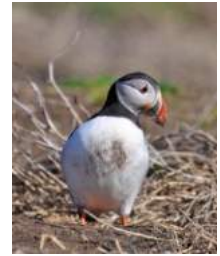


**Budhaig Environmental**  
Ecology and Environmental Project Support



# **Ecological Impact Assessment**

## **ThreestoneBurn House, Roddam, Northumberland.**



**December 2020  
UPDATE**

Ann Deary Francis MCIEEM

<b>Document Title:</b> Ecological Impact Assessment, ThreestoneBurn House, Roddam, Northumberland.			
<b>Principal Author</b>		Ann Deary Francis	
<b>Client/Agent</b>		Mr. R and Mrs. B. Carrdus.	
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**Disclaimer:**

Unless the client specifically requests it all records will be shared with local wildlife groups and the local Biodiversity Records Centre, for the benefit of conservation.

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

## ThreestoneBurn House, Roddam, Northumberland.

### Summary

An ecological impact assessment was requested for Threestoneburn House by Mrs B. Carrdus, in order to support a planning application for the refurbishment of the existing farmhouse and extension into an adjacent stable block. The development was previously permitted under planning reference 08NP0035/08NP0036LBC dated 27/10/2008.

Previous surveys in 2008 and 2016/2017 recorded roosts of several species of bats, including day roosts of whiskered/Brandt's, Natterer's and pipistrelle.

Updating surveys in 2019 confirmed roosts of common and soprano pipistrelle. Natterer's and other *Myotis* species were recorded foraging close to the buildings during the surveys but no emergence of those species was noted. Evidence of those species was noted in the stables and a single large dropping was found in the roof void above the farmhouse. Evidence of larger bat species was noted in the stables at the adjoining wall to the farmhouse.

Updating activity surveys in July 2020 confirmed roosts of 45 and 55 pipistrelle bats from several locations on the roof of the house. A silent bat was recorded leaving the stables around 1 hour after sunset, and internal static recordings have confirmed this building is used as a day/night roost by small number of *Myotis* bats with Natterer's being the most likely species from sound analysis. A soprano pipistrelle was also noted in this section, with all other results being similar to those in Summer 2019. An active barn owl nest was noted in an outbuilding during this survey.

The buildings affected by the proposals are considered to support a number of day roosts (and possibly maternity roosts with numerous entrances) of common and soprano pipistrelle, with day/night roosts of Natterer's bat.

As bat roosts are present and will be affected a European Protected Species Mitigation Licence will be required before works can proceed.

Mitigation includes an insulated internal shell creating a bat loft and internal wall shelters within a Dutch barn on the site of an outbuilding (and new bat access into that building), insulated bat boxes in that same building during construction (for transportation/interim roost spaces) and the restoration of the roost features at wall tops and under roof coverings in the refurbished property. The roosts in the loft of the house will be modified (raised ceiling) but this roost space will be retained.

The construction footprint will be limited to the site boundaries, but there is potential for other protected and notable species to be found on the site including common toad, adder, viviparous lizard and nesting birds. A precautionary working method statement will be in place to prevent harm to those species.

## Potential Impacts

- Disturbance and modification of day roosts/potential mixed maternity roost of common and soprano pipistrelle.
- Disturbance and modification of day roosts of Natterer's and whiskered/Brandt's bats.
- Harm to individual bats which may be present during construction.
- Harm to species of common reptile and amphibian which may be present on the site.
- Harm to nesting birds which may be present.
- Risk of pollution to watercourse during construction.

## Mitigation

- A Natural England Mitigation Licence will be in place before works commence.
- Seasonal restrictions: Roof stripping works to the farmhouse roof must avoid the period May-August inclusive unless it is confirmed that maternity roosts are not present. Works will avoid the period November-March inclusive unless the structure has been made unsuitable for hibernation prior to that time.
- **No breathable roofing membrane will be used. It is a condition of licensing that Bitumen type 1F felt with a hessian matrix must be used.**
- No works will commence until the project ecologist has briefed the contractors on the requirements of the licence and given a toolbox talk.
- A bat loft will be created in Building D – the Dutch barn using insulation boards to create an internal shell at first floor height. Schwegler 2FE wall shelters will be added to this area along with roughened timbers to create internal crevice roosts. Two insulated bat boxes will be placed in the Dutch Barn Building D. (Schwegler 3FF or equivalent).
- Particular care will be taken to avoid the main barn owl nesting period with checks for barn owl to take place prior to any works on mitigation roosts in the Dutch barn.
- All known roosts to be fitted with one-way exclusion flaps where possible, for a period of at least 5 consecutive days/ nights throughout a spell of suitable weather conditions.
- Any works to the recorded roosts will only take place carefully, by hand under the supervision of the project ecologist. Any bats found during works will be transported to the mitigation roosts in Building D by the project ecologist.
- Roosts will be restored at the wall tops of the farmhouse 'like for like'.
- The loft and roof of the farmhouse will be restored to enable bats to continue to use the space. Bat access will be created in the same



locations recorded as shown below. Timber or boarding sarking to the underside of the felt will be provided in the central section of the southern elevation pitch of the farmhouse to replicate the existing roost.

- All works on site will follow a Method Statement for bats and reptiles/amphibians.
- Any works in the bird nesting period March to August inclusive will only take place if a suitably qualified ecologist confirms that active nests are absent.
- Any construction pits or trenches will be fitted with suitable means of escape for mammals. Night time working will not be permitted.
- Any new lighting must be directed away from boundaries of the site and river corridor, designed to the Bat Conservation Trust/Institute of Lighting Engineers guidance 'Bats and Lighting'<sup>1</sup>
- All works on site will follow Pollution Prevention Guidance PPG5.

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<sup>1</sup> <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

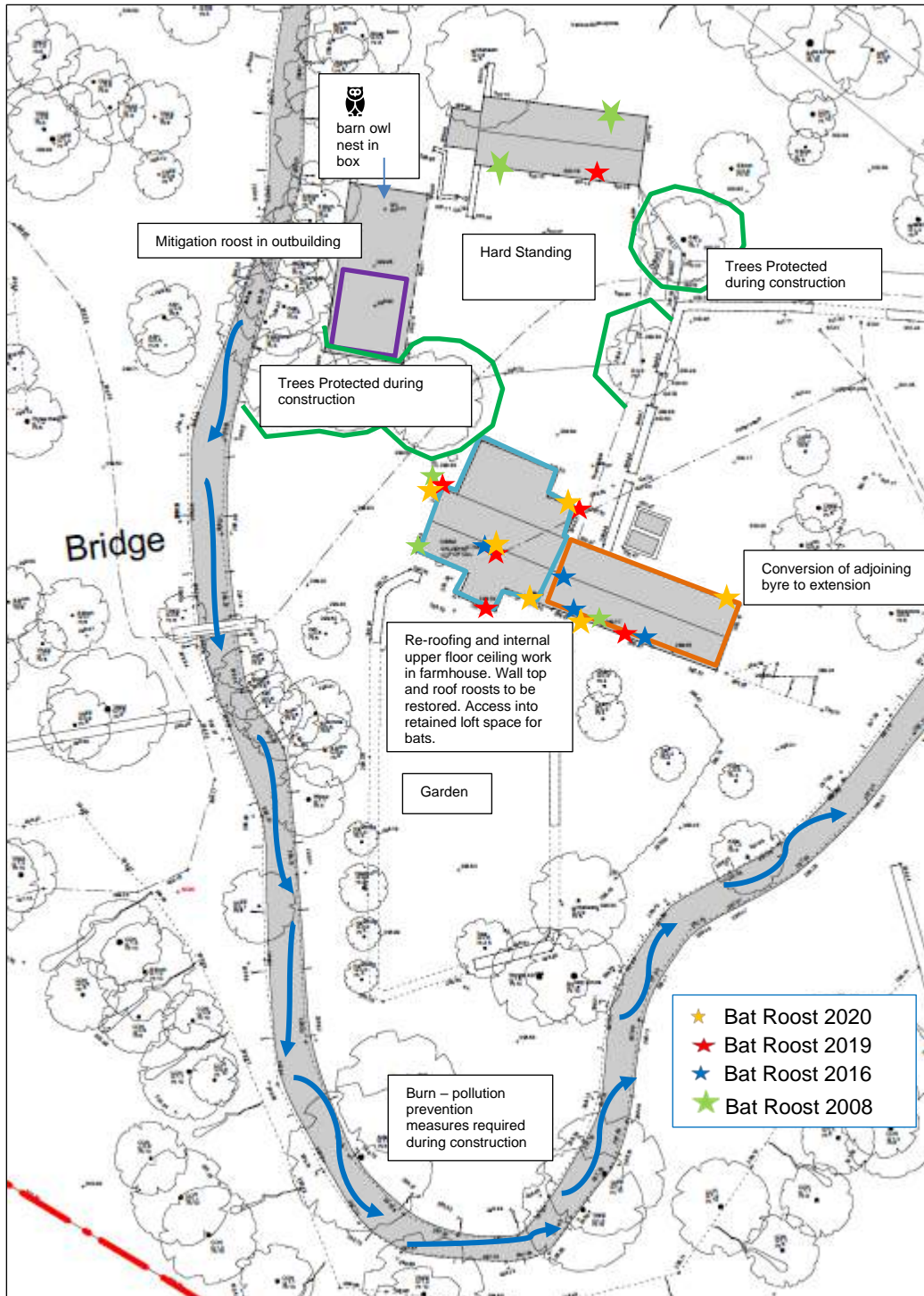


Figure 1. Ecological Constraints and Opportunities Plan (on existing site Plan)

## 1. Introduction.

This report has been prepared by Ann Deary Francis, an experienced ecologist and full member of the Chartered Institute of Ecology and Environmental Management since 2009 with over 20 years' experience in ecology and environmental planning. She holds a Natural England Class 2 Survey Licence for bats (ref 2015-15103-CLS-CLS) and a Volunteer Bat Roost Visitor Licence. She is a trainee BTO bird ringer and barn owl licence trainee. She is an experienced birder and site surveyor, including in aquatic environments, and has undertaken advanced badger, white clawed crayfish, great crested newt and otter survey training.

