BAT SURVEY & REPORT

at

Hollingworth Lake Visitor Centre
Littleborough
Lancashire
OL15 0AQ

Client:
RSPCA

Client Address:
1 Redcross Street
Rochdale
OL12 0NZ

Client Contact:
01706 764 880 (Tel)

JCA Ref:
16522c/FS

Date of Report:
04/01/2021

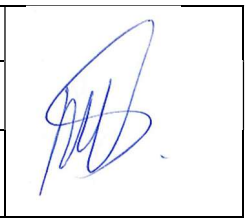


JCA Limited
Arboricultural & Ecological Consultants

Quality Assurance

JCA ref.	Version	Desktop Survey Completed:		Site Surveyed:		Report Completed:		Checked:	
		Date	Name	Date	Name	Date	Name	Date	Name
	Planning Application	04/01/2021	Francesca Sykes	08/12/20	Adam West & Francesca Sykes	04/01/21	Francesca Sykes	06/01/21	Adam West

This report has been prepared and provided in accordance with the *British Standard 42020: Biodiversity – Code of practice for planning and development 2018* and the *CIEEM's Code of Professional Conduct.*

Risk Assessment Completed	
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

© JCA Limited 2021

Summary

A report is required at **Hollingworth Lake Visitor Centre,** to assess the site's potential for supporting bat species, in the form of roosting sites, foraging habitat and/or commuting routes. The aim of this report is to investigate the potential impact that the proposed development may have on the local/national bat population.

The development proposed on this site is the internal renovation of the building.

All bat species and their roosts in the UK are protected under European and UK law. The main item of legislation protecting UK bats is the Conservation of Habitats and Species (Amendment) (EU Exit) 2019. In addition to this, bats and their roosts are also protected in England and Wales under the Wildlife and Countryside Act 1981 (as amended) and The Countryside and Rights of Way Act 2000.

A desktop study was undertaken on the (04/01/2021) in order to obtain any bat records that may be present within a 2km radius of the site and any nature conservation designations within the 2km radius of the site boundary.

The site was surveyed on the (08/12/2020) by (Adam West & Francesca Sykes). A thorough site assessment was undertaken in accordance with the Bat Conservation Trust's (BCT) '*Bat Surveys - Good Practice Guidelines*', the Joint Nature Conservation Committee's (JNCC) '*Bat Workers Manual*' (3rd Edition) and Natural England's '*Bat Mitigation Guidelines*'.

Recommendations:

For the building onsite, **three** bat surveys are required to ascertain the presence/likely absence of roosting bats. However, it should be noted that if bats are found to be roosting in the building, further emergence/re-entry surveys will need to be conducted, allowing for the identification of the roost type, in accordance with published guidelines.

© JCA Limited 2021

Contents

1.1 Purpose of the Report 5
1.2 Terms of Reference 5
1.3 Scope of the Report 5
1.4 Details of Proposed Development 5
1.5 Site Description 5
1.6 Legislative Context 6
2.1 Desktop Study Methodology 8
2.2 Scoping Survey Methodology 8
3.1 Desktop Study Results 11
3.2 Scoping Survey Results 13
4.1 Bat Records and Nature Conservation Designations 15
4.2 Impacts of the Proposed Development 16

© JCA Limited 2021

1. Introduction and Terms of Reference

1.1 Purpose of the Report

1.1.1 A report is required at **Hollingworth Lake Visitor Centre,** to assess the site's potential for supporting bat species, in the form of roosting sites, foraging habitat and/or commuting routes.

1.1.2 The aim of this report is to investigate the potential impact that the proposed development may have on the local/national bat population.

1.2 Terms of Reference

1.2.1 I am instructed by **RSPCA** to visit the site and prepare my findings in a report.

1.2.2 For this purpose I have been supplied with brief details of the proposal.

1.3 Scope of the Report

1.3.1 This report is compiled in accordance with the Bat Conservation Trust's (BCT) '*Bat Surveys - Good Practice Guidelines*', the Joint Nature Conservation Committee's (JNCC) '*Bat Workers Manual*' (3rd Edition) and Natural England's '*Bat Mitigation Guidelines*'.

1.3.2 The results and recommendations contained within this report are considered to be valid for a period of between 18 months. After this period, an update to the report and re-assessment of the site may be required in order to inform ecological constraints to any developments proposed, and/or to accompany a planning submission. If the proposed development changes significantly or land use alter substantially, updates may be required in advance of the expiry period of the report.

