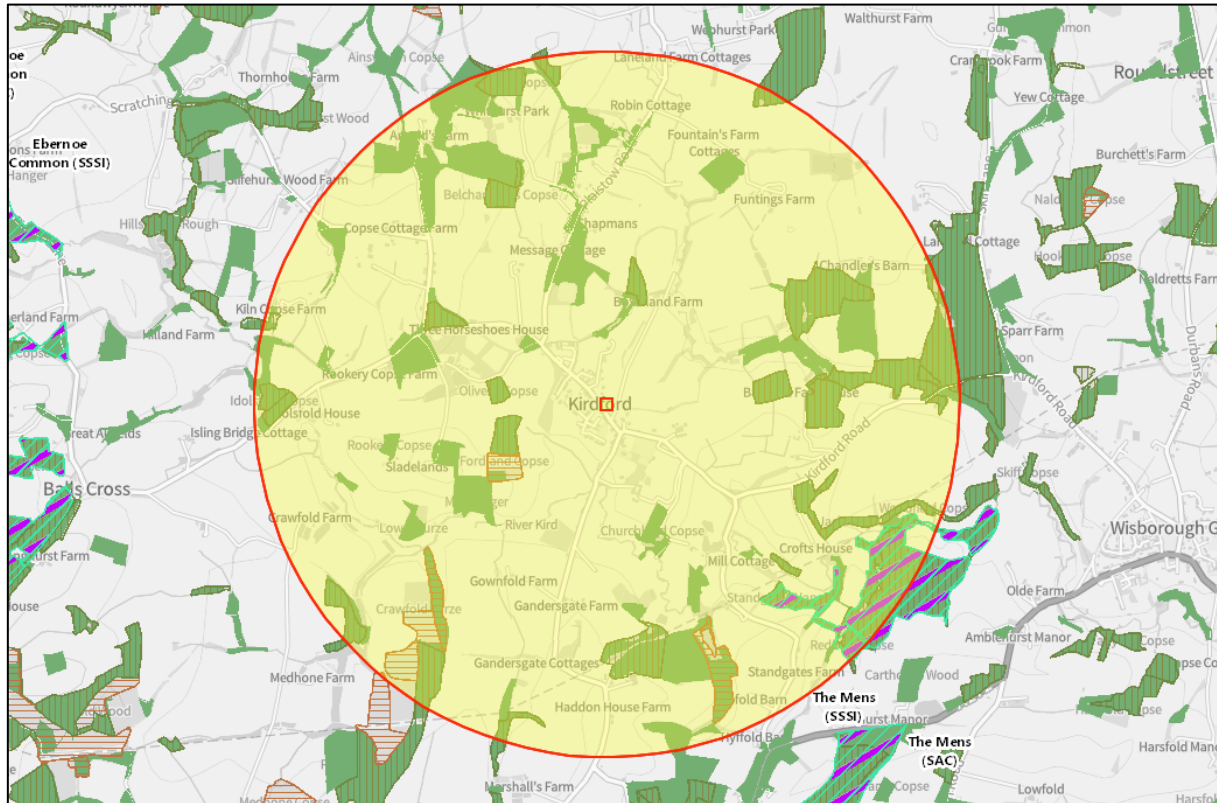
### 3.1 Desk Study and Granted EPS Licences

There is one designated site approximately 1.6km south-east of the application site known as The Mens which is a Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) (Figure 4). The nearest woodland is a parcel of Ancient and Semi-Natural Woodland approximately 500m west (Figure 4).