An ecological impact assessment was commissioned for Threestoneburn House by Mrs B. Carrdus, in order to assess the ecological impacts of the proposed refurbishment of the existing farmhouse and extension into an adjacent stable block. The development was previously permitted under planning reference 08NP0035/08NP0036LBC dated 27/10/2008.

Previous surveys in 2008 and 2016/2017 recorded roosts of several species of bats, including day roosts of whiskered/Brandt's, Natterer's and pipistrelle.

The site (Grid reference NT 97488 20414) is a domestic dwelling house and outbuildings at Threestoneburn House in the Northumberland National Park near Roddam.

Site survey was undertaken by Ann Deary Francis and Ian Bradley, an experienced ecologist and bat surveyor. Ian Bradley, James Bradley, Tom Bradley and Sarah Taylor undertook bat activity surveys.

2016/2017 surveys were undertaken by Steve Betts of BSG and 2008 surveys by Ruth Hadden.

Mitigation and enhancement measures will be proposed to ensure compliance with relevant legislation and the retention and enhancement of biodiversity features in accordance with the National Planning Policy Framework.





Figure 2. Survey area. (Google Earth pro dated 01/07/2018)

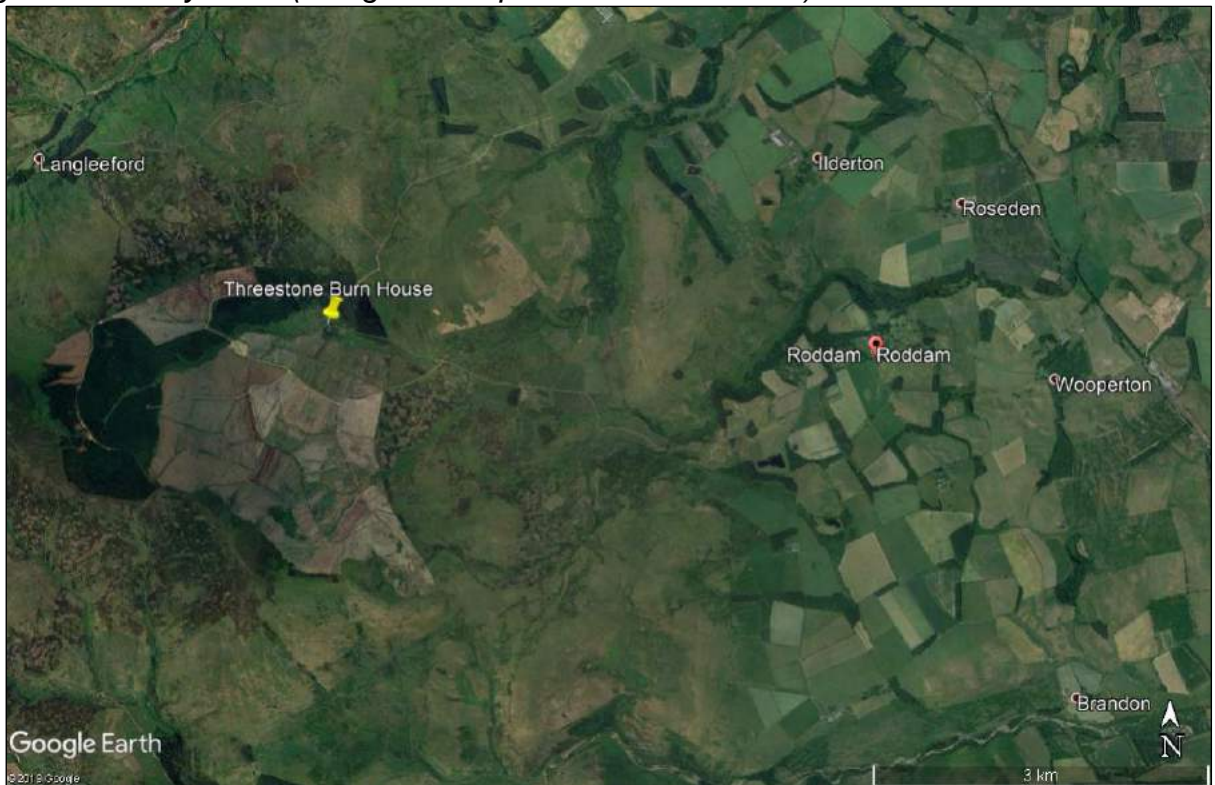


Figure 3. Location of site. (Google Earth pro dated 01/07/2018)

## 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.

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.

## **2.3 Protected Species.**

### **2.3.1. Bats**

In Britain all bat species and their roosts are legally protected, principally under the Conservation of Habitats and Species Regulations (2017), with additional protection under the Wildlife and Countryside Act (1981) (as amended, including under Schedule 12 of the Countryside and Rights of Way Act, 2000, which created a new offence of reckless disturbance.

The combined effect of these is that a person is guilty of an offence if he;

- Deliberately captures, injures or kills a bat
- Intentionally or recklessly disturbs a bat in its roost or deliberately disturbs a group of bats.

In particular where this may;

- i. impair their ability to survive, to breed or reproduce, or rear or nurture their young;
  - ii. affect significantly the local distribution or abundance of the species
- Damages or destroys a bat roosting place (even if bats are not occupying the roost at the time)
  - Intentionally or recklessly obstructs access to a bat roost.

### 2.3.2. Nesting Birds

All birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to:

intentionally kill, injure or take any wild bird

intentionally take, damage or destroy the nest of any wild bird while it is in use or being built

intentionally take or destroy the egg of any wild bird

intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is in, on or near a nest with eggs or young; or disturb the dependent young of such a bird. Barn Owls are named in Schedule 1 of this Act.

### 2.3.3. Amphibians and Reptiles

All native amphibian and reptile species are protected under UK laws to varying degrees.

Amphibians and reptiles fall into three groupings with differing levels of protection:

#### ***Widespread Amphibians***

The palmate newt, smooth newt, common frog and common toad are listed on Schedule 5 of the Wildlife and Countryside Act 1981. Their inclusion on Schedule 5 gives 'partial protection'. In addition to the restrictions on sale (as for the widespread amphibians, above) they are also protected from intentional killing or injuring.

#### ***Widespread Reptiles***

Four reptile species, slow-worm, viviparous (or common) lizard, grass snake and adder also have protection under Schedule 5 of the Wildlife and Countryside Act 1981.



### **European Protected Species**

These are strictly protected species, great crested newt, natterjack toad, sand lizard and smooth snake, which are protected by a combination of both the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017. Protection of these European protected species differs from that of the widespread reptiles in that not only are they protected from killing and injury, but also from disturbance and capture. Additionally, the habitat of European protected species is legally protected, from damage or destruction. The development of a site where European protected species occur can proceed only if licensed by Natural England.

#### **2.3.4 Species of Principal Importance/BAP Priority Species.**

These are species included in the List of Habitats and Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities Act 2006.

### **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.

The assessment has included consideration of;

- designated sites
- habitats and species of principal importance for conservation of biodiversity
- protected species

#### **3.2 Desktop Survey.**

Natural England's Magic on the Map website was accessed for details of any designated wildlife sites within 5km. Records from the Environmental Records Centre North East and Northumberland Bat Group were requested.

Google Earth pro and OS Explorer 1:25,000 maps were used to assess the distance to habitat features close to the site.

Previous bat reports were provided by the applicant along with details of past planning applications.

#### **3.3 Site Survey.**

This ecological assessment has been conducted according the Institute of Ecology and Environmental Management's *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017). Areas of vegetation were noted and any features such as trees or hedgerows.

The survey included an assessment of habitats on site for use by bats following the Bat Conservation Trusts *Bat Surveys for Professional Ecologists, Good Practice Guidelines* (3rd edition, 2016) except where indicated.

The initial site survey was undertaken on 1<sup>st</sup> August 2019 by Ian Bradley (IB) and James Bradley (JB) between 12:00 and 14:00 in good sunny weather. The temperature was 18°C.

The search area is shown in Figure 1. The survey included searching for signs of any wildlife using the site, with the key indicators listed below.

- Tracks, prints, live or dead animals, droppings, fur/hair, feeding remains (all mammals).
- Internal and external evidence of
- Setts or snuffle holes, clear tunnels under boundaries (badger).
- Suitable bat roosting features.
- Signs of nesting or resident birds (such as vacant/old nests).

A high powered torch (LED lenser), a smaller high powered maglite torch and Swarovski 10x42WB SLC binoculars were used during the survey.

Following the initial site survey bat activity surveys were carried out in August and September 2019.

Ian Bradley (IB) has a BSc Hons in Conservation Biology and a post graduate diploma in Survey Techniques for Mammals and Reptiles. He is a freelance ecologist with extensive voluntary and work experience on biological surveying and recording since 2014 including volunteer roost visitor programme assistance and several seasons of bat survey.

Assisting surveyors on activity surveys were:

James Bradley and Sarah Taylor (ST)- two seasons bat survey experience with ecological consultancies, volunteer bat surveys in Northumberland.

Tom Bradley (TB) - has attended bat survey training and assisted on volunteer and professional bat surveys in Northumberland over the past four activity seasons.

Duet bat detectors used in conjunction with an MP3 recorder and EMTouch2 detectors. All recordings were later analysed to confirm the identity of the species where possible. A Professional IR night vision video camera (Canon SA40) was used to assist with roost entrance and exit points. A summary of the bat activity survey timings are provided in Table 1 below.

In 2020 JB used Echometer touch + iphone. ST used a Magenta 5 heterodyne detector supported by an Anabat Express for recording. TB used a Pettersson D230 recorder with Zoom H1 recorder. ADF used Pettersson U256 + windows fusion 5 tablet running Batsound Lite.



A Canon XA40 4K video camera and IR light array was placed to the south elevation of the stables.

Date	Start time	Finish time	Sunset time	Weather
03/08/19	20:40	22.40	21:09	Warm, cloud cover 50%, dry, wind, 11°C
18/08/19	04:20	06.15	05.46	Warm, cloud cover 90%, drizzle, Windy, 09°C
01/09/19	19.30	21.30	20.02	Warm, cloud cover 100%, dry, light wind, 11°C
26/07/2020	21:10	23:00	21:23	Warm, 20% cloud cover dry light wind 16 °C

Roost characterisation survey was undertaken on 24<sup>th</sup> January 2020 by Ann Deary Francis, assisted by Ian Bradley and James Bradley. It took place between 10:00 and 12:00 and included a full internal search of loft spaces. The temperature was 9°C. No updating internal survey of the house was undertaken in Summer 2020 due to Covid 19 restrictions.

