

Ecological Impact Assessment and Bat Survey

**SOUTH WING, BOLTON HALL, ALNWICK,
NORTHUMBERLAND**

Summer 2020

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Disclaimer:

Ecology surveys are carried out in good faith, to the relevant professional guidelines. Where variation from these guidelines is necessary, this is outlined in the report. Any comments regarding condition of buildings or trees are in relation to the use of the building/tree by bats and birds and should not be considered as a building survey or arboricultural opinion on the condition of those features.

The client should be aware that the mitigation recommendations in ecology reports are often translated directly into planning conditions, and as such these should be studied closely and agreed with any contractors in advance of site works commencing.

Mitigation recommendations should be clearly marked on the Architect's Plans submitted with any planning or other consent.

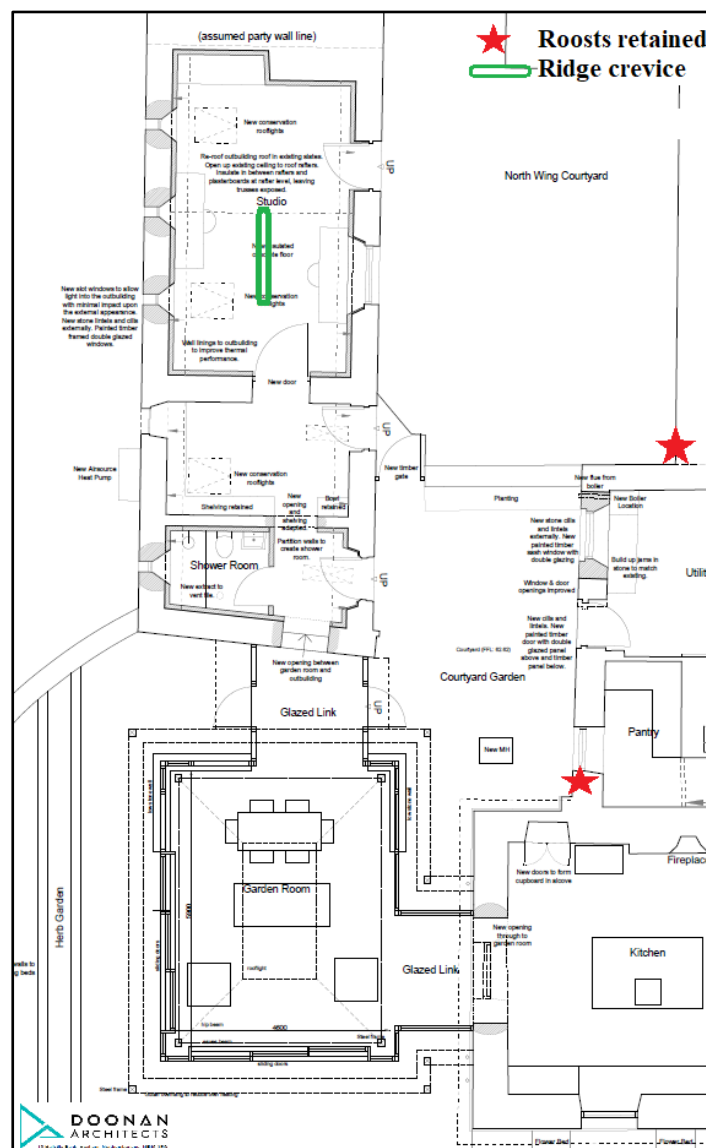
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Ecological Impact Assessment for South Wing, Bolton Hall, Alnwick, Northumberland

Summary

- An ecological survey was requested primarily for bats and birds at the South Wing, Bolton Hall, Alnwick, Northumberland by the owner Mr K Hodson.
- The building surveyed is a single storey, stone outbuilding with a pitched, slate roof.
- The proposals are to convert the outbuilding into a studio with an extension to the south as a garden room.
- The house is located 8km west of Alnwick in a rural location, 520m to the northwest of the River Aln. The immediate area to the north and south is improved/semi-improved grassland with arable agricultural land further afield to the east, boundary hedges, shelterbelts and fences are present. There is a reasonable potential for feeding bats around the hamlet where mature trees are present and along the banks of the River Aln to the southwest where some trees and sheltered foraging are present.
- Inspection results of the exterior revealed that the building surveyed had loose slates and gaps beneath the ridge tiles with mortar missing. No evidence of bats was noted externally or internally. The building was assessed as having moderate bat roost potential due to the crevices present and two emergence/dawn surveys were carried out.
- Known bat activity in the area within 2km of the site are a maternity roosts of Natterer's, Brown long-eared and Pipistrelle 45kHz bats within 300m, Myotis and Pipistrelle bat roosts are also known 1.5km to the northwest.
- The surveys confirmed no roosting bats. Pipistrelle 45kHz, Pipistrelle 55kHz, Noctule and Brown long-eared bats were heard or seen foraging or commuting during the surveys.
- Mitigation will be put in place, to provide crevices in the converted building.
- Timing of destructive works during the conversion to avoid the hibernation period, (November to March inclusive), will ensure that the works have as little negative affect as possible on bats.
- Any nesting bird species will be allowed access to the nest until the young have fledged.

Figure 1. Ecological Mitigation Plan



1. Introduction.

The inspection was carried out and reported by Ruth Hadden BSc an experienced Ecologist and Licensed Bat Surveyor.