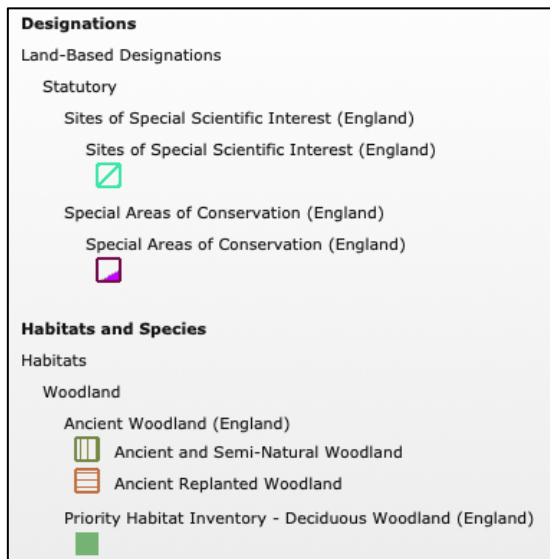
The Mens supports maternity roosts for Barbastelle *Barbastella barbastellus* bats which are a qualifying feature of the site but not a primary reason for the site's designation. Maternity roosts for Bechstein's *Myotis bechsteinii* bats are also supported within the SAC.

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<sup>4</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 114, pp 723-747.



**Figure 4.** Designated sites and Priority Habitat Deciduous woodland/Ancient and Semi-natural woodland within 2km of Kirdford Village Hall (red square). Image produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0)



**Figure 5.** Legend to accompany Figure 4.

There are no EPS licences granted for mitigation projects concerning bats within 2km of the site.

### 3.2 Site Context and Surrounding Habitats

The site is situated in the rural village of Kirdford, located on the main street, with residential properties to the south, west and north. To the east is a mosaic of pastoral fields, native hedgerows and small woodland parcels further afield.





The site itself supports the Kirdford Village Hall as well as two small, detached outbuildings surrounded by mown modified grassland with a hardstanding car park to the west of the site. A native hedgerow forms the eastern boundary and a solitary fir tree sits at the front of the site.

### 3.3 Inspection for Bats

#### 3.3.1 Roost Potential

The building inspection identified a confirmed bat roost through the sighting of approximately 50 bat droppings morphologically similar to those of long-eared species *Plecotus* sp. within the two loft voids. DNA analysis of the droppings confirmed the species as brown long-eared *Plecotus auritus*. There are multiple lifted roof tiles across the roof of the property providing roosting opportunities and access points into the property. These are discussed in detail within Table 2 below.

**Table 2.** Assessment of PRFs.

Building section	Description of features	Assessment of suitability <sup>1</sup>
Kirdford Village Hall – exterior	Brick building with pitched mansard roof with a small extension to the south. The roof is covered in clay tiles with hanging tiles on the western elevation. There are several gaps across all roof faces in small numbers and open slats at the apex of the western elevation, providing possible access points for bats to enter. The hanging tiles on the west elevation are in good condition with a small number of gaps present under individual tiles.	Moderate bat roost suitability
Kirdford Village Hall – east void	This loft void is partially being used as storage space at the far eastern end with a higher floored section in the centre of the building unused. It measures approximately 15m x 9m x 2m. The roof is bitumen lined with several tears including under ridge tiles and the floor is boarded throughout. At the western end of the void is a brick wall which separates the east and west voids although there is a 40cm gap at the apex providing some connectivity. Approximately 60–80 droppings, morphologically similar to long-eared bats, were identified at the western end under the last ridge tile.	Confirmed roost
Kirdford Village Hall – west void	This smaller void measures approximately 5m by 5m with a height of 2m. The floor is boarded and the roof lined with bitumen which is torn in several places. Approximately 80–100 droppings were identified, morphologically similar to long-eared bats.	Confirmed roost

Overall, the bat roost suitability at this site is assessed as high, given the confirmed roost within the loft voids and the presence of features suitable for rooting bats across the roof, as well as the context within moderate foraging habitat for bats.

No trees are to be removed as part of the proposed works and therefore tree roosting bats would not be a constraint to development.

#### 3.3.2 Hibernation Potential

Each structure was assessed for its hibernation potential. The potential for each structure is described



in Table 3 below and illustrated in the following photographs section.