Recordings of bat calls from 2019 and 2020 surveys were analysed by ADF using Bat Sound and Analook software.

### 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 at during construction and occupation.

## 4. Baseline Ecological Conditions

### 4.1 General

The site is at grid reference NT 97488 20414 and occupies a position at 300m altitude within intensively managed moorland and plantation woodland. The Site is isolated, accessed via a 3.5 km track that runs from the direction of Roddam to the east.

The area immediately around the house and barn consists of poor semi-improved grassland, amenity grassland, garden areas, disturbed ground and hard-standing. The Threestone Burn runs in a loop around the site from west to east and along the southern boundary.

Threestoneburn House is a two storey stone construction house with a pitched slate-covered roof that is hipped at both ends. The house dates from 1790 and is Grade II listed.

A small stone porch is present on the front of the house, which is south-facing. To the north are slate roofed extensions. A single storey stone construction barn adjoins the eastern end of the house. This has a pitched slate covered roof.

To the north of the site is a metal cladding Dutch barn and an outbuilding (referred to as 'the old house' on 2008 survey) which is split into two sections,

with one of those sub-divided into two floors. The outbuilding is also stone with a slate roof.

#### 4.2 Designated Sites

The site is in the Impact Risk Zone for The Cheviot Site of Special Scientific Interest (SSSI) (500m north), The Allers and Lilburn Valley Junipers SSSI (900m east). Harthope Burn SSSI lies 2.8km north and Roddam Dene SSSI is 4.2km to the east. The Harthope Burn is a constituent of the River Tweed Special Area of Conservation (SAC).

The criteria for impacts on the SSSI do not include householder applications, and providing that pollution prevention measures are used during construction impacts on any of the sites are unlikely.

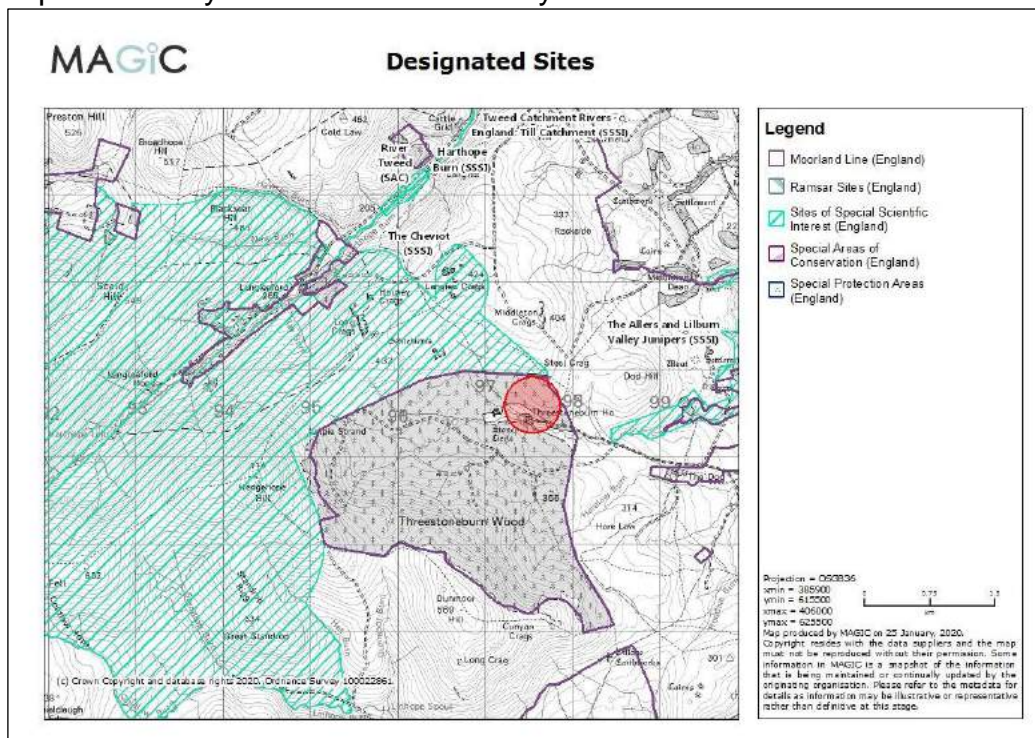


Figure 5. Designated Sites within 2km of the site (from [magic.defra.gov.uk](http://magic.defra.gov.uk))

#### 4.3 Habitats

Figure 6 shows BAP Priority Habitats (listed under section 41 of the Natural Environment and Rural Communities Act 2006) within 2km. A phase one habitat map has not been prepared as the construction footprint is limited to the existing house, outbuildings and gardens.

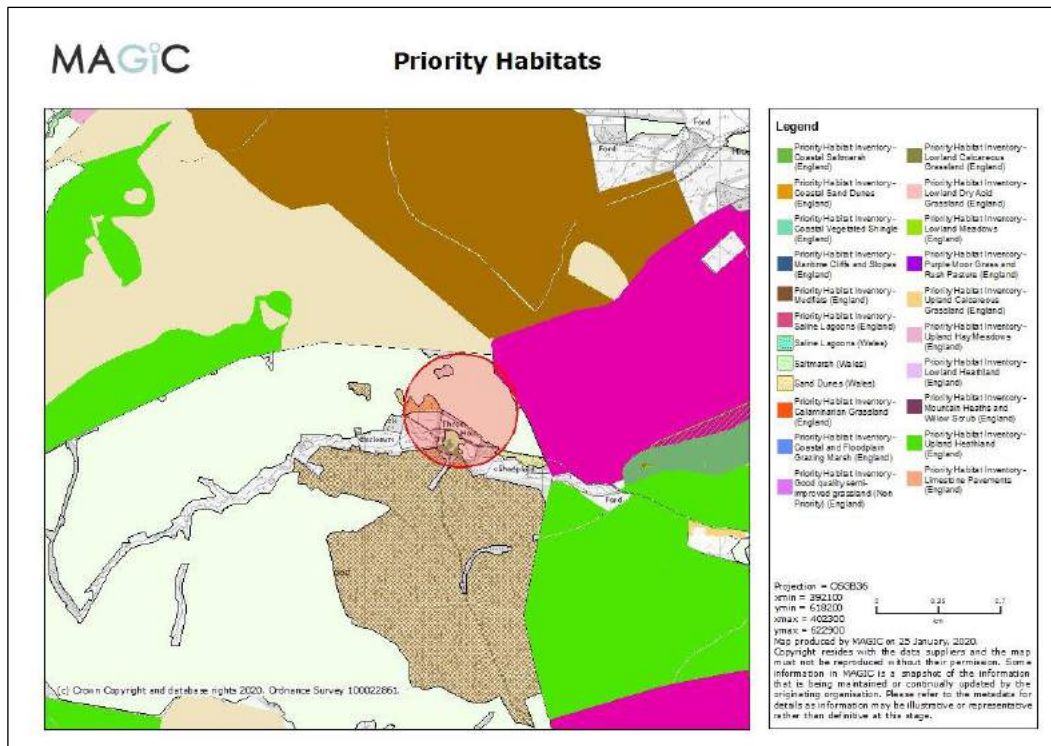


Figure 6. Priority habitats close to the site.

#### 4.4 Species and Species Groups

##### 4.4.1 Desktop Search

Records from the Environmental Records Information Centre North East (ERIC) and Northumberland Bat Group note an assemblage of breeding birds (including black grouse lekking), common lizard, adder, common toad and red squirrel.

Bat records on the site are limited to those from previous surveys on the house and comprise records of Natterer's, whiskered/Brandt's, common and soprano pipistrelle bats.

There are a number of commuting/foraging records of all of the bat species found in Northumberland within 2km, and records attached to settlements including significant numbers of roost records.

Previous bat survey data from the site identified the following roosts;

2008 Day roosts of Natterer's and whiskered/Brandt's bats. Population estimate less than 5 of each bat.

2016/2017 Only building B (stables) was surveyed. Three species were recorded roosting in the barn: common pipistrelle, soprano pipistrelle and a *Myotis* sp bat (with the call characteristics of natterer's bat). All of the roosts are day roosts or non-breeding roosts. Incidental records of "*Myotis* sp bats were recorded flying around the roof of the farmhouse to the west, where their behaviour was noted as being indicative of likely roosting. A bat was noted flying close to the chimney of the main house, three bats were showing swarming behaviour at gutter level near the western corner of the farmhouse.

At 20.03 at least one bat is thought to have returned to the roost at the western corner of the farmhouse. At 20.05 at least three, probably four, bats were swarming at the western corner of the farmhouse. It is possible that one of these bats returned to the roost.”

#### **4.4.2 Plants**

There are a number of mature but low growing trees on the site and some tall ruderal/marshy grassland vegetation near to the Burn. The site is largely set to garden with close cut amenity grassland.

#### **4.4.3 Amphibians & Reptiles**

The construction footprint of the development is limited to garden and hardstanding. Therefore, there are limited suitable habitats for reptiles and amphibians on the site, with the exception of the site boundaries and the area around the Burn. There are a number of records of common amphibians and reptiles in the immediate area and those species can be affected by construction, particularly where habitat piles are accidentally created and utilised. Care must also be taken to limit the construction footprint carefully to avoid incursion into suitable habitat for reptiles and amphibians.

#### **4.4.4 Birds**

Swallow evidence but no nests were noted in the stables. There are a number of features in the buildings that could be used by nesting birds.

#### **4.4.5 Other Mammals**

There is some limited potential for hedgehog and badger to be present on site.

#### **4.4.6 Fish and Aquatic Life**

The Threestone Burn is a tributary of the Lilburn Burn, which is part of the River Tweed SAC 3.5km east. The River Tweed SAC is designated for its importance to an assemblage of fish including salmon and the integrity of the site is dependent on good water quality. Any construction around burns which feed into the River Tweed SAC must be carefully managed to avoid pollution impacts. No in-water working is expected.