1.4 Details of Proposed Development

1.4.1 The development proposed on this site is a complete renovation of the interior of the building.

1.5 Site Description

1.5.1 **Hollingworth Lake Visitor Centre,** is situated 4.32km south west of Rochdale, at grid reference: SD 94201 14904.

1.5.2 The site is surrounded immediately by woodland. To the rear of the building is a

© JCA Limited 2021

woodland Site of Biological Importance (SBI). 120m south west is Hollingworth lake, the wider habitat compromises of arable fields and residential buildings.

1.5.3 **Figure 1**: Google Maps image of **Hollingworth Lake Visitor Centre,** showing the survey site in relation to the surrounding landscape and habitats. Red line indicates site boundary.



Google map image © 2020

1.6 Legislative Context

1.6.1 In the UK, all species of bats and their roosts are fully protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, with additional protection offered under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- Deliberately or recklessly capture, injure or kill a bat.
- Deliberately or recklessly disturb a bat in a way that would affect its ability to survive, breed or rear young (or hibernate or migrate in England, Wales and Northern Ireland) or (significantly in England, Wales and Scotland) affect the local distribution or abundance of the species.
- Damage or destroy a roost (this is an 'absolute' offence).
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.
- Intentionally or recklessly disturb a bat at a roost.
- Intentionally or recklessly obstruct access to a roost.

© JCA Limited 2021

If it is discovered that development may impact upon bat roosts (thus leading to an offence being committed) a **Mitigation Plan** should be devised, and a **Bat Mitigation Licence** applied for from the relevant government department (i.e. Natural England). Gaining a licence will depend on many variables, such as the bat species present, roost type, roost size and its local/regional/national importance.

© JCA Limited 2021

2. Methodology

2.1 Desktop Study Methodology

2.1.1 A desktop study has been undertaken in order to obtain any relevant records of bats from local bat groups and ecology units within a 2km radius of the site.

2.1.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) website was used to locate any designated sites, both statutory and non-statutory, such as; Local Nature Reserves (LNRs), Ramsar Sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Sites of Special Scientific Interest (SSSIs) that may be present within 2km of the survey site.

2.2 Scoping Survey Methodology

2.2.1 The site was surveyed for foraging, commuting and roosting potential. A detailed search of habitat, buildings structures was conducted during daylight hours in order to identify potential bat roosting sites and look for evidence of bat activity. Potential roost sites and features deemed to be of value to bats were documented on the site map (please refer to **Appendix 1**) and photographic evidence was taken (please refer to **Appendix 2**).

2.2.2 All surveys are conducted by experienced surveyors using the following equipment to ensure an accurate assessment; a printed site map, camera, 1 million candlelight torch, binoculars, ladders and a duet heterodyne bat detector.

2.2.3 Signs that bats have previously or are currently using a potential roost site include:

- Scratch marks, urine and oil stains around holes in buildings or trees.
- Droppings, carcasses and/or food remains found around the site.
- Bats observed flying in/out of a hole in a building or tree.
- Bats heard ‘chattering’ within a potential roost site, especially on warm summer days.

2.2.4 During the bat scoping surveys conducted on 08/12/20 the building on site was subject to an external and internal survey to establish the suitability of the structure to support roosting bats in accordance with Collins (2016). The criteria for assigning a roost suitability category are presented in Table 1 & Table 2 below:

© JCA Limited 2021

Table 1: Guidelines used for assessing the bat roosting suitability of a site *(taken from Collins, 2016).*

Roosting Suitability	Roosting Features Present
Negligible	No visible features on the site likely to be used by roosting bats. No signs of bats found during the initial assessment.
Low	A structure with one or more potential roosting opportunities that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough shelter, protection, surrounding habitats, or the appropriate conditions to be used on a regular basis by larger numbers of bats e.g. unlikely to support hibernation or maternity roosts. A tree of sufficient size and age to contain features suitable for bat roosting, but with no features seen from the ground. No signs of bat use found during the initial assessment.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The feature(s) are unlikely to support a roost of high conservation status. Signs (potential signs) of bat use found during the initial assessment.
High	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The features have the potential to support large colonies of bats (e.g. maternity or hibernation) for long periods of time. Signs of bat use present.