**Table 3.** Assessment of hibernation roost potential.

Building section	Description of features	Assessment of hibernation potential <sup>1 &amp; 3</sup>
Kirdford Village Hall – exterior	It would not be typical for bats to be found over wintering in this type of structure as it would be affected by large temperature differences and not the cool, constant temperatures found in classic hibernation sites such as disused mines and caves. The crevices associated with the roof and hanging tiles are likely to drop below freezing during periods of very cold weather, creating unsuitable conditions for hibernating bats. However, due to the uncertain nature of hibernation occurring with the <i>Pipistrellus</i> genus unexpected incidents of hibernation could occur between hanging and roof tiles	Low potential
Kirdford Village Hall – loft voids	There is a confirmed long-eared roost across the two roof voids and the site sits within moderate commuting and foraging habitat. The roof space is unlikely to maintain the constant low temperatures required for hibernating bats due to rising heat when the space below is being used both in the day and at night, but this cannot be ruled out with certainty.	Low potential

### 3.4 Foraging and Commuting Potential

The site itself includes mown lawn with a number of scattered shrubs and trees, and a hedgerow along the eastern boundary, which provides low foraging habitat for more light tolerant species. The wider surroundings, particularly the pastoral fields, hedgerows and small woodland parcels to the east, provide high foraging and commuting habitat for a range of species. Overall, the site is therefore considered to provide moderate foraging and commuting habitat for bats.

### 3.5 Bat Emergence Surveys

#### 4.3.1 Survey Conditions

The dates, times, weather conditions, temperatures and personnel for each survey visit are presented in Table 4 below:

**Table 4.** Details of surveys undertaken, timings weather conditions and personnel.

Date	Survey start time/end time	Temperature (°C), weather conditions throughout survey	Surveyors
10/05/23	Start time: 20:08 Sunset: 20:39 End time: 22:39	Max/min temp: 12/9 0% cloud cover and light breeze (BF2), dry with thunder showers before survey	Sam Lunn Julian Browning Nathan Dixon
24/05/23	Start time: 20:31 Sunset: 20:58 End time: 22:20	Max/min temp: 14/11 10% cloud cover, low wind (BF0), no rain	James Whitby Nathan Dixon Rachael Cohen
08/06/23	Start time: 20:43 Sunset: 21:13 End time: 22:43	Max/min temp: 21.5/20. 0% cloud cover and still (BF0), dry.	Nathan Dixon Richard Angliss Julian Browning



The following equipment was used to support this survey:

1. 3 x Echometer Touch 2 Pro detectors with Apple recording devices.
2. 1 x SiOnyx Black night vision camera paired with a surveyor
3. 1 x Canon XA 20 Night vision camera paired with either a surveyor or an Echometer Touch detector and Apple recording device.
4. 2 x infra-red Flood lamps and two Infra red torches with focussed beams.

#### 4.3.2 Bat Emergence Results

The following descriptions summarise bat activity and emergence from the building for each survey visit.

- 10<sup>th</sup> May 2023

Overall, moderate bat activity and one confirmed emergence.

An individual of an unknown species (likely to be a common pipistrelle based on later foraging activity and size of bat seen) emerged from the tiles on the southern side of the building at 21:06 and flew east. There was high foraging activity by common pipistrelle bats *Pipistrellus pipistrellus* throughout the survey.

Two serotine *Eptesicus serotinus* were recorded commuting at 21:32 and 21:55 commuting across the site, and a Myotis *sp.* was recorded flying north-east across the site at 21:12.



Figure 6. The pipistrelle (likely common pipistrelle) bat emergence on the 10<sup>th</sup> May 2023 (red arrow).



- 24<sup>th</sup> May 2023

Overall, moderate activity and two emergences were recorded.

A common pipistrelle emerged from the northern face of the building at 21:36. A single myotis then emerged at 21:40 from the northern face, close to the north-east corner of the building. This bat is believed to be a Whiskered *Myotis mystacinus* bat based on call analysis and surrounding habitat.

There was high common pipistrelle foraging activity across the site for the duration of the survey. At 22:21 a myotis *sp.* was recorded foraging on the site and at 22:21 a brown long-eared bat *Plecotus auritus* was recorded commuting across the site.



**Figure 5.** The Myotis bat emerging at 21:40 (yellow) and the common pipistrelle bat emerging at 21:36 (red) on the 24<sup>th</sup> May 2023.