Figure 2. Survey area - central building within the redline

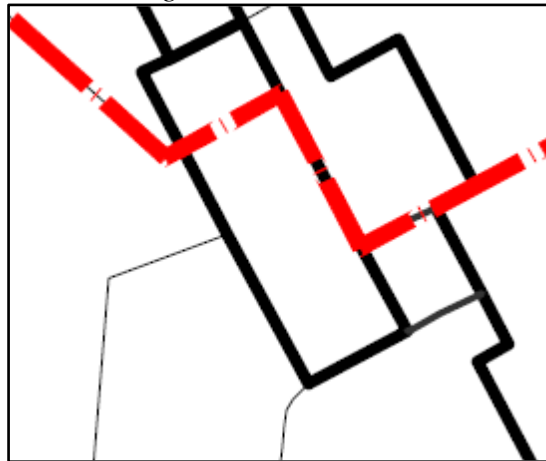
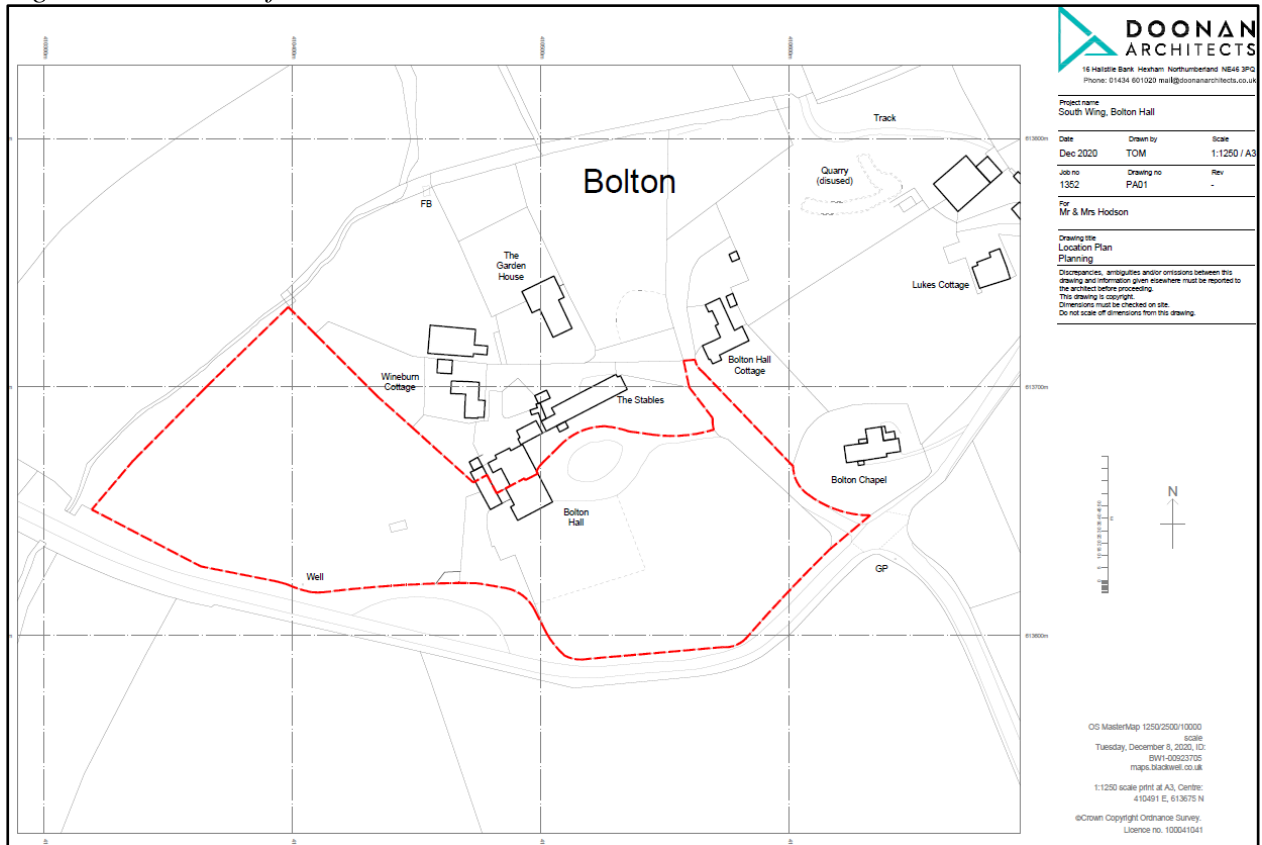


Figure 3. Location of site.



2. Relevant Policies and Legislation.

Under Section 25 (1) of the Wildlife & Countryside Act (1981) local authorities have a duty to take such steps as they consider expedient to bring to the attention of the public the provisions of Part I of the Wildlife & Countryside Act, which includes measures to conserve protected species.

The Natural Environment and Rural Communities Act (2006) places a Statutory Biodiversity Duty on public authorities to take such measures as they consider expedient

for the purposes of conserving biodiversity, including restoring or enhancing a population or habitat.

The National Planning Policy Framework (NPPF) states “*When determining planning applications, local planning authorities should apply the following principles:*

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;” (paragraph 175).

ODPM Circular 06/2005/Defra Circular 01/2005 states that the presence of a protected species is a material consideration when considering a development proposal that could harm the species or its habitat. Appendix 1 details legislation relating to applicable species.

Section 41 of The Natural Environment and Rural Communities (NERC) Act (2006) requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. This includes planning decisions.

2.1 Designated Sites

Site of Special Scientific Interest (SSSI) citations are for special features of importance to nature conservation. Sites of Special Scientific Interest (SSSIs) are nationally important sites protected under laws including The Wildlife and Countryside Act 1981, Countryside and Rights of Way Act 2000. LPAs must consult Natural England on planning applications that might affect SSSIs. Operations that could damage special interests require consent by Natural England. It is an offence for any person to intentionally or recklessly damage or destroy any of the features of special interest of an SSSI, or to disturb wildlife for which the site was notified.

3. Methodology.

3.1 Scope of the Assessment.

The zone of influence of this development is defined as being the site itself and habitats to the immediate boundaries within 2km.

The assessment has included consideration of:

- designated sites
- habitats and species of principal importance for conservation of biodiversity
- protected species, namely bats.

3.2 Desktop Survey.

Natural England’s Magic on the Map website was accessed for details of any designated wildlife sites within 2km.