*Figure 7. Threestoneburn to the south of the site.*



#### **4.4.7 Bats**

##### **4.4.7.1 Preliminary Roost Assessment & Roost Characterisation Assessment.**

Building A is a two storey stone farmhouse with a slate hipped roof. The window and door frames are timber. Two lean to extensions are present to the north elevation. The walls are generally well pointed but there are numerous PRFs at wall tops and the roofline. Slates have slipped in a number of locations and mortar is missing from ridges and around the base of the brick chimney.

Internally, the roof is part lined, with Type 1F bitumen/hessian felt to the south elevation and bare slate to the north elevation. There is a section of the roof to the south elevation which is lined internally with thin sheets of MDF or OSB board. The ridge is lined to the underside with timber. Joists and battens are roughened timber and a layer of rockwool insulation sits over the ceiling.

Aggregations of small fresh bat droppings were found underneath the boards on the south elevation and around the chimney flue. A single large (old and desiccated) dropping was found in the centre of the loft to the eastern elevation.

In several locations gaps were visible at the roofline with some crevices in the upper wall tops.

Rat and mouse droppings were noted in the loft in heavy concentrations. A thorough inspection was possible as the loft is part boarded with an internal electric light. Several small wasps nests were also noted.

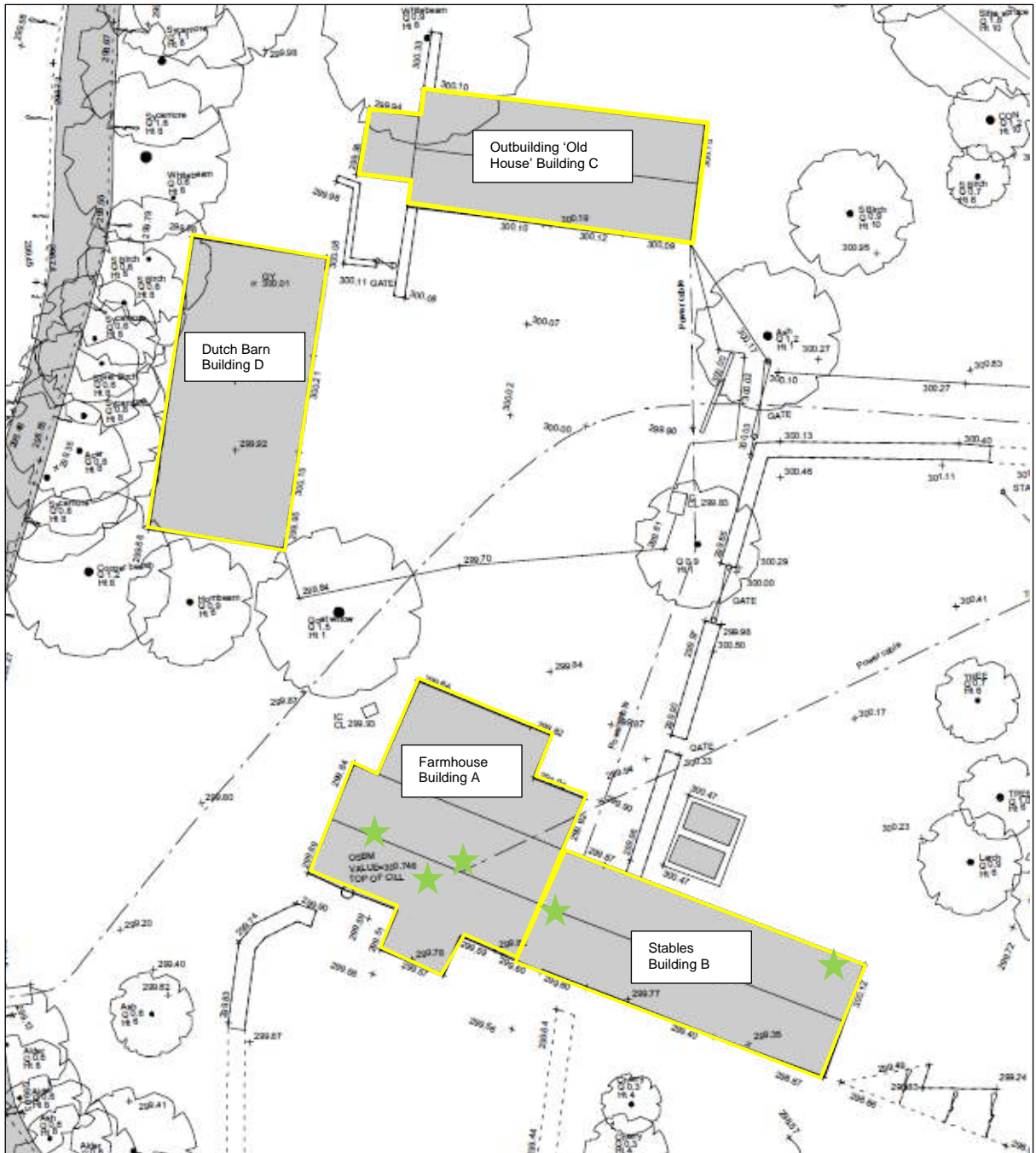


Figure 8. Building Plan showing where evidence of bats was found on internal survey.



*Figure 9. View of the loft*



*Figure 10. Single large bat dropping found in the loft space.*





*Figure 11. Bare slate to underside of north elevation pitched roof of farmhouse.*



*Figure 12. Bat droppings in loft below chimney*





*Figure 13. Timber to underside of ridge.*



*Figure 14. Bat Droppings on chimney flue in the loft.*





*Figure 15. Bat droppings underneath MSD/OSB board to the south elevation pitch close to the chimney.*



*Figure 16. north elevation of farm house .*





*Figure 17. South elevation of farmhouse.*



*Figure 18. West elevation of farmhouse.*

Building B is a single storey stone barn which adjoins the main farmhouse at the western gable. The roof is generally in good condition with few slipped or missing slates. The ridge tiles are intact and sealed with mortar. The exterior walls generally appear to be in good condition with few gaps or holes in the stonework that are suitable for roosting bats.

Gaps are present behind the fascia boarding in some locations, and this may provide access to the headwall sections. There are also a few gaps in the stonework above the doors and some window openings.

The interior of the barn is divided into two equally sized spaces separated by a partition wall that extends the full height of the building. The roof of the western room is lined with hardboard that has come away in places. The roof of the eastern room is unlined. At the gable end walls there were some gaps evident where the purlins and main roof beam entered the walls. An internal gap in the wall was noted to the north elevation allowing access into gaps in the stone wall, and although low down, a single large bat dropping was noted.

The stables have been used to house guineafowl and poultry. As such, it is very difficult to search for bat droppings in amongst the poultry droppings and bedding. Swallow evidence was noted.

A small number of large bat droppings characteristic of natterer's or brown long eared bats were present on the western wall of the stables at the adjoining wall to the house.



*Figure 19. north elevation of building B – stables adjoining farmhouse.*





*Figure 20. south elevation of building B – stables adjoining farmhouse.*



*Figure 21. Interior of stables, eastern side showing unlined roof .*





*Figure 22. bat dropping to the wall of the stables.*



*Figure 23. lined roof to the western section of the stables (adjoining the house).*



*Figure 24. Bat and swallow droppings – west wall of stables adjoining the house*

### Building C

Single storey stone outbuilding with slate roof (referred to as ‘the old house’ in 2008 survey report). The building is in two sections, one of which is open to the pitch.

The eastern part of the building has a timber floor to the loft above a storage area. One or two butterfly wings were noted in this section but no bat droppings. There are numerous gaps offering Potential Roost Features (PRFs) at the wall tops and gable pitches.

### Building D

Steel frame and metal sheeting open fronted Dutch barn. No bat signs noted. Barn owl box and swallow nest cups mounted in the barn. Barn owl nest box active in 2020.





*Figure 25. Building C. outbuilding*



*Figure 26. Building C. gaps under fascia*





*Figure 27. Building C. loft*



*Figure 28. Building C. gaps to eastern gable in loft.*





*Figure 29. Building C. lower floor of outbuilding (eastern section).*



*Figure 30. Building C. western section of outbuilding with lower floor open to the pitch.*





*Figure 31. Building D. Swallow nest cups in steel barn.*



*Figure 32. Building D. Steel framed metal sheeting Dutch Barn.*

#### 4.4.7.2 Activity Surveys.

26<sup>th</sup> July 2020

Activity began less than 20 minutes after sunset, with the first bat (common pipistrelle) recorded emerging from the south elevation of the farmhouse at 21:41. 9 bats (4 common and 5 soprano pipistrelle) in total were recorded emerging from the chimney and wall tops to all elevations of the farmhouse.

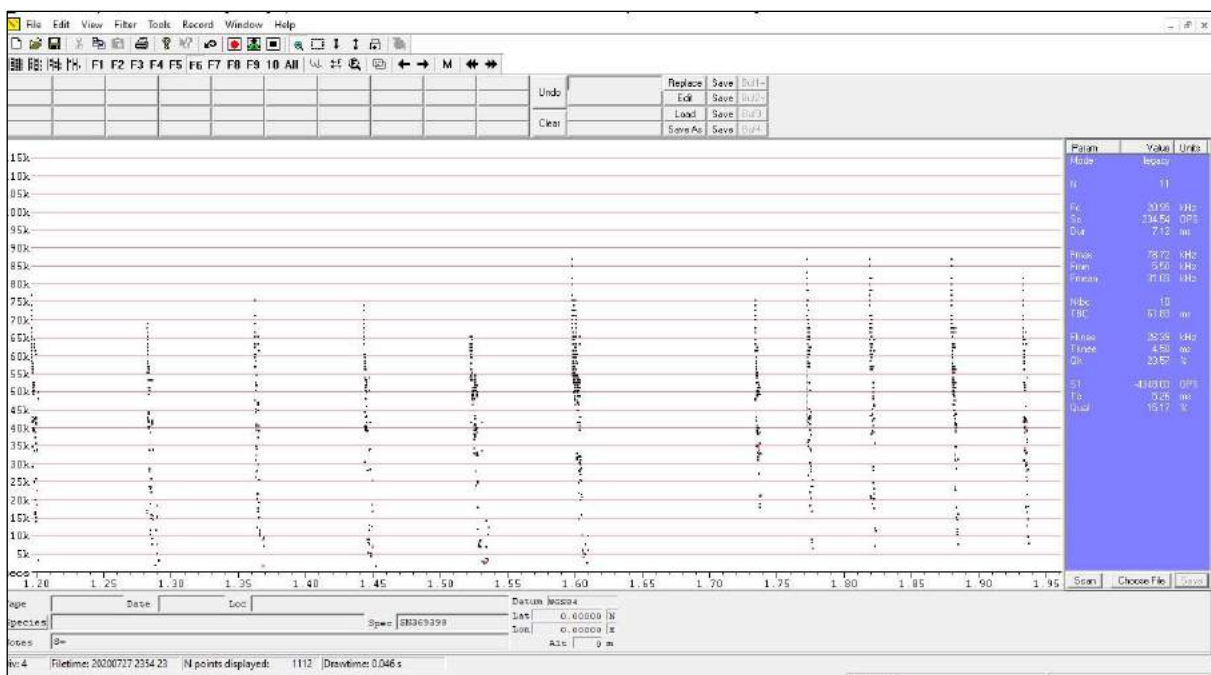
A single soprano pipistrelle was noted emerging from the north elevation of the stables and a large bat emerged 1 hour after sunset from an open door to the south elevation of the stables.