- 8<sup>th</sup> June 2023

Lower bat activity was recorded compared to the previous two surveys, potentially due to cooler weather. One emergence was recorded.

At 22:02 a brown long-eared bat was recorded emerging from under a ridge tile on the northern aspect of the building. A foraging noctule was recorded on the site at 21:40, and a commuting myotis *sp.* was recorded flying south-east across the site at 22:09.





**Figure 6.** A brown long-eared bat emerging from under a ridge tile on the 8<sup>th</sup> June 2023.



**Figure 9.** An example of the view from the night vision aid cameras used during the surveys at the darkest point. Taken on 10<sup>th</sup> May 2023 at around 22:40.

### 3.6 Other Protected and/or Notable Species

Since the site comprises of buildings surrounded by paved ground and tightly-mown lawn, the risk of impacts on reptiles, amphibians, badgers, or any other protected species is considered negligible in this case and no other surveys are considered necessary.



### 3.7 Survey Limitations

An initial site assessment such as this is only able to act like a ‘snapshot’ to record any flora or fauna that is present at the time of the survey. It is therefore possible that some species may not have been present during the survey but may be evident at other times of the year. Bats will commonly roost in small inaccessible crevices, such as spaces underneath ridge tiles that are impossible to inspect during a scoping assessment. For this reason, habitats and features are assessed for their potential to support bats, even where no direct evidence (such as droppings) has been identified.

The camera on the north-east corner during the first survey on the 10<sup>th</sup> May stopped recording at 20:38. However, this elevation was recorded again on the 8<sup>th</sup> June and a brown long-eared bat was recorded emerging from under ridge tiles. The failed camera is therefore not considered to be a significant constraint to the results and the use of the building by roosting bats has been accurately captured.

### 3.8 Photographs



**Photograph 1.** The western elevation of Kirdford Village Hall.





**Photograph 2.** The southern elevation and eastern elevations of Kirdford Village Hall.



**Photograph 3.** The northern and western elevations.



**Photograph 4.** (Left) Internal view of the larger loft void with torn bitumen lining the roof. (Right) The large gap between the two voids illustrating that for bats the two voids are interconnected.

## 4 ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

### 4.1 Designated Sites and Priority Habitats

There is one designated site approximately 1.6km from the application site, known as The Mens which is a SSSI and SAC. Given the small scale of the works, any potential impacts from construction will likely be negligible.

The nearest woodland is a parcel of Ancient and Semi-Natural Woodland, approximately 500m west. Precautions can be taken to keep impacts to the zone of influence and surrounding Priority Habitats to a minimum as below.

The eastern boundary hedgerow must be protected from construction works using heras fencing.

#### Dust Deposition

To mitigate against the risk of high levels of suspended dust being produced, following periods of very dry weather or very windy days construction should be avoided where possible, or dust suppression measures must be carefully managed with dampening implemented through the use of hoses and sprinklers when there is a risk of elevated dust levels and a risk of deposition onto the adjacent priority habitat sites. Additionally, there must be no burning of vegetation or waste materials on site to ensure ash and other particulate matter does not settle within these sites.



### Noise

When machinery is not in use it should be switched off immediately and not left to idle as this will result in unnecessary noise and air pollution. Any materials must further be handled and placed with care to reduce noise and vibration.

The building will continue to be used as a village hall and therefore there is not expected to be any increase in footfall on the surrounding designated sites.

## 4.2 Bats

### 4.2.1 Interpretation of Findings

The surveys indicate that the building supports a pipistrelle day roost (likely common pipistrelle) across the southern roof face of the property and a single *Myotis sp.* believed to be a Whiskered bat day roost and common pipistrelle day roost on the northern face.

One brown long-eared bat was recorded emerging from under a ridge tile on the northern elevation during the last survey.

Common pipistrelle and brown long-eared bats are considered to be common and widespread within the UK and day roosts hold the lowest conservation value. Therefore, the conservation significance is low given the abundance of these species both locally and nationally.

Whiskered bats are found widespread throughout England and Wales but sparsely distributed. Day roosts hold a relatively low conservation value and therefore the conservation significance of a day roost used by a single likely Whiskered bat is considered low both locally and nationally.