The Environmental Records Information Centre North East (ERIC) data search has been restricted to bats, as this is the major constraint to any destructive building works.

Natural England's Magic on the Map and OS Explorer 1:12500 maps were used to assess the distance to habitat features close to the site.

3.3 Site Survey

The survey area covered the building and garden only within the red line boundary as shown within Figure 2 and included searching for signs of any wildlife using the site with the key aspects listed below.

The survey included an assessment of habitats on site for use by bats following the Bat Conservation Trust (BCT) *Bat Surveys for Professional Ecologists, Good Practice Guidelines* (3rd edition, 2016) and Natural England's definitions except where indicated. The survey effort at the site has taken account of the recommendations of the BCT Good Practice Survey Guidelines, taking proportionality into account and the proposals.

Field Survey for Bats and Birds

Visual Inspection

A close inspection of the building was made in good light, and by torch where required. The exterior and interior of the building were examined as far as was feasible for signs of bats: droppings, urine streaks, clean cobweb-free areas on the ridge boards or crevices and potential roost exit holes. All external and internal crevices were checked using a torch and possible roosting sites were noted. Crevice loving bats can be difficult to find especially when bats are present between the roofing felt and slates/tiles. Emergence surveys were therefore used to check for the presence of bats missed during the visual inspections. Beneath ledges the ground was examined for feathers, pellets and birdlime that could indicate occupation by barn owls.

Emergence Survey

As dusk fell 3 surveyors, each using visual observations and bat detectors (Echo Meter Touch), and two-way radios, carried out the evening emergence surveys, covering all aspects of the buildings. Bat detectors convert bat echo-location signals into audible sounds, enabling the identification of some species, and aid the monitoring of the number of bats present. Two-way radios help to determine the emergence and flight paths of a bat seen by surveyors around the site and allow the bat activity of the whole site to be understood, whilst at the site.

Surveyors are on site for at least quarter of an hour before sunset and up to 1½ hours after sunset or until darkness falls as reduced visibility does not allow bats to be seen emerging from the building being surveyed. After this time any bats picked up by detector, cannot be guaranteed to have emerged from the building in question, but confirms if additional species are present in the area or not. If bats or a maternity colony is present the bats are counted until no bats have left the roost for 10 minutes for as long as it takes.

Re-entry Survey

A dawn survey was also carried out. For a dawn survey surveyors are on site one and a half hours before sunrise until a quarter of an hour after sunrise.

Timing and Weather Conditions

Survey	Date	Timings	Weather
Inspection	5 August 2020	Externally and internally (40 mins)	Fine and dry
Emergence	5 August 2020	8.45 pm – 10.30pm (Sunset 9.02pm)	Fine, cloudy and still. 19-18°C
Re-entry	6 September 2020	4.55am – 6.50am (sunrise 6.23am)	Fine, cloudy and still 11°C

Personnel

Ruth Hadden – Bat Consultant since 1996, Class Survey Licence CL20 2015-13665-CLS-CLS (Bat Survey Level 4). Licensed to handle bats and enter known roosts since 1986. Qualifications BSc Joint Honours Zoology & Plant Biology, Newcastle upon Tyne.

MCIEEM

Ben Hadden – Class Survey Licence WML CL18 (Bat Survey Level 2). Registration number 201514223-CLS-CLS. 15 years of experience.

Beth Patience 12 years of experience.

3.4 Assessment.

The assessment has been conducted according to the *Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine*, CIEEM, September 2018. Impacts are considered for during construction and occupation.

Preliminary Ecological Appraisal Reports (PEAR) which CIEEM guidelines¹ states can be used to support a planning application where it can be determined that the project would have no significant ecological effects, no mitigation is required, and no further surveys are necessary. PEARS though can also provide;

- the results of initial ecological surveys associated with a proposed development
- identify further ecological surveys necessary to inform an EcIA
- identify ecological constraints to a project
- make recommendations for design changes
- highlight opportunities for ecological enhancement.

4. Baseline Ecological Conditions

4.1 General

The building surveyed is located at NU104136 as shown below

4.2 Designated Sites

There is one statutory designated sites within 2km of the site. This is Bewick and Beanley Moors SSSI (Upland Heath), 1.6km to the northeast. The development site falls within the impact risk zones for SSSI's in the wider area.

¹ *Guidelines for Ecological Report Writing Second Edition* December 2017

Figure 4. Designated Sites and Priority Habitats within 2km of the site (from magic.defra.gov.uk)



4.3 Habitats

Figure 4 shows BAP Priority Habitats, within 2km (listed under Section 41 of the Natural Environment and Rural Communities Act 2006). These habitats are deciduous woodland, upland heathland (bright green), wood pasture and parkland and ancient and semi-natural woodland to the northwest, all within 2km of the site.

4.4 Species and Species Groups

4.4.1 Desktop Search

Records from the Environmental Records Information Centre North East (ERIC) show results from within 2km of the site for bats. There are no ponds within 500m without a major boundary. There are no granted European Protected Species licences for bats and none for great crested newts within 2km.

4.4.2 Habitat description

The Hall is located with a well wooded garden with amenity lawns close to the house. A paddock to the west has mature hedges that link to plantations to the southwest.

Bolton Hall is located 8km west of Alnwick in a rural location, 520m to the northwest of the River Aln. The immediate area to the north and south is improved/semi-improved grassland with arable agricultural land further afield to the east, boundary hedges, shelterbelts and fences present. There is a reasonable potential for feeding bats around the hamlet where mature trees are present and along the banks of the River Aln to the southwest where some trees and sheltered foraging are present.

The area has some reasonable, sheltered feeding and protection present within 300m. Bat roost potential will be present in the nearby scattered local residences and any suitable mature trees present in the area.

4.4.3 Bats

Pre-existing information on the species at the site.

There are no pre-existing records for the site

Status of species in the local/regional area.