2.2.5 The category of roosting suitability assigned to a feature is used to determine what further survey effort is required to ascertain the presence/likely absence of bats within that feature, as shown in Table 2 below:

Table 2: Recommended minimum number of survey visits for presence/likely absence surveys *(taken from Collins, 2016)*.

Negligible roost suitability	Low roost suitability	Moderate roost suitability	High roost suitability
No futher survey required	One survey visit. One dusk emergence or dawn re-entry survey (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.

2.2.6 Limitations: It must be highlighted that the absence of any of these signs is not proof that the site is not being used by bats. Weathering and other factors will often remove any signs of bat activity, especially when present on the exterior of

© JCA Limited 2021

a building or a tree. As previously explained, many bat species will have several roost sites which they regularly move between and therefore an absence during a survey visit does not exclude their presence at a later date.

2.2.7 There was no perceived limitation during the internal or external inspection of this building.

© JCA Limited 2021

3. Results

3.1 Desktop Study Results

3.1.1 Local Data Centre Records: Greater Manchester Local Records Centre (GMLRC) has been commissioned to provide the records held for bat species within a 2km radius of the survey site. The results have been summarised below. It should be noted that the absence of records should not be taken as confirmation bat species are absent from the search area. Please see **Table 3 & Table 4** below for a summary of the bat records obtained from the Greater Manchester Local Records Centre.

3.1.2 The records obtained from the GMLRC Centre for **Hollingworth Lake Visitor Centre** are as follows:

Table 3: Summary of bat records from the past 10 years held by the held by the GMLRC Centre within 2km of the site.

Taxonomic Group	Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
Bat	Unknown Bat Species	*Chiroptera*	×	✓	✓	✓	One identified foraging in 2011.
	Common Pipistrelle	*Pipistrellus pipistrellus*	×	✓	✓	✓	Numerous records of foraging and commuting through the years.
	Noctule	*Nyctalus noctula*	×	✓	✓	✓	2151 – 2252 observed commuting in 2018.
	Soprano Pipistrelle	*Pipistrellus pygmaeus*	×	✓	✓	✓	One adult foraging in 2016.

3.1.3 The records of bat roosts obtained from the GMLRC for **Hollingworth Lake Visitor Centre** are as follows:

Table 4: Summary of bat roost records held by the GMLRC within 2km of the site.

Taxonomic Group	Common Name	Scientific Name	On site	Within 500m	Within 1km	Within 2km	Notes
Bat	Common Pipistrelle	*Pipistrellus pipistrellus*	×	✓	✓	✓	17 bats roosts recorded with the nearest being 497m from site. Maternity, mixed sex, hibernation and

© JCA Limited 2021

							occasional bat roost were all identified.
	Daubenton's Bat	*Myotis daubentonii*	×	✓	✓	✓	One bat roost identified in 2001. 499m
	Soprano Pipistrelle	*Pipistrellus pygmaeus*	×	✓	✓	✓	Two separate bat roost identified in 2012 & 2016. Nearest record identified in 498.
	Brandt's Bat	*Myotis brandti*	×	✓	✓	✓	One roost identified in 2004.

3.1.4 Nature Conservation Designations: Nature designations are split into two types; those that confer some form of statutory protection, and other designations. These designated sites are summarised in the tables below:

Table 5: Statutorily designated sites with 2km of the site.

Site Name	Designation	Distance from Site	Description
South Pennine Moors	SSSI & SAC & SPA	680m east	Upland bogs. Blanket bog east of the unit which is undergoing restoration works for areas of bare peat and gullying. Small area of dry heath north of the M62
Rochdale Canal	SSSI & SAC	1.10km north west	Locally substantial populations of key species have been retained.
SSSI – Sites of Special Scientific Interest SAC – Special Areas of Conservation SPA – Special Protection Areas			

Table 6: Non-statutorily designated sites with 2km of the site.

Site Name	Designation	Distance from Site	Description
Hollingworth Lake	SBI	89m west	No information included in desk study
South Pennine Moors (North)	SBI	680m east	No information included in desk study
Rochdale Canal	SBI	1.10km north west	No information included in desk study
Shaw Moss	SBI	1.33km south west	No information included in desk study
Disused Reservoir at Tunshill Hill	SBI	1.59km south east	No information included in desk study
Longden End Clough Reservoirs	SBI	1.80km south east	No information included in desk study
SBI - Site Of Biological Importance			

© JCA Limited 2021

3.2 Scoping Survey Results

3.2.1 Habitats and Features Present

The site is located within a large woodland, this forms part of a commuting corridor to the wider landscape. 120m south west of the site is Hollingworth lake which is an optimal foraging habitat for bats.