Internal static recording (Anabat Express) in the stables between 26/07/2020 and 03/08/2020 recorded Natterer's bats each evening at around 1 hour after sunset with several recordings being triggered suggesting light testing behaviour. Dropping collection for DNA analysis was difficult as the stables are used to house guinea fowl. The fowl also triggered the static detector, although Natterer's calls were recorded occasionally overnight during the monitoring period.

Brown long eared, Daubenton's and Myotis whiskered/Brandt's bats were also recorded.

An active barn owl nest was recorded in a nest box to the north elevation of the Dutch barn (building D).

The roost entrance/exit points were consistent with those in 2019 with the exception of a single soprano pipistrelle from the north elevation wall top of the stables.



*Internal static recording of Myotis (most likely Natterer's) bat 27/07/2020*

### 3rd August 2019

The first recorded bat was a Noctule. at 21.15, (6 minutes after sunset). A high-flying commute over the site travelling N>S.

The first emergence was recorded during the survey was at 21.30, when two common pipistrelle emerged from beneath the gutter, at the left-hand gable end of the house, on the western side, (Wst 1).

The bat then flew around the building and off to the north. A third bat emerged from the same location at 21.32, followed by 2 more at 21.41 and 21.42.

On the southern side 3 common pipistrelle were seen to emerge beneath the tiles on the stone porch (Sth 1).

At 21:35 a Pip sp was observed emerging from the lead flashing by the front of the chimney (Sth 2). At 21.32 during the same survey a common pipistrelle bat emerged on the western side of house above the main doorway, under the gutter.

Other species noted during the surveys foraging around the house were brown long eared, myotis sp, noctule, none were observed in swarming behaviour or emerging from the house/barn.

### 18 September 2019 - dawn survey.

3 common pipistrelle were observed swarming on the north side (Wst 1), at 05:11. 1 common pipistrelle went in. 2 more were noted entering at the same location.

Swarming action was also observed on the southside of the house (Sth 1) 2 common pipistrelles accessed the porch roof and 1 entered nr the chimney (Sth 2) roof.

At 05:30 2 soprano pipistrelles flew into the barn on the southside and then flew out again. The door to the barn was slightly ajar.

Other species noted during the surveys foraging around the house were brown long eared, myotis sp, noctule, none were observed in swarming behaviour or emerging from the house/barn.

### 1st September 2019



During the survey a soprano pipistrelle bat emerged from above the door of the barn on the south side. The bat emerged at 20.28, 9 minutes after sunset



At 20:22 a common pipistrelle was seen emerging from the northside of the house at location Wst 1. Common pipistrelle, soprano pipistrelle and Myotis sp




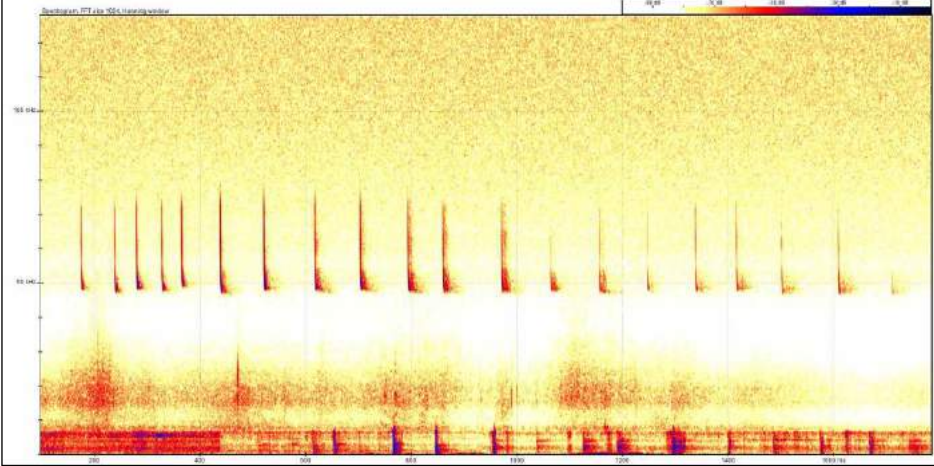
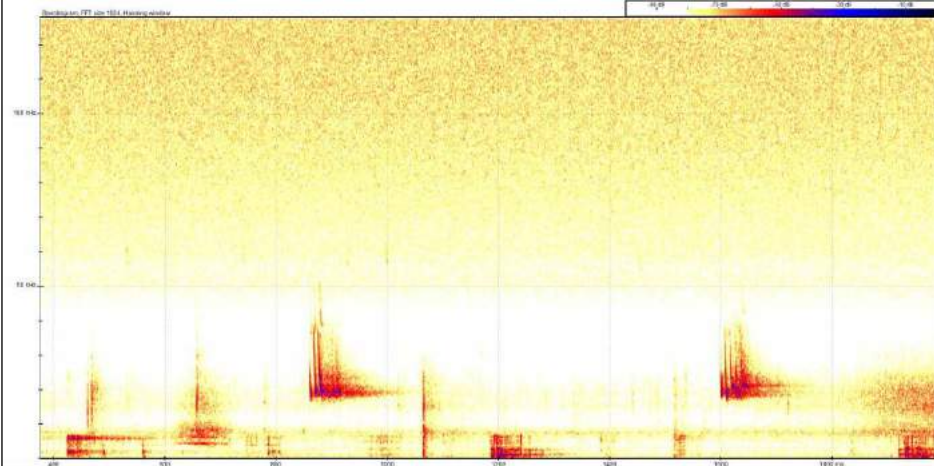
(probably Natterer’s & Daubenton’s bats) were recorded foraging around the area of the house and barn.

Table 2 below summarises the roost locations and number of bats recorded during the surveys.

<b>TABLE 2. ROOST LOCATIONS</b>	
<b>Roost ID</b>	<b>Details</b>
<p><b>Sth 1.</b></p> 	<p>03/08/2019 – 1 common pipistrelle 18/08/2019 – 2 common pipistrelle</p>
<p><b>Sth 2.</b></p> 	<p>03/08/2019 - 3 pip sp. 18/08/2019 – 1 pip</p>
<b>Roost ID</b>	<b>Details</b>

 <p>Bat entry &amp; emergence point</p>	<p>Stables south elevation</p>	<p>18/08/2019 – 2 55 pip into barn and out again</p> <p>01/09/2019 – 55 pip out above door</p>
 <p>Bat emergence</p> <p>Northern aspect</p>		<p>03/08/2019 1no. 45 pip</p>



Roost ID	Details
<p data-bbox="300 230 708 257"><b>Wst 1.</b> North west corner at fascia</p> 	<p data-bbox="1257 230 1380 257">03/08/201</p> <p data-bbox="1257 262 1380 349">9 – 5 soprano pipistrelle</p> <p data-bbox="1257 383 1380 409">18/08/201</p> <p data-bbox="1257 414 1380 501">9 – 5 common pipistrelle</p> <p data-bbox="1257 535 1380 562">01/09/201</p> <p data-bbox="1257 566 1380 654">9 – 1 common pipistrelle</p>
	
<p data-bbox="300 1458 1042 1485">45 pip calls (registering just under 50kHz) emergence at 21.30</p>  <p data-bbox="300 1962 620 1989">Pip social calls 18/08/2020</p>	



A full set of survey data is attached at Appendix 1.

#### 4.4.7.3 2016 and 2017 survey results

Table 3: Bat activity survey details (BSG Ecology, 2017)

Date	Start time	Finish time	Sunset time	Weather
30/08/16	19.35	21.28	20.03	Cool, high cloud 7/8 oktas, dry, wind Bf3, 11°C
15/09/16	19.15	21.00	19.25	Warm, cloud 4/8 oktas, dry, still, 19°C
25/07/17	21.10	23.00	21.29	Warm, cloud 7/8 oktas, dry, light wind, 14°C

During the survey on 30 August 2016 the first recorded bat was a pipistrelle sp. at 20.16, which was 13 minutes after sunset. This bat did not emerge from the barn and as it was a distant call it is possible that the bat emerged from one of the outbuildings elsewhere within the Site. The first roost emergence that was recorded during the survey was at 20.22, when a common pipistrelle emerged from gutter level near to the eastern doorway into the barn. The bat then flew around the building and off to the north. A second bat emerged from the same location at 20.24.

At 20.36 during the same survey a *Myotis* sp bat emerged from the eastern doorway of the barn and then flew off to the east. At 20.47 two bats with calls consistent with those of Natterer's bats were flying within the easterly barn. The bats eventually left the building then flew off to the south.

During the survey on 15 September 2016 the first recorded bat was a soprano pipistrelle at 19.39, 15 minutes after sunset. The bat emerged from under the fascia board directly above the entrance to the eastern barn, then flew south away from the building. At 19.48 a second bat emerged from under the fascia board above the window of the western barn, after which it flew to the south-east alongside the building.

At 19.47 a bat with the call characteristics of a Natterer's bat flew from the entrance of the western barn then flew directly to the south. At 19.50 a second bat with the call characteristics of a Natterer's bat flew from the entrance of the eastern barn, after which it flew off to the south. At 20.01 a *Myotis* sp bat flew out of the east barn and away to the south.