Known bat activity in the area within 2km of the site are a maternity roosts of Natterer's, Brown long-eared and Pipistrelle 45kHz bats (2005) within 300m to the east, Myotis and Pipistrelle bat roosts are also known 1.5km to the northwest (2010). (ERIC North East. A full data set available upon request).

Locally and regionally, the Common Pipistrelle is the most common bat. Both Pipistrelle 45kHz and 55kHz bats are frequent in northern England, although Pipistrelle bats are the most abundant species, they are thought to have declined by 70% between 1978 and 1993 (National Bat Colony Survey). Since 1997 monitoring by the National Bat Monitoring Programme (NBMP) has shown that bat numbers seem to be steady with small fluctuations up or down depending on the species and survey type carried out. The Brown long-eared bat is occasional with colonies much smaller in numbers than the Pipistrelle. Daubenton's, Natterer's and Whiskered/Brandt's bats are also occasional but widespread in Northumberland with an average colony size being about 35 adult bats. The Nathusius' Pipistrelle is a rare bat, has migratory habits and has been proved to fly across the North Sea from Bristol to Holland and has occasionally been recorded in Northumberland throughout the season.

Bats – Daytime Risk Assessment

The building surveyed is a stone single storey outbuilding with a pitched, slate roof. There are three sections, with the two southern sections, plastered with roof lights. The northern most section has wood sarking with no ridge and has a combed wooden ceiling, the walls are white washed.

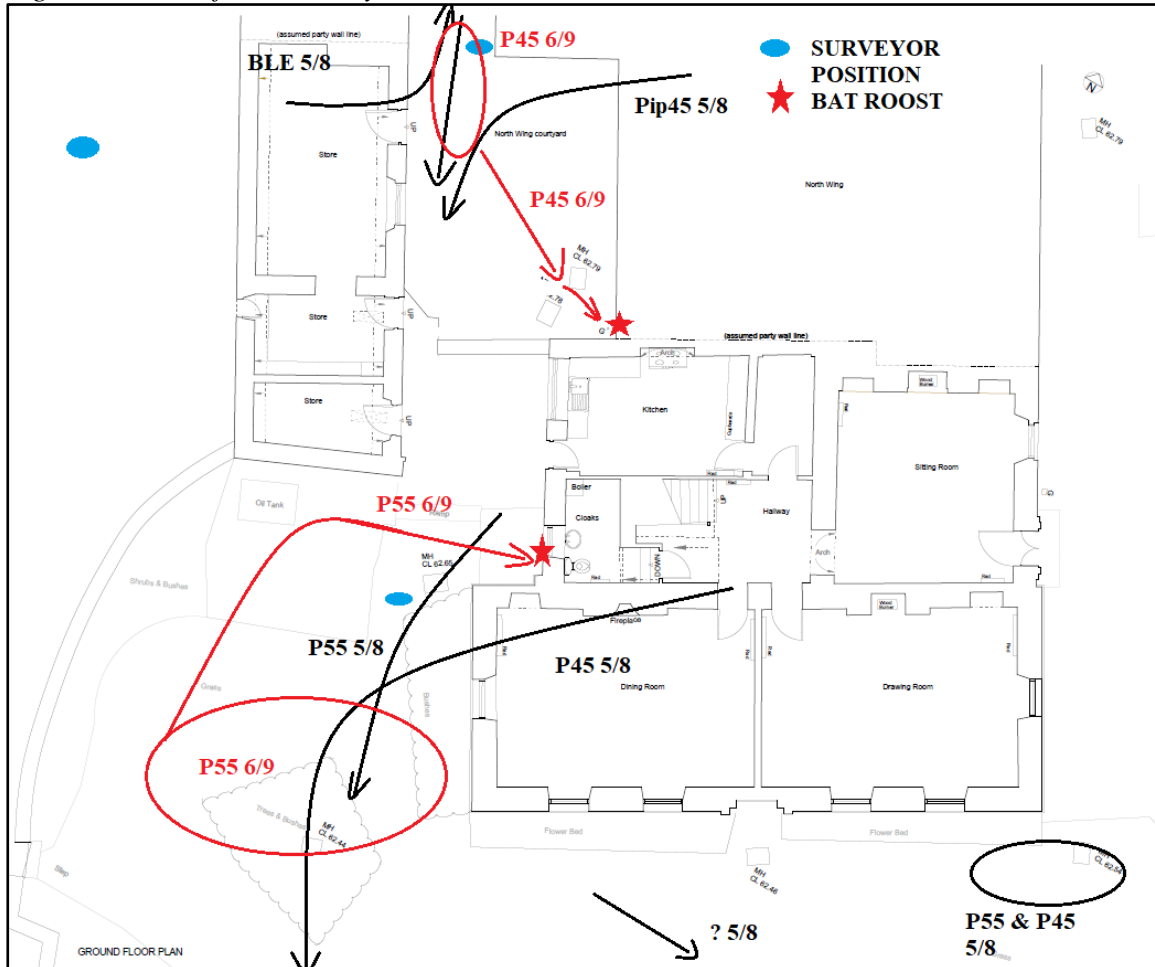
Inspection results of the exterior revealed that the building surveyed had loose slates and gaps beneath the ridge tiles with mortar missing. No evidence of bats was noted externally or internally. The building was assessed as having moderate bat roost potential due to the crevices present and two emergence/dawn surveys were carried out.

No potential bat hibernation sites were identified in the building; however, bats may be present in any suitable crevice, in the masonry crevices or on the wall top.

Bats – Activity Surveys

The surveys confirmed no roosting bats. Pipistrelle 45kHz, Pipistrelle 55kHz, Noctule and Brown long-eared bats were heard or seen foraging or commuting during the surveys. Pipistrelle 55kHz and Pipistrelle 45kHz bats were seen re-entering roosts on the two storey eaves of the Hall. Please see Appendix 2 for detail.

Figure 5. Plan of Bat activity



4.4.4 Bird Assessment

No nesting birds or evidence of nests were identified within or around the outbuilding.