3.2.2 Building Assessment/ Built Structure Assessment

Hollingworth Lake Visitor Centre

Hollingworth lake visitor centre is a two story in-use commercial property. The building was built in 1997 and is in an overall good condition. The building is brick built with a wooden extension on the north east side of the building. The north west side of the building is where the entrance is located. There is a large wooden soffit above the entrance. The roof is pitched with tiles, many of which have slipped, and various valleys. There is one large window on the second story with a soffit. There are several sky lights and air vents present.

External inspection:

The entirety of the roof has slipped tiles which are not flush to the roof, thus presenting gaps. Furthermore, many tiles do not meet each other in length or width, again presenting gaps. On the south and northern corner, the vast majority of tiles are not overlapping one another, thus leaving gaps into the roof. The tiles surrounding the skylights are not flush to the skylight, thus creating gaps. The dorma window on the northern aspect of the building presents a gap between tiles and facia board. Chipped tiles are present on the north east side of the building with replaced tiles on the eastern corner. The open-air vents on north east and south west side of building could potentially act as an entry point for bats.

Internal inspection:

The south west of the buildings loft space was inspected thoroughly. The north east of the building did not encompasses a loft space but a second story. An air ventilation system was present in the loft, this led directly to an open-air vent in the roof and a large spherical hole in the roof of the loft. Furthermore, other air vents exiting the loft roof space were not sealed fully to the plastic sheeting and could present access for bats. On the north east side of the roof space the roof membrane was extensively damaged presenting entry in-between the loft roof space and the loft membrane. A few bat droppings were present on a MDF board left on the loft floor, there was not enough dropping to obtain species identification through DNA. However, the bat dropping are likely to belong to common or soprano pipistrelle.

© JCA Limited 2021

Signs of Bat Use: Signs of bat droppings were present within the loft space. No signs of urine stains, live or dead bats, oil stains and/or smell of bats were identified during the scoping survey.

© JCA Limited 2021

4. Discussion and Analysis of Results

4.1 Bat Records and Nature Conservation Designations

4.1.1 Five species of bat have been all been recorded within 500m of the site. A total of 21 bat roosts were identified all within 500m of the site. The majority of bats roost were identified within the residential areas of Smithy Bridge and Littleborough. Habitat connectivity between these roosts and the site is favourable to commuting bats. As bats are known to utilise numerous roosts within a core area, and regularly switch between roosts, the proximity of these roosts to the site suggest bats may be roosting at the site. Furthermore, the presence of bats droppings within the loft space indicates roosting bats.

4.1.2 The majority of the designated sites identified within the desktop study are at considerable distances from the site with major roads, industrial and residential buildings between them and the site. The distances and degree of habitat fragmentation involved make the site relatively isolated from the designated sites. South Pennine Moors (680m east) and Hollingworth lake (89m west) are nearer to the site with less fragmented habitat than the other sites. However, due to the small scale of the works and being an internal renovation only, no impacts to any designated sites are predicted as a result of the proposed development.

The proposed development will have potential to disturb roosting bats via noise and light pollution and thus, there is the potential of roost abandonment. If the development plans change and there is external work and/or work to the roof/loft, then a qualified ecologist should be consulted to discuss the implications of the new plans.

4.1.3 The scoping survey revealed a number of features (Appendix 1), which bats could utilize for shelter and protection. Furthermore, the site offered optimal conditions and surrounding habitats for bats. Evidence of bats roosting was observed via bat droppings. As a result of these observations, the building was assigned the category of **High** bat roosting potential.

4.1.4 The surrounding area of the site has favorable foraging habitat, with woodland directly behind (north) of the building. Furthermore, the proximity of roost records indicates suitable habitats for commuting and foraging bats. Additionally the building is suitable to support large colonies of bats (e.g maternity or hibernation) for long periods of time, and such bat roosts are known in the area. Therefore, the site it considered to have high potential for supporting roosting bat species. Please see Tables 1 and 2 above for the guidelines used for assessing the roosting potential of a site. Please note these guidelines are applied using the professional judgement of the licensed bat worker undertaking the assessment.