During the same survey *Myotis* sp bats were recorded flying around the roof of the adjacent house to the west, where their behaviour was noted as being indicative of likely roosting. At 19.59 a bat was noted flying close to the chimney of the main house, and at 20.01 three bats were showing swarming behaviour at gutter level near the western corner of the farmhouse. At 20.03 at least one bat is thought to have returned to the roost at the western corner of the farmhouse. At 20.05 at least three, probably four, bats were swarming at the western corner of the farmhouse. It is possible that one of these bats returned to the roost.

During the survey on 25 July 2017 a soprano pipistrelle bat emerged from beneath a fascia board at the western end of the barn on the south side. The bat emerged at 21.38, 9 minutes after sunset. A second bat emerged from the same location at 21.40 and a third bat emerged at 21.46.

At 21.45 a common pipistrelle bat emerged from behind the fascia board over the door on the south side of the barn. At 22.15 a *Myotis* sp bat emerged from under the fascia board at the junction between the barn and the house. No other *Myotis* sp bats were seen to emerge from the barn during the survey.

In summary, the barn supports the following bat roosts:

- A common pipistrelle day roost with up to two bats present (eastern barn)
- A soprano pipistrelle day roost with a single bat (eastern barn)
- A soprano pipistrelle day roost with 1-3 bats present (western barn)
- A *Myotis* sp day roost with 2-3 bats (eastern barn)
- A temporary *Myotis* sp day roost with a single bat (western barn)

It is thought that the barn is being used by either non-breeding female or male *Myotis* sp bats, and that the bats tend to favour the eastern part of the building but occasional temporary roosting may occur in the western section. Four *Myotis* sp bats were recorded entering a roost in the roof to the main house.

It is also thought to be the case that either non-breeding female or male common and soprano pipistrelle bats are using the barn on an occasional basis, with only small numbers of both species being present.

#### 4.4.7.4 2008 Survey Results.

Table 4. Survey Results 2008, Ruth Hadden

Building Section	Description	Comments
Farmhouse A	Stonewalls and slate roof with no sarking.	2008 Traces of the occasional Natterer's bat in the loft. Whiskered/Brandt's bats present on the west and north gables and eaves.
The Byre B	Stonewalls and slate roof with no sarking. Open wall tops and whitewashed. West section lined with polystyrene beneath the slates.	A small scattering of bat droppings and the occasional butterfly wings present in the east section. A Natterer's flew from the slates above the west section
The Old House E	Stonewalls and slate roof with no sarking. Open wall tops with a loft in the east section only, plastered downstairs. Roof light present in the west section.	A small scattering of bat droppings and the occasional butterfly wings present in the east section. A Natterer's seen flying in this section on the second emergence survey.
F	Corrugated metal Dutch barn.	No bat potential. Owl nesting box present.

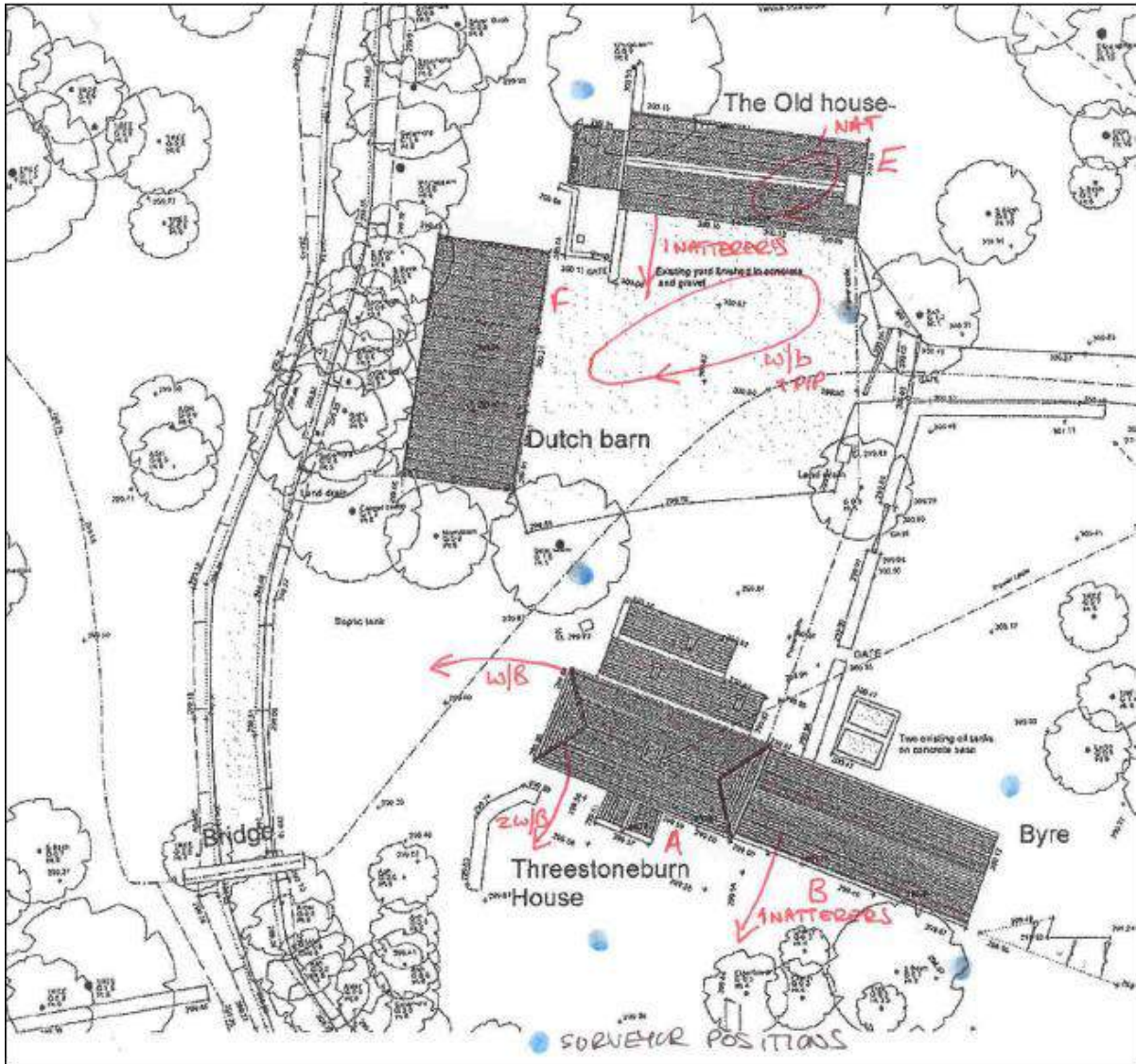


Figure 34. 2008 Survey Results Plan.

#### 4.4.7.5 Survey Constraints.

The surveyors were experienced but unlicensed in 2019. However a suite of sound recordings was checked by an experienced and licensed bat worker to verify the results and the species I.D.

Sound recordings did identify *Myotis* species on the site including natterer's, whiskered/Brandt's and Daubenton's bats. These species can be hard to see as they emerge in very dark conditions, and there is a risk that some emergences or re-entries of these species were not spotted. IR camera recordings of the roost to the north west corner of the farmhouse reinforced the surveyor's findings and identified the exact roost entrance.

The survey area did not include Building C. There are no plans to carry out work to this building, other than to install some internal wall shelters as construction-phase mitigation.



The eastern elevation of the stables (Building B) was not completely covered by the survey although activity would have been visible to those surveyors to the north and south elevations.

In both 2019 and 2020 maternity roosts were recorded as dispersing early in Northumberland. As such, it may be that the bats recorded were stragglers from a maternity roosts of mixed 45 and 55 pipistrelle bats in the farmhouse loft/roof.

#### **4.4.7.6 Further Checking Survey.**

There is a disparity between the species found on site in 2019 and on previous surveys in 2016, 2017 and 2008.

2020 survey results do confirm presence of Natterer's bat in the stables.

Further investigation in the form of checking surveys/internal monitoring and DNA analysis of droppings may be required to inform a Natural England licence application, to ensure that the licence covers the species historically found roosting on the site, as Natural England may insist the licence is related to the most recent survey season's data alone.

However, as the main disparity is in the farmhouse roof roosts (*Myotis* whiskered/Brandt's being replaced by 45 and 55 pipistrelle in 2019 and 2020) which will be modified rather than destroyed the disparity is not significant. The roost types favoured by whiskered/Brandt's and pipistrelle species are similar as they are crevice dwellers so avoidance and mitigation proposed will ensure the ongoing ecological functionality of the site for both species.

For the purposes of the planning application, the mitigation proposed relates to the most recent survey findings as well as proposing mitigation for the species historically found on the site. Any mitigation not included in the licensable works will be included in the licence application as enhancement.

## **5. Description of Proposed Development.**

The works will include the removal of the roof covering and upper floor ceilings to the farmhouse and the extension of the farmhouse to the east into the existing stables block (building B). There will be significant internal works.

Under the previous consent an additional extension to the western elevation was proposed which has been removed from the plans. There are no plans to develop the 'old house'/Building C at this time.

A bat loft will be added to Building D the Dutch Barn.