4.4.5 Invasive Species

These are non-native invasive species included in Schedule 9 of the Wildlife & Countryside Act 1981 (as amended), which makes it illegal to release or allow to escape into the wild.

No invasive species (as listed in Schedule 9) were noted on site.

5. Photographs of the Site



West wall of the outbuilding

The outbuilding from the southeast



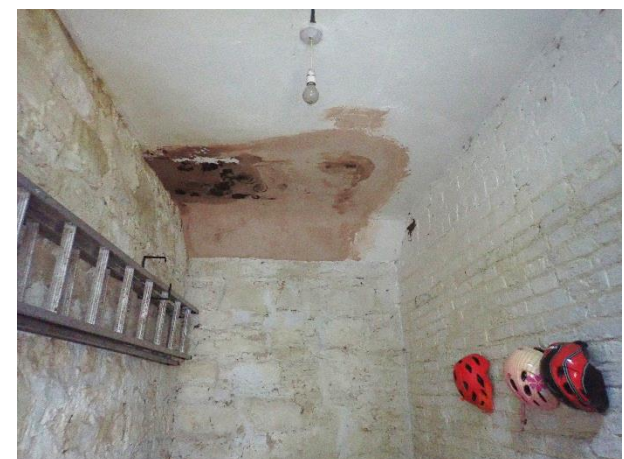
From the south

From the northeast



South Wing, Bolton Hall. From the southeast

Interior of the southern sections of the outbuilding





Well spaced wood sarking present

Northern section with wood ceiling



Roof vents

Chimney near the divisional wall between neighbours



Two storey eaves of the South Wing where a bat re-entered above the window.

Crevices in the mortar





Bat re-entered above window of the neighbours.

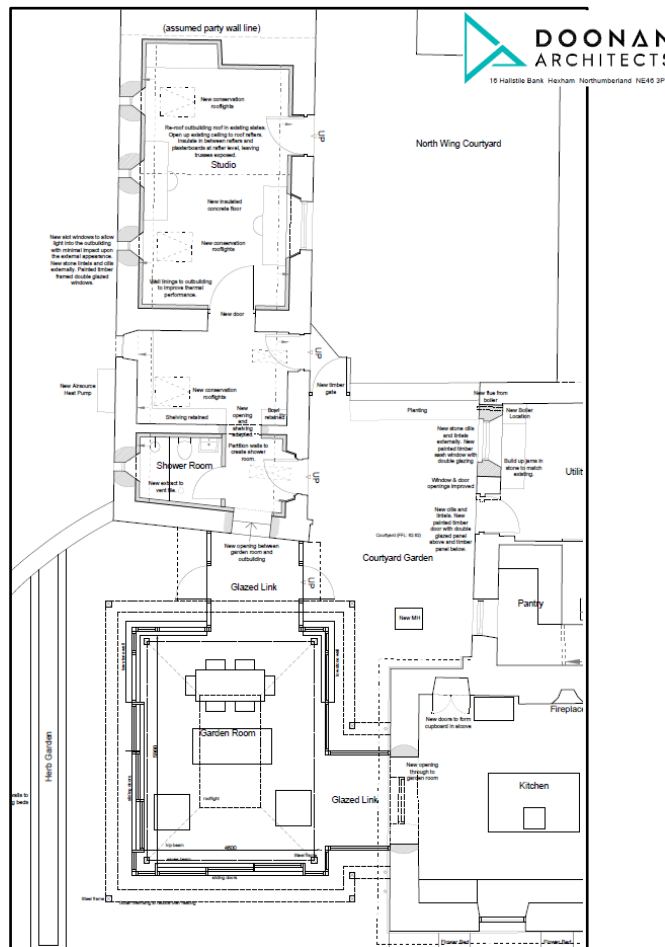


Location of the proposed link with the garden room, pointing sound.

6. Description of Proposed Development.

The proposals are to convert the outbuilding to a studio and to build a garden room to the south linking with the house. Roof lights and windows will be incorporated into the converted outbuilding

Figure 6. Proposed Works



7. Assessment of Impacts

7.1 Constraints

No constraints to the survey, apart from the late commissioning.

7.2 Site Based Impacts.

The building due to be extended has low conservation significance for bats as a roost site at present. This assessment takes into account the location of the building and the reasonable feeding habitat and shelter within 300m, the results of the inspection and survey, the crevices within the building and the potential of the building as a maternity bat roost site, where preferential sites may be present on nearby buildings.

Pre-activity impacts are negligible with no changes being made to the use of the building.

Mid-activity impacts will be moderate for bats. The works may cause disturbance, injury and death to bats or birds, if no mitigation is carried out in the eventuality of an animal being located during any destructive works.

Site Assessment

The site is considered to have low conservation significance for nesting birds and for bats.

7.3 Impacts on the SSSI.

The development site falls within the risk impact zones for nearby SSSI's in the area, however the works are unlikely to greatly impact any designated area.

8. Mitigation and Enhancement.

The National Planning Policy Framework (NPPF) requires that the planning system minimizes impacts on biodiversity and provides net gains. The following recommendations will likely be translated into conditions placed on any planning consent. They are intended to reduce the risk of this development to protected species and habitats.

Natural England guidelines on mitigation states timing constraints and like-for-like replacement is a minimum requirement.

8.1 Pollution Prevention

To protect any nearby waterways or drains, measures to be made to ensure that there is no runoff (herbicides, wheel washing, cement washings etc.) either during construction to prevent pollution or sediment issues, or after development. (See Environment Agency's Pollution Prevention Guidelines (PPG5) for guidance.

8.2 On Site Mitigation

Bat access will be created through the mortar fillet to beneath the ridge tiles and above the ridge/sarking board on the converted outbuilding by ensuring that the ridge tile is not totally filled with mortar. Access through the mortar fillet measuring 20x20+mm will be created leading to a larger gap measuring 400mm long below the ridge tile, a section of split pipe can be used to give access from ridge tile to ridge tile. **No BRM (Breathable Roofing**

Membrane) to be used in any areas where bats could gain access to roof as a result of new roost provisions. Please see plan at Fig. 7 for locations.