© JCA Limited 2021

4.2 Impacts of the Proposed Development

4.2.1 The proposed development will have potential to disturb roosting bats via noise and light pollution and thus, there is the potential of roost abandonment. If the development plans change and there is external work and/or work to the roof/loft, then a qualified ecologist should be consulted to discuss the implications of the new plans.

© JCA Limited 2021

5. Recommendations

5.1 For the building onsite, **three** bat surveys are required to ascertain the presence/likely absence of roosting bats. Bat surveys are conducted in the months of April – September. It should be noted that if bats are found to be roosting in the building, further emergence/re-entry surveys will need to be conducted in this time period, allowing for the identification of the roost type, in accordance with published guidelines.

© JCA Limited 2021

6. References

Bat Mitigation Guidelines (Jan. 2004). A. J. Mittchell-Jones. English Nature.

Bat Survey Guidelines: Good Practice Guidelines (2007). Bat Conservation Trust (BCT).

Bat Workers Manual (3rd Edition 2004). A. J. Mitchell-Jones & A. P. McLeish. Joint Nature Conservation Committee (JNCC).

Websites:

Bat Conservation Trust (BCT). <http://www.bats.org.uk/>

Google Maps. **<**http://maps.google.co.uk/**>**

Multiple-Agency Geographic Information for the Countryside (MAGIC). <http://www.magic.gov.uk/>

National Biodiversity Network (NBN) Gateway. <data.nbn.org.uk>

Natural England. < http://www.naturalengland.org.uk/>

Nature on the Map. Natural England. <www.natureonthemap.org.uk>

Relevant Legislation:

Wildlife and Countryside Act 1981 <http://jncc.defra.gov.uk/page-3614>

The Conservation of Habitats and Species Regulations 2017
<https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

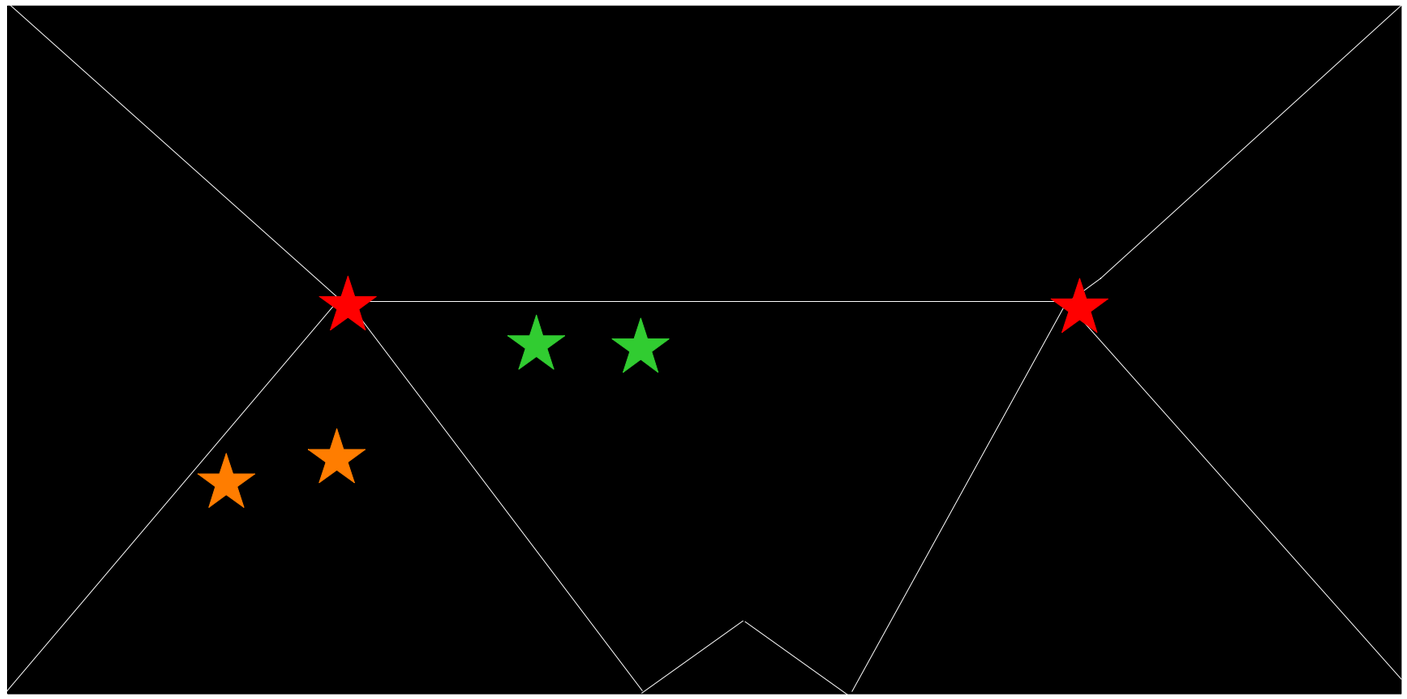
Countryside and Rights of Way Act 2000
<http://www.legislation.gov.uk/ukpga/2000/37/pdfs/ukpga_20000037_en.pdf?view=interweave>