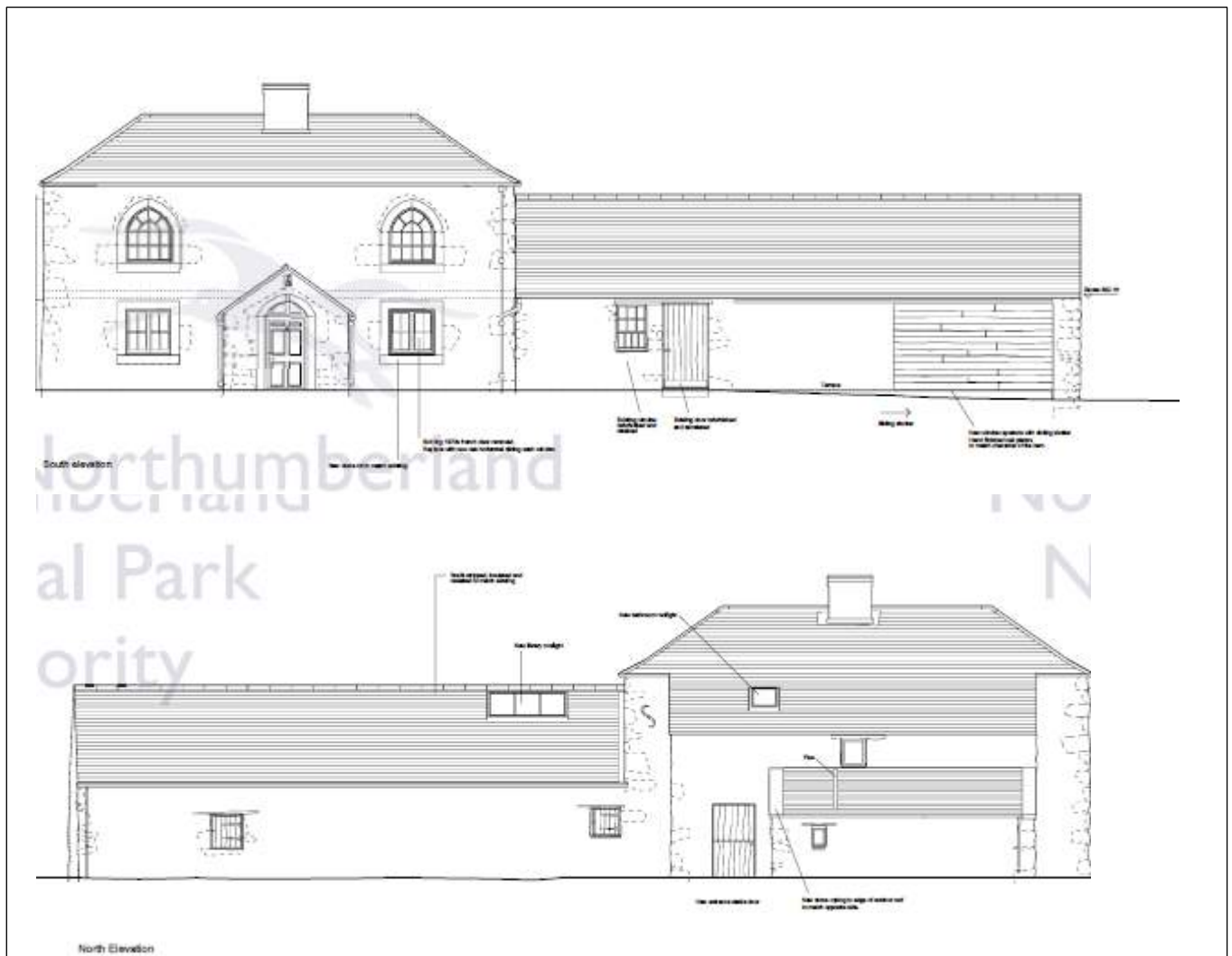


Figure 33. Proposed Elevations.

## 6.0 Assessment of Effects

### 6.1 Site Based Impacts.

The development will impact upon day roosts of common and soprano pipistrelle, although the precautionary principle is adopted here regarding a potential mixed 45/55 pipistrelle maternity roost in the farmhouse roof. A Natterer's day/night roost is confirmed in the stables.

Historically recorded roosts of whiskered/Brandt's and natterer's bats will also be affected.

Without mitigation impacts are likely to include;

- The loss of a potential mixed maternity roosts of low numbers of soprano pipistrelle bats and common pipistrelle bats. *Moderate impact on species.*
- The loss of day roosts of common and soprano pipistrelle bats impacting up to 5 soprano pipistrelle bats and up to 10 common pipistrelle bats. *Low impact on commonly found species.*
- The loss of historically recorded roosts of natterer's and whiskered/Brandt's bats affecting up to 5 bats of each species. *Moderate impact on species*

*less commonly found in Northumberland or on the northern edge of their known range.*

There is no evidence in the loft to suggest that void dwelling species are regularly using the space. The roosts identified over three separate survey seasons over a period of 11 years are restricted to crevice roosts at wall tops and in roof coverings. Where droppings are present in the loft they correspond to those of smaller crevice dwelling bats and appear to have fallen into the void from the roof structures above.

The interior of the stables may occasionally be used by bats, with Natterer's bats recorded in several years.

The mitigation hierarchy requires impacts to be avoided or reduced where possible. In this case the impacts on the roosts will be reduced in a number of ways. As the roof requires a complete strip disturbance cannot be avoided.

The nature of the building poses a risk of hibernating bats being present and as such works will avoid the period November-March inclusive unless the structure has been made unsuitable for hibernation prior to that time.

There is no activity survey evidence to suggest that a maternity roost is present but the potential is there and as such roof stripping works to the farmhouse will avoid the maternity period late May – August, unless maternity roosts are confirmed absent during that season.

#### Impacts with Mitigation

- Seasonal restrictions to certain works will reduce the chance of impacting maternity or hibernation roosts.
- The roosts in the farmhouse will be restored in the new roof covering with the existing roosts subject to disturbance and modification. Low impact.
- Roosts in the stables will be lost, and mitigation will be provided in the Dutch Barn Building D. This will include a bat loft.
- Mitigation and retention of the roosts concerned will maintain the favourable conservation status of the species at site level.

## **7. Mitigation and Enhancement.**

The National Planning Policy Framework (NPPF) requires that the planning system minimizes impacts on biodiversity and provides net gains where possible. 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.

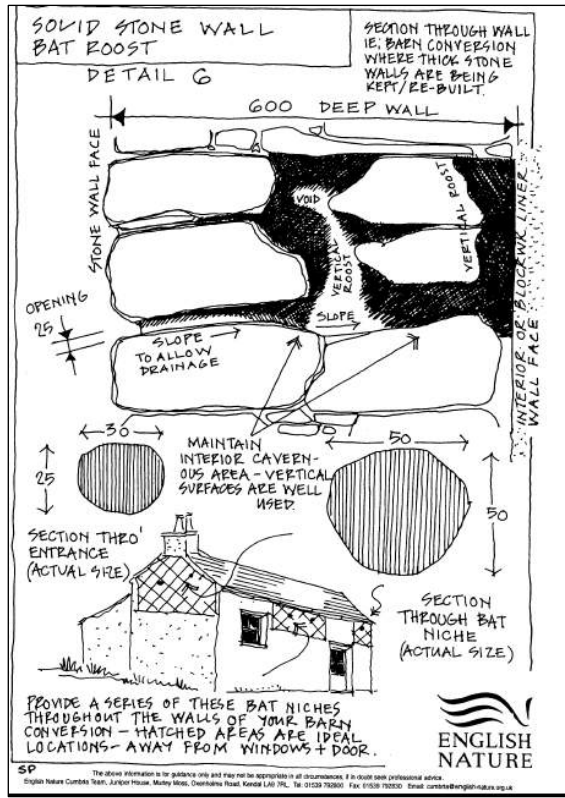


## 7.1 Pollution Prevention

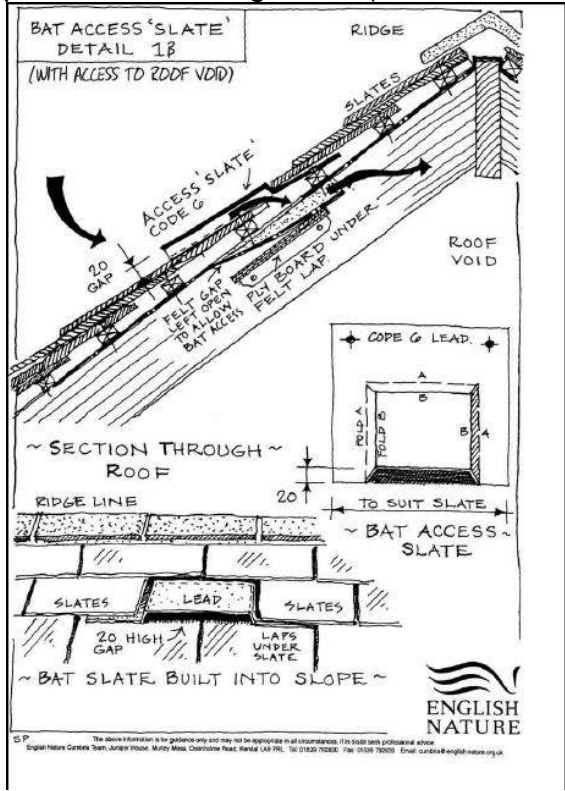
All works on site will follow the recommendations of *Pollution Prevention Guidelines Works and maintenance in or near water: PPG5*. The guidance has been withdrawn by the Government but has not been replaced and is still best practice. Working areas will be clearly defined with access to the burn prevented by barriers or Heras fencing.

## 7.2 On Site Mitigation

- 7.2.1 A Natural England Mitigation Licence will be in place before works commence.
- 7.2.2 Seasonal restrictions: Roof stripping works to the farmhouse roof must avoid the period May-August inclusive unless it is confirmed (June survey) that maternity roosts are not present. Works will avoid the period November-March inclusive unless the structure has been made unsuitable for hibernation prior to that time.
- 7.2.3 **No breathable roofing membrane will be used. It is a condition of licensing that Bitumen type 1F felt with a hessian matrix must be used.**
- 7.2.4 No works will commence until the project ecologist has briefed the contractors on the requirements of the licence and given a toolbox talk.
- 7.2.5 A bat loft will be created in Building D using insulation boards to create an inner shell with bat accesses. 2 Wall shelters (Schwegler 2FE or equivalent) will be placed in this loft along with roughened timbers prior to works commencing.
- 7.2.6 Two insulated bat boxes will be placed in the Dutch Barn Building D. (Schwegler 3FF or equivalent).
- 7.2.7 All known roosts to be fitted with one-way exclusion flaps where possible, for a period of at least 5 consecutive days/ nights throughout a spell of suitable weather conditions.
- 7.2.8 Any works to the recorded roosts will only take place carefully, by hand under the supervision of the project ecologist. Any bats found during works will be transported to the mitigation roosts in Building D by the project ecologist. If bats are found to be injured or in need of care they will be taken away from site and re-released once they are recovered.
- 7.2.9 Roosts will be restored at the wall tops and chimney areas of the farmhouse 'like for like' or using the methods shown below.