Roosts identified in the main building will be retained as at present.

Wooden beams and timbers will be treated only with 'bat friendly' products, permethrin or cypermethrin as insecticides for example. Further information is available if the contractor requires it.

A traditional bitumen felt (F1) or wood sarking that would give bats some grip will be used in the region of any bat roost potential and not a more modern smooth or breathable roofing membrane (BRM) that may fray and entrap bats.

Any external lights will be set on a motion detector and short timer and be positioned in such a way that they do not shine on any of the bat access positions or the buildings, as this can deter bats. Please see references Bat Conservation Trust/Institute of Lighting Engineers' Guidance 2018.

8.3 Mitigation Summary

To maintain bat and bird populations in the area the following will be carried out:-

- Bat access will also be created through the mortar fillet to beneath the ridge tiles and above the ridge/sarking board on the converted outbuilding by ensuring that the ridge tile is not totally filled with mortar. Access through the mortar fillet measuring 20x20+mm will be created leading to a larger gap measuring 400mm long below the ridge tile, a section of split pipe can be used to give access from ridge tile to ridge tile. **No BRM (Breathable Roofing Membrane) to be used in any areas where bats could gain access to roof as a result of new roost provisions.** Please see plan at Fig. 7 for locations.
- Any external lighting will be on a relatively short timer, directed away from bat roost access points and flight paths and motion-sensitive only to large objects.
- Any nesting bird species that may be present will be allowed access to the nest until the young have fledged between April and October.
- A Method Statement will be followed for bats and birds, please see the Appendix 3.

Figure 7. Mitigation Locations

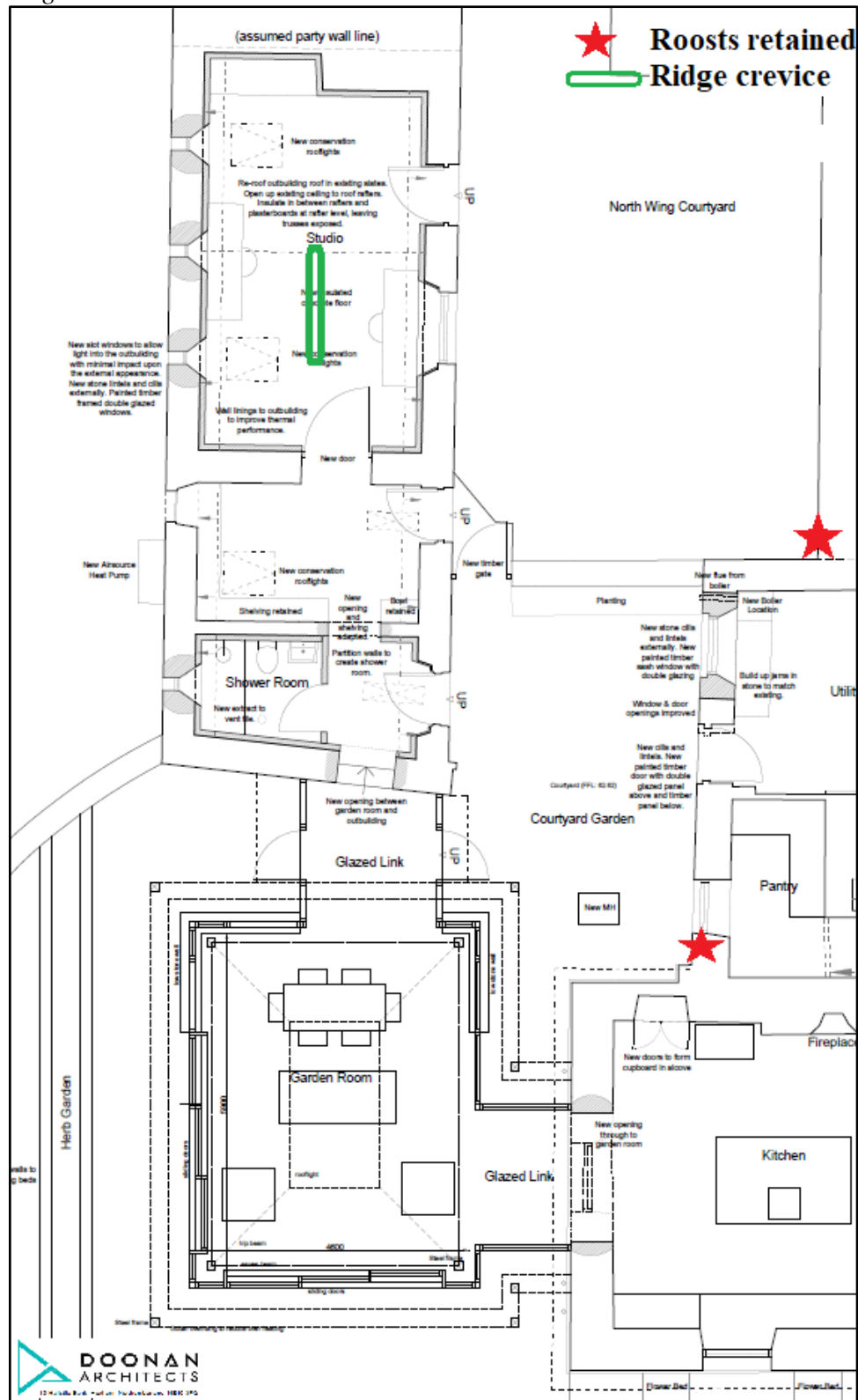


Table 1 Mitigation Summary

Location	Mitigation Type
Ridge of the outbuilding	Bat access will also be created through the mortar fillet to beneath the ridge tiles and above the ridge/sarking board on the converted outbuilding
Main Hall	Roosts identified in the main building will be retained as at present.