© JCA Limited 2021

Appendices

Appendix 1: Site Plan

© JCA Limited 2021



Appendix 1: Site Plan

Address: Hollingworth Lake Visitor Centre
Littleborough,
OL15 0AQ

JCA Ref: 16522c /FS

- Open air vent
- Gaps around window and soffit
- Gaps around skylight tiles
- Numerous slipped tiles and gaps

JCA Limited
Arboricultural & Forestry Consultants

Appendix 2: Proposed Development Plan

Not available at time of report

© JCA Limited 2021

Appendix 3: Photographic Evidence

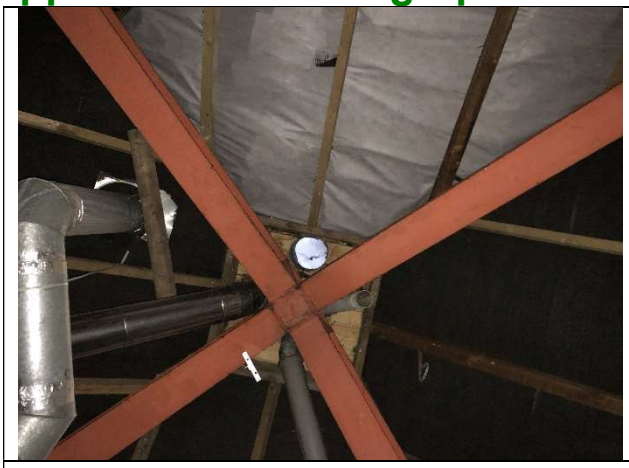


Photo 1: Loft space inspection – Air vent opening, south west side of loft space.

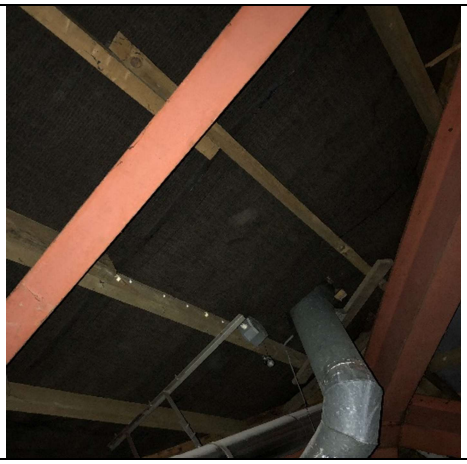


Photo 2: Lost space inspection – Air vent exiting through loft membrane. Not flush to membrane, potential gaps.



Photo 3: North east side of loft space – damage to loft membrane.



Photo 4: Loft space inspection – Bat dropping identified on MDF board on loft floor.



Photo 5: Overall image of loft space, to the north east side.



Photo 6: Exterior of the building

© JCA Limited 2021



Photo 7: Entrance of the building – north west side of building.

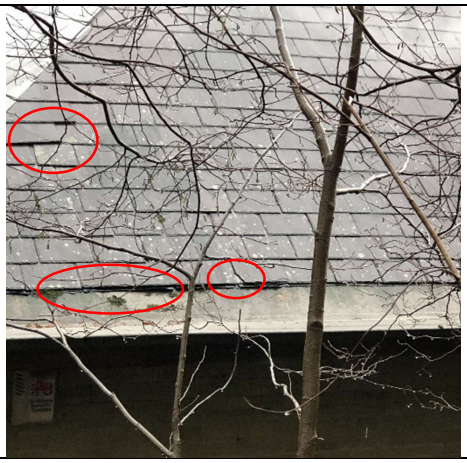


Photo 8: Gaps under tiles, chipped tiles and raised tiles at south east side of building.