### 4.2.2 Potential Impacts

The proposed roof restoration and extension requires removal of the current roof and an extension to the western aspect of the building. The loft void will also be turned into storage space, which will cause disturbance to the loft void and potentially impact future roosting potential for bats.

The following roosts will be destroyed by the proposed plans, which pose a risk of killing/injury to bats:

- brown long-eared day roost within the void
- day roost for at least one common pipistrelle beneath a tile on the southern aspect of the building
- Day roost for at least one common pipistrelle beneath a tile on the northern elevation of the building
- day roost for a single *myotis sp.* (likely Whiskered) under a roof tile on the northern elevation.

The development will need to consider the potential for disturbance from artificial lighting and flight obstruction to the maintained roosts. Information regarding sensitive lighting is provided in Appendix 2.

### 4.2.3 Outline Mitigation Measures

As the proposed development involves alterations to the western aspect of the building and the removal





of the existing roof, the destruction/disturbance of the roost features used by bats cannot be avoided and, in the absence of mitigation, this could potentially result in harm to individual bats. Therefore, a European Protected Species (EPS) licence will be required for the development to legally proceed. Given the number of roosts to be affected by the proposed work a full EPS licence would be required.

As part of the licence application, a mitigation method statement will need to be prepared to demonstrate that the favourable conservation status of bats will be maintained through the life of the project. The possible measures that would be required to safeguard bats and achieve this are outlined below:

- **Installation of bat boxes on trees**

Prior to the commencement of work, two crevice boxes (such as the Improved Crevice Bat Box) and one cavity box (such as the General-Purpose Bat Box) will be installed by the licensed ecologist on the tree within the site and possibly on trees adjacent to the site. The boxes will be used to house any common pipistrelles and/or long-eared bats rescued during works. These boxes will be retained in perpetuity.

- **Pre-commencement check**

Prior to the commencement of works the loft void will be inspected by the named ecologist (or an accredited agent). Should a brown long-eared bat be present it will be captured by the ecologist and moved to a pre-erected bat box on a nearby tree.

- **Preparatory works – ‘soft strip’**

All hanging/roof tiles should be carefully hand stripped one by one under the direct supervision of a licensed bat ecologist. Any bats found shall be gently captured and placed into bat boxes that have been secured to trees surrounding the site in advance.

- **Timing**

The hand stripping of roof tiles should be undertaken in the period between mid-March and the end of October to avoid disturbing bats that could be in hibernation. Furthermore, works that will result in significant disturbance to the retained roosts beneath hanging tiles at the southern elevation (e.g. construction of the adjoining wall, hammering and drilling etc.) must only occur in the period mid-March–October inclusive.

As no maternity roosts have been identified during the surveys of this property, avoiding the breeding period (May–August inclusive) is not considered necessary.

- **Replacement roost site**

The detailed design of the extension and roof modifications should incorporate integral bespoke bat roosting features (in conjunction with an ecologist).

- **Artificial lighting**

The use of artificial lighting inappropriately can result in significant disturbance to bats. The detailed design should include a lighting scheme that minimises these impacts by following the Bat Conservation Trust’s guidance on lighting, reproduced in Appendix 3 of this report.

**If any bats or other protected species are found during the development, work should be stopped**



**immediately, and an ecologist must be contacted for advice.**

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.

## **APPENDIX 1 – Wildlife Legislation and National Planning Policy**

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to bats.

All bat species in the UK are included in Schedule II of the Habitats Regulations 2017, which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (“The EC Habitats Directive”). As such all bat species in the UK are defined as ‘European Protected Species (EPS).

Four species of bat (Bechstein’s bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus*, greater and lesser horseshoe bats, *Rhinolophus ferrumequinum* and *R. hipposideros*) are also listed on Annex IV of the EC Habitats Directive. This requires the designation of a series of sites which contain important populations of these species as Special Areas of Conservation (SACs).

All species of British bat are also fully protected under the Wildlife and Countryside Act (1981), as amended, through inclusion in Schedule V.