8.4 Enhancement

Not applicable.

8.5 Monitoring

Due to low impact on bat activity on site, by the proposals no monitoring after the development is completed will be required to assess the success of mitigation. (Bat Mitigation Guidelines 2004, Section 7.2). Ruth Hadden available to liaise with the owners as required regarding the mitigation.

8.6 Conclusions

- Without any mitigation the proposed works will result in low impact on any bat population present.
- The provision of mitigation in the form of an in-built ridge crevice and retention of bat crevices on the main building will give a net biodiversity gain for this site.

9. References

Barn Owl Trust (2002), Barn Owls on Site. English Nature
Chartered Institute and Ecology and Environmental Management (CIEEM) (2017). Guidelines for Ecological Report Writing 2nd Ed.
Collins J (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust, London.
Corbet and Harris (1991). The Handbook of British Mammals. Blackwell.
Durkin J L (2016) Amphibian Atlas of North East England.
English Nature (2004) Bat Mitigation Guidelines. EN
Environment Agency's (2007) Pollution Prevention Guidelines: Works and maintenance in or near water: PPG5 <https://www.sepa.org.uk/media/100531/ppg-5-works-and-maintenance-in-or-near-water.pdf>
Institution of Lighting Professionals/Bat Conservation Trust (2018) Bats and artificial lighting in the UK, Guidance Note 08/18.
Joint Nature Conservancy Council (2004) The Bat Workers Manual. JNCC.

Bat boxes: <https://www.nhbs.com/low-profile-woodstone-bat-box>

Build-in WoodStone Bat Box <https://www.nhbs.com/build-in-woodstone-bat-box>

Barn Owl Box : <http://www.barnowltrust.org.uk/infopage.html?Id=41>

Sparrow Terrace: www.nhbs.com/lsp-schwegler-sparrow-terrace

Swift boxes: <https://www.nhbs.com/vivara-pro-cambridge-swift-nest-box>

<https://www.nhbs.com/woodstone-build-in-swift-nest-box-a>

Bird box: <https://www.nhbs.com/lb-schwegler-nest-box>

APPENDIX 1. LEGISLATION RELATING TO PROTECTED SPECIES

Bats

All bats are protected under the Wildlife and Countryside Act (Schedule 5). They are also included in Schedule 2 of the Conservation Regulations 2017. The Act and Regulations make it illegal to:

Intentionally or deliberately kill, injure or capture (take) bats

Deliberately disturb bats (whether in a roost or not)

Damage, destroy or obstruct access to bat roosts

The Countryside and Rights of Way Act 2000 extended the protection given to bats to cover *reckless* damage or disturbance.

A bat roost is interpreted as 'any structure or place which is used for shelter or protection', whether or not bats are present at the time.

Barn Owls

Similarly, the Barn Owl is protected under Part 1 of the Countryside Act 1981 and is listed on Schedule 1, which gives them special protection. It is an offence, with certain exceptions to:

- Intentionally or deliberately kill, injure or capture (take) any wild barn owl.
- Intentionally take, damage or destroy any wild barn owl nest whilst in use or being 'built'.
- Intentionally take or destroy a wild barn owl egg.
- Intentionally or recklessly disturb any wild barn owl whilst 'building' a nest or whilst in, on, or near a nest containing young.
- Intentionally or recklessly disturb any dependant young or wild barn owls.

Biodiversity

The National Planning Policy Framework (NPPF) 2012 requires Local Planning Authorities (LPA's) to seek to deliver biodiversity enhancement through the planning system, see paragraphs 9, 109 and 118. In particular Paragraph 109 includes a statement:

The planning system should contribute to and enhance the natural and local environment by:

- 'minimising impacts on biodiversity and providing net gains in biodiversity.'

APPENDIX 2. SURVEY DATA

Table 2 Emergence survey results.

Date	Bat Activity
5 August 2020 8.41pm 8.48pm 8.58pm 9.02pm 9.12pm 9.16pm 9.20pm 9.22pm 9.23pm 9.26pm 9.32pm 9.41- 10.20pm 9.44pm 9.46pm 10.30pm	Bat seen flying over trees to the southeast Pipistrelle 45kHz bat emerged from the house and flew to the southwest Pipistrelle 55kHz bat heard to the southwest Sunset. Pipistrelle 45kHz bat flying high over the house to the southeast. Pipistrelle 55kHz bat heard not seen to the north. Pipistrelle 55kHz bat emerged from the house roof flew to the southwest through the garden. Pipistrelle 45kHz bat emerged from the house roof flew to the southwest Pipistrelle 45kHz bat emerged from neighbouring roof? Pipistrelle 45kHz bat flew across the yard to the south. Pipistrelle 55kHz bat emerged from the house roof. Pipistrelle 55kHz and 45kHz bat foraging by the southeast corner of the house. Pipistrelle 45kHz heard intermittently. Pipistrelle 55kHz heard intermittently. Brown long-eared bat seen flying over the ridge of the outbuilding. Survey concluded.
6 September 2020 5.40am 5.42am 5.59am 6.04-6.12am 6.07am 6.23am 6.35am	Brown long-eared heard not seen to the north Pipistrelle 55kHz bats foraging to the east of the outbuilding. Pipistrelle 45kHz bat re-entered eaves on west aspect of the neighbours. 2 Pipistrelle 55kHz bats re-entered the house eaves. Noctule bats heard not seen. Sunrise Survey concluded

APPENDIX 3. BAT METHOD STATEMENT FOR CONTRACTORS

This statement should be copied to the site owner, architect, clerk of works and to those contractors whose work may affect bat roosts including those involved in conversion, wood treatment, roofing and building works.

Bats are fully protected by law. To avoid breaking the law by damaging or disturbing bat roosts, resulting in possible imprisonment, fines or confiscation of equipment, certain procedures have to be followed.