Photo 9: Raised tiles at north east end of building.



Photo 10: Raised tiles at north west corner of building.



Photo 11: Raised tiles around skylight windows.



Photo 12: Raised tiles and gaps in lead lining of the window. North west side of building.

© JCA Limited 2021

	
Photo 13: North east end of the building. Numerous raised tiles.	

© JCA Limited 2021

Appendix 4: Bat Survey Calendar

Figure 3: Survey timings calendar (taken from BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Preliminary ecological appraisal - fieldwork												
Preliminary roost assessment – structures[a]												
Emergence/re-entry survey for maternity or summer roosts[b]												
Emergence/re-entry[c] survey for transitional roosts[b]												
Emergence survey for mating roosts[b]												
Hibernation survey – structures[a]												
Preliminary ground level roost assessment - trees[d]												
Potential roost feature (PRF) inspection survey - trees												
Ground level bat activity survey – transects and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey												
Back-tracking survey												
Trapping survey[e]												
Radio tagging and tracking survey[e]												

= optimal period = sub-optimal period

= weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October surveys are not acceptable in Scotland.

[a] Not including trees

© JCA Limited 2021

Appendix 5: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in man made structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.

© JCA Limited 2021

Appendix 6: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking
F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.
Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites
BSc (Hons), HND (Arboriculture).
Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Ecology

Adam West, Senior Ecologist
BSc (Hons) Animal and Wildlife Management.
Adam joined JCA to lead the expanding ecology department. Having returned to education as a mature student, Adam studied Countryside Management for two years before undertaking a Batchelor's degree, for which he was awarded First Class Honours. Adam has many years' experience in ecological consultancy, working on projects ranging from individual planning applications to national infrastructure projects. Adam holds a Natural England Level 1 great crested newt survey class licence, a Natural England Level 2 bat survey class licence (and the Scottish and Welsh equivalents) and a CSCS card. Adam is a member of CIEEM.

Amanda Beck, Ecological Officer
Cert/He in Field Ecology, Diploma Field and Conservation Ecology, CIEEM member.
Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and as a trainee Ecologist in South Wales. She has a background surveying for botanical, amphibians, birds, terrestrial and marine mammals along with small mammal trapping and invertebrate research work on SSSI sites. She has practical experience in habitat management and creation while working as a volunteer for North Wales Wildlife Trust and currently volunteers with Yorkshire Wildlife Trust. She is a member of the Butterfly Conservation Trust, Bat Conservation Trust, Clwyd Bat Group and the British Hedgehog Preservation Society. Amanda is DBS checked and holds a Natural England level 1 bat licence.

Joe Earnshaw, **Graduate Ecologist**
BSc (Hons), MSc Biodiversity and Conservation.
Joe joined the ecology department of JCA in 2018 after taking part in JCA's student training programme. He initially obtained a bachelor degree in Animal Management from Askham Bryan College, York. He has since furthered his education and brings to the company an MSc in Biodiversity and Conservation from the University of Leeds. Joe has expertise in aquatic invasive species identification and control.

Francesca Sykes, Graduate Ecologist
BSc (Hons), MSc Conservation Biology.
Francesca joined JCA after having been a seasonal ecologist for two years. She has worked on large and small infrastructure projects across the UK and is competent in various field surveys and report writing. Francesca also has experience of project administration duties for large infrastructure projects. While at JCA Francesca is working towards her bat licences.

© JCA Limited 2021

The [information/ data/ evidence/ advice/ opinion] which we have prepared and provided is true, and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed



.....

Francesca Sykes
04/01/2021

Proofread by



.....

Adam West
06/01/2021

For and on behalf of ***JCA Ltd***

Registered Office:

Unit 80
Bowers Mill
Branch Road
Barkisland
Halifax
HX4 OAD

Tel. 01422 376335
Fax. 01422 376232
Email: jon@jcaac.com
Web : www.jcaac.com

© JCA Limited 2021





ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

ARBORICULTURAL SERVICES

Guidance for Architects & Developers

- British Standard 5837 Surveys
- Arboricultural Implications Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

JCA Limited

Arboricultural & Ecological Consultants



HEAD QUARTERS

Unit 80 Bowers Mill,
Branch Road,
Barkisland
Halifax, HX4 0AD

Company Reg No: 05005041
VAT No: 686 4674 78