All species of bat are listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006). Section 41 of the NERC Act lists the habitats and species of principle importance. This places a statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of habitats and species of principal importance for the conservation of biodiversity in England (commonly referred to as the ‘Biodiversity Duty’). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers.

Under the above legislation it is an offence to:

- kill, injure or take any individual bat of any species;
- possess any part of an individual bat, either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by bats for shelter, rest, protection, or breeding;
- intentionally or recklessly disturb these species whilst using any place of shelter or protection;  
or
- deliberately disturb bats in such a way as to be likely to impair their ability to:
  - survive, to breed or reproduce, to rear or nurture their young; to hibernate or migrate;  
or to affect significantly the local distribution or abundance of the species to which they belong;
- keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.



It is also an offence to set and use articles capable of catching, injuring, or killing bats (for example a trap or poison), or knowingly cause or permit such an action. There is also protection under Schedule 6 of The Wildlife and Countryside Act 1981 (as amended) relating specifically to trapping and direct pursuit of bats.

A European Protected Species Licence (EPSL) in relation to bats is required from Natural England for any work that would result in an otherwise unlawful activity (e.g. damage to a bat roost). A license can only be issued to permit otherwise prohibited acts if Natural England are satisfied that all the following three tests are met:

- the proposal is for ‘preserving public health or public safety, or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’;
- there is no satisfactory alternative; and
- the action authorised by the license will not be detrimental to the maintenance of bat populations at a favourable conservation status in their natural range.

A bat roost is defined by the Bat Conservation Trust’s Bat Surveys—Good Practice Guidelines 3<sup>rd</sup> Edition as “the resting place of a bat”. In general, the word roost is interpreted as “any structure or place, which any wild bat uses for shelter or protection.”

Bats tend to re-use the same roosts; therefore, legal opinion is guided by recent case law precedents, that a roost is protected, whether or not the bats are present at the time. This includes summer roosts used for resting during the day and/or breeding; or winter roosts, used for hibernating.





## **APPENDIX 2 – Reducing Impacts of Artificial Light**

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust<sup>5</sup> should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

### **Avoid lighting key habitats and features altogether**

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

### **Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations**

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;
- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and

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<sup>5</sup> Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



features;

- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

### **Demonstrate compliance with illuminance limits and buffers**

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking*; as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

### **Lighting Fixture Specifications**

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

### **Further reading:**

Buglife (2011) A review of the impact of artificial light on invertebrates.

Royal Commission on Environmental Pollution (2009) Artificial light in the environment. HMSO, London. Available at: <https://www.gov.uk/government/publications/artificial-light-in-the-environment>

Rich, C., Longcore, T., Eds. (2005) Ecological Consequences of Artificial Night Lighting. Island Press. ISBN 9781559631297.

CPRE (2014) Shedding Light: A survey of local authority approaches to lighting in England. Available at: <http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light>



Planning Practice Guidance guidance (2014) When is light pollution relevant to planning? Available at: <https://www.gov.uk/guidance/light-pollution>

Institution of Lighting Professionals (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: <https://www.theilp.org.uk/resources/free-resources/>

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats. Available at: [https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSGuidelines8\\_lightpollution.pdf?v=1542109376](https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSGuidelines8_lightpollution.pdf?v=1542109376)



**APPENDIX 3 – eDNA lab analysis of droppings**



**Sample ID: EG-1058-2**

*Sample information:*

<b>Sample type:</b> Faecal	<b>Species group:</b> Bats
<b>Suspected species:</b>	<b>Site Location:</b> Kirdford Village Hall
<b>Comments:</b>	

*Laboratory information:*

<b>DNA Extraction Code:</b> EG-2023-0658	<b>Identification method:</b> qPCR
<b>Analysis Procedure Notes:</b> All UK bat species tested for - only a single species detected in this sample.	
<b>Laboratory Comments:</b> None	

*Species Identified:*

<b>Species 1:</b> Plecotus auritus (Brown long-eared bat)	<b>qPCR Ct Value:</b> 21
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