Legislation

All bats are protected under the Wildlife and Countryside Act (Schedule 5). They are also included in Schedule 2 of the Conservation Regulations 2017. The Act and Regulations make it illegal to:

Intentionally or deliberately kill, injure or capture (take) bats

Deliberately disturb bats (whether in a roost or not)

Damage, destroy or obstruct access to bat roosts

The Countryside and Rights of Way Act 2000 extended the protection given to bats to cover *reckless* damage or disturbance.

A bat roost is interpreted as 'any structure or place which is used for shelter or protection', whether or not bats are present at the time.

Similarly the Barn Owl is protected under Part 1 of the Countryside Act 1981 and is listed on Schedule 1, which gives them special protection. It is an offence, with certain exceptions to:

- Intentionally or deliberately kill, injure or capture (take) any wild barn owl.
- Intentionally take, damage or destroy any wild barn owl nest whilst in use or being 'built'.
- Intentionally take or destroy a wild barn owl egg.
- Intentionally or recklessly disturb any wild barn owl whilst 'building' a nest or whilst in, on, or near a nest containing young.
- Intentionally or recklessly disturb any dependant young or wild barn owls.

Identifying roosts

Pipistrelle the most common bat, favours small crevices and spaces between brickwork, stone and roofing felt. Bats are small mammals and when at rest the bodies are only 4-6 cm long, their fur colour can range from brown to pale and dark grey. When disturbed the bat is likely to be torpid and unable to fly effectively for some minutes, because of this they are vulnerable to injury as they are not fast moving and may fall to the ground, breaking bones or be accidentally crushed. Basically, when material from the roof and tops of the walls is removed any crevices underneath should be checked to ensure that no bat has been disturbed.

Other traces that can indicate a past presence of bats are their droppings. These resemble mouse droppings but unlike mouse droppings can be crumbled to dust between finger and thumb. Droppings may be found on wall tops and beneath pantiles and tiles on top of any sarking.



Photo showing disintegrated bat droppings beneath coping stones. If examined carefully, in the black dust exoskeletons of insects can be seen shining.

Timing

Any development work involving the removal of the existing roof materials or stonework will be carried out avoiding the hibernation period (November to March inclusive). Periods of cold weather (below 5°C including night temperatures) will also be avoided if possible as any bats present will be in hibernation torpor and be extremely vulnerable. If torpid bats are encountered and disturbance is unavoidable the bat will be taken into care and fed until suitable conditions for release at the site is possible.

Contractors

All contractors will be aware that bats may be present in the area and could be present within the loft space and may be found torpid in crevices if any. Table 1 below highlights where bats may be found and the recommendations. Any bats found during operations will have the cavity re-covered for its safety and any work in the vicinity will cease. Ruth Hadden to be informed for advice immediately (01661 886562). As only licensed bat handlers can move bats and the contractors are not permitted to handle bats, the bat will be allowed to disperse of its own accord overnight.

Table 1 General Methodology for Conversion Works

STRUCTURE	METHOD	INSPECT
Roofs	Remove any ridge tiles, tiles/pantiles or roof coverings including loose felt by hand, lifting vertically to prevent any bats from being crushed. Removal of any timbers/beams.	Check any crevices underneath the roofing materials including the underside, as it is removed. Check any crevices around the beams as work proceeds.
Walls/Eaves	Expose the wall tops. Remove any gutters. Dismantle any walls required, by hand.	Examine for bat droppings and any wall cavities for bats.
Walls - Pointing	Only point crevices where the full depth can be seen otherwise leave as at present.	Check deep crevices for the presence of bats using a torch.
Windows/doors	Remove windows, doors and frames by hand, where gaps exist around the frames.	Examine any wall cavities exposed. Avoid blocking any external pre-existing gaps.

If a barn owl is found unexpectedly during operations the cavity will be re-covered or protected and work will cease in that area. Ruth Hadden to be informed (01661 886562) immediately for assistance. Any nesting bird species will be allowed access to the nest until the young have fledged between April and October.

Mitigation Summary

To maintain bat and bird populations in the area the following will be carried out:-

Bat access will also be created through the mortar fillet to beneath the ridge tiles and above the ridge/sarking board on the converted outbuilding by ensuring that the ridge tile is not totally filled with mortar. Access through the mortar fillet measuring 20x20+mm will be created leading to a larger gap measuring 400mm long below the ridge tile, a section of split pipe can be used to give access from ridge tile to ridge tile. **No BRM (Breathable Roofing Membrane) to be used in any areas where bats could gain access to roof as a result of new roost provisions.** Please see plan below for locations.

Roosts identified in the North and South Wings of Bolton Hall will be retained as at present.

Wooden beams and timbers will be treated only with 'bat friendly' products, permethrin or cypermethrin as insecticides for example. Further information is available if the contractor requires it.

A traditional bitumen felt (F1) or wood sarking that would give bats some grip will be used in the region of any bat roost potential and not a more modern smooth or breathable roofing membrane (BRM) that may fray and entrap bats. **No BRM (Breathable Roofing Membrane) to be used in any areas where bats could gain access to roof as a result of new roost provisions.**

Any external lights will be set on a motion detector and short timer and be positioned in such a way that they do not shine on any of the bat access positions or the buildings, as this can deter bats. Please see references Bat Conservation Trust/Institute of Lighting Engineers' Guidance 2018.

Any nesting bird species that may be present will be allowed access to the nest until the young have fledged between April and October.

To protect the waterways or drains, measures to be made to ensure that there is no runoff (herbicides, wheel washing, cement washings etc.) either during construction to prevent pollution or sediment issues, or after development. (See Environment Agency's Pollution Prevention Guidelines (PPG5) for guidance.

If a barn owl is found unexpectedly during operations the cavity will be re-covered or protected and work will cease in that area. Ruth Hadden to be informed (01661 886562) immediately for assistance.

Mitigation Locations