7.2.10 The loft and roof of the farmhouse will be restored to enable bats to continue to use the space. Bat access will be created in the same locations recorded as shown below. Timber or boarding sarking to the underside of the felt will be provided in the central section of the southern elevation pitch of the farmhouse to replicate the existing roost. (access at the base of the chimney).



7.2.11 All works on site will follow a Method Statement for bats and reptiles/amphibians.

7.2.12 Any construction pits or trenches will be fitted with suitable means of escape for mammals. Night time working will not be permitted.

7.2.13 Any new lighting must be directed away from boundaries of the site and river corridor, designed to the Bat Conservation Trust/Institute of Lighting Engineers guidance 'Bats and Lighting'<sup>2</sup>

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<sup>2</sup> <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



### 7.3 Mitigation Summary

- A Natural England Mitigation Licence will be in place before works commence.
- Seasonal restrictions: Roof stripping works to the farmhouse roof must avoid the period May-August inclusive unless it is confirmed that maternity roosts are not present. Works will avoid the period November-March inclusive unless the structure has been made unsuitable for hibernation prior to that time.
- **No breathable roofing membrane will be used. It is a condition of licensing that Bitumen type 1F felt with a hessian matrix must be used.**
- No works will commence until the project ecologist has briefed the contractors on the requirements of the licence and given a toolbox talk.
- A bat loft will be created in Building D using insulation boards to create an inner shell with bat accesses. 2 Wall shelters (Schwegler 2FE or equivalent) will be placed in this loft along with roughened timbers prior to works commencing.
- Two insulated bat boxes will be placed in the Dutch Barn Building D. (Schwegler 3FF or equivalent).
- All known roosts to be fitted with one-way exclusion flaps where possible, for a period of at least 5 consecutive days/ nights throughout a spell of suitable weather conditions.
- Any works to the recorded roosts will only take place carefully, by hand under the supervision of the project ecologist. Any bats found during works will be transported to the mitigation roosts in Building D by the project ecologist.
- Roosts will be restored at the wall tops of the farmhouse 'like for like'.
- The loft and roof of the farmhouse will be restored to enable bats to continue to use the space. Bat access will be created in the same locations recorded. Timber or boarding sarking to the underside of the felt will be provided in the central section of the southern elevation pitch of the farmhouse to replicate the existing roost.
- All works on site will follow a Method Statement for bats and reptiles/amphibians.
- Any construction pits or trenches will be fitted with suitable means of escape for mammals. Night time working will not be permitted.
- Any new lighting must be directed away from boundaries of the site and river corridor, designed to the Bat Conservation Trust/Institute of Lighting Engineers guidance 'Bats and Lighting'<sup>3</sup>

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<sup>3</sup> <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

- All works on site will follow Pollution Prevention Guidance PPG5.

#### **7.4 Enhancement**

Post construction, landscaping on the site will use locally native species and pollinator friendly species. To the east and west boundaries and river corridor naturalistic planting (woodland edge/floodplain meadow) using locally native plants will soften the edges of the development.

Garden and ornamental planting will be from the Royal Horticultural Society's Perfect for Pollinators Plant List.

[https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/rhs\\_pollinators\\_plantlist.pdf](https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/rhs_pollinators_plantlist.pdf).

## 8. References

Threestoneburn House, Ecological Assessment, BSG Ecology, October 2017.

Threestoneburn, Ilderton - Proposed Development, Bat and Barn Owl Report, Summer 2008, Ruth Hadden.

*Guidelines For Ecological Impact Assessment In the UK And Ireland Terrestrial, Freshwater, Coastal And Marine*, CIEEM, September 2018.

Magic (DEFRA mapping tool) <https://magic.defra.gov.uk/>

Bat Conservation Trust (2012). *Bat Surveys Good Practice Guidelines*.

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

Mitchell-Jones A.J. & McLeish A.P. (1999). *The Bat Workers' Manual*. English Nature.

Altringham, John D (2003). *British Bats*. Collins New Naturalist Library Book 93.

Altringham, John D (2001). *Bats. Biology and Behaviour*.

Russ, Jon (2012). *British Bat Calls, a Guide to Species Identification*.

Dietz, Christian *et al* (2009) *Bats of Britain, Europe and North West Africa*.

Northumbria Mammal Group *Mammals, Amphibians and Reptiles of the North East*, Northumbrian Naturalist Volume 73 2012,

Sterry, P. Collins *Complete Guide to British Trees*.

Chartered Institute of Ecology and Environmental Assessment Technical Guidance  
[www.cieem.net](http://www.cieem.net)

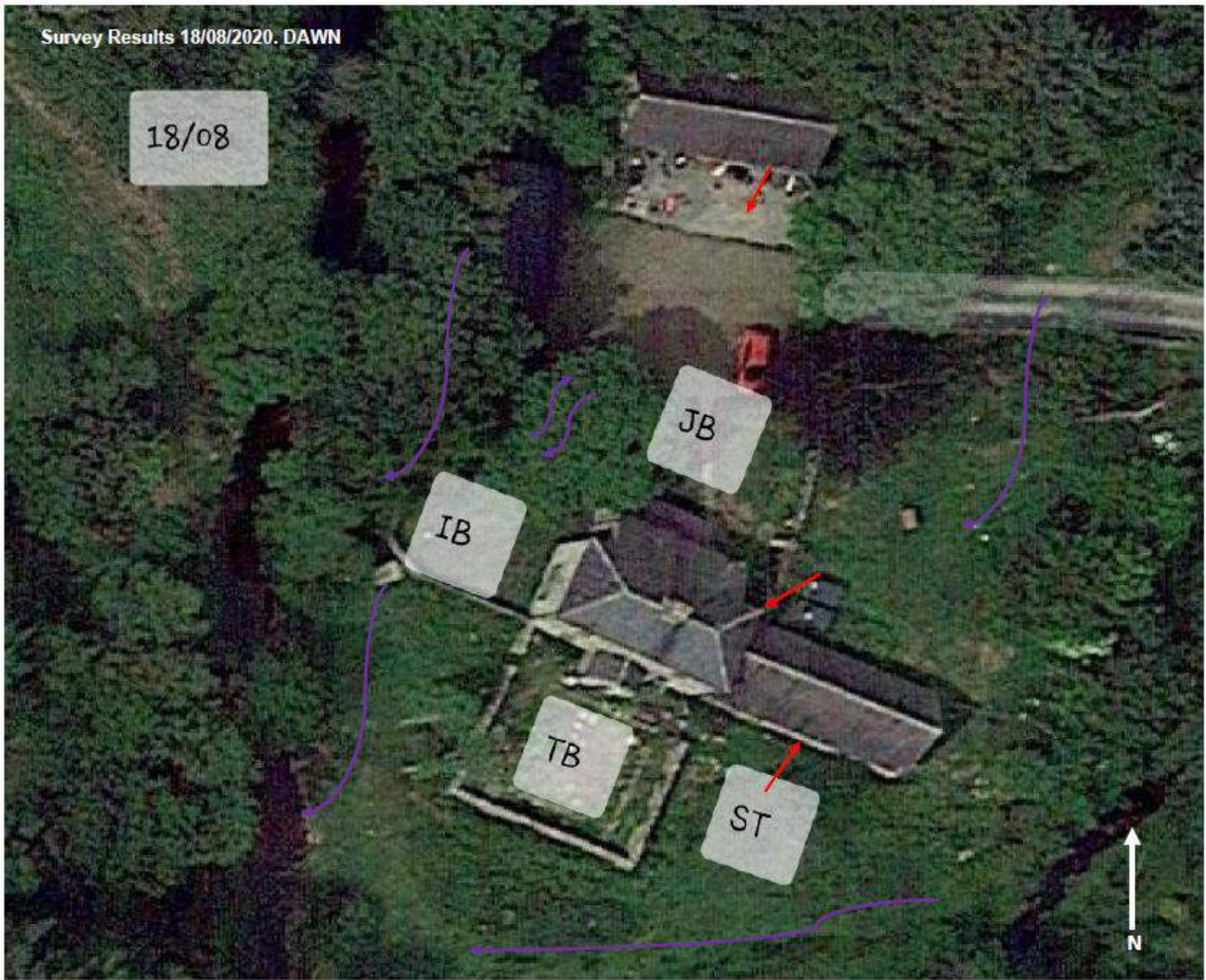


# APPENDIX 1. Bat Survey Data (2019 and 2020)





18/08





Survey Results 01/09/2020

01/09





Location		Sunset	Date	Start	Finish	Temp	Wind	Cloud cover	
3Stoneburn house		21.09	03/08/2019	20:40	22:40	11	1	60	
Surveyor	Time Obs	Species	No of bats	Emerg	Entry	Forage	Commute	Height	Notes
JB	21:15	?	1						
IB	21:25	Spip	1						
JB	21:27	Cpip	1	X					
JB	21:28	Cpip	1						
TB	21:30	Cpip	1						
IB	21:30	45 pip	2	X					45 pip by sound analysis ech just below 50
IB	21:31	?	1	X					SNH no echo
TB	21:32	?	1	X					
TB	21:32	Cpip	1						
IB	21:32	Spip	4						
TB	21:35	?	3	X					
IB	21:35	Spip	4						SNH no echo
IB	21:36	Myotis	1						HNS
JB	21:38	Cpip	1						
IB	21:38	?	1						
IB	21:41	?	1	X					SNH no echo
IB	21:42	?	1	X					SNH no echo
JB	21:46	Cpip	1						
JB	21:57	Spip	1						
IB	21:57	?	1						
IB	21:58	Spip	1						
JB	22:04	Myotis	1						
IB	22:04	Spip	1						HNS Tawny owl
TB	22:10	Noctule	1						
TB	22:26	Spip	1						
TB	22:27	Spip	1						
IB	22:27	Cpip	1						HNS
TB	22:29	Spip	1						
JB	22:30	Cpip	1						
TB	22:30	Cpip	1						
TB	22:31	Cpip	1						
IB	22:31	Cpip	1						HNS
TB	22:32	Spip	1						
IB	22:32	Cpip	1						HNS
TB	22:33	Cpip	1						
IB	22:33	Spip	1						HNS
JB	22:36	BLE	1						
TB	22:37	Daub	1						
JB	22:38	Spip	1						
IB	22:38	Daub	1						HNS
TB	22:39	Cpip	1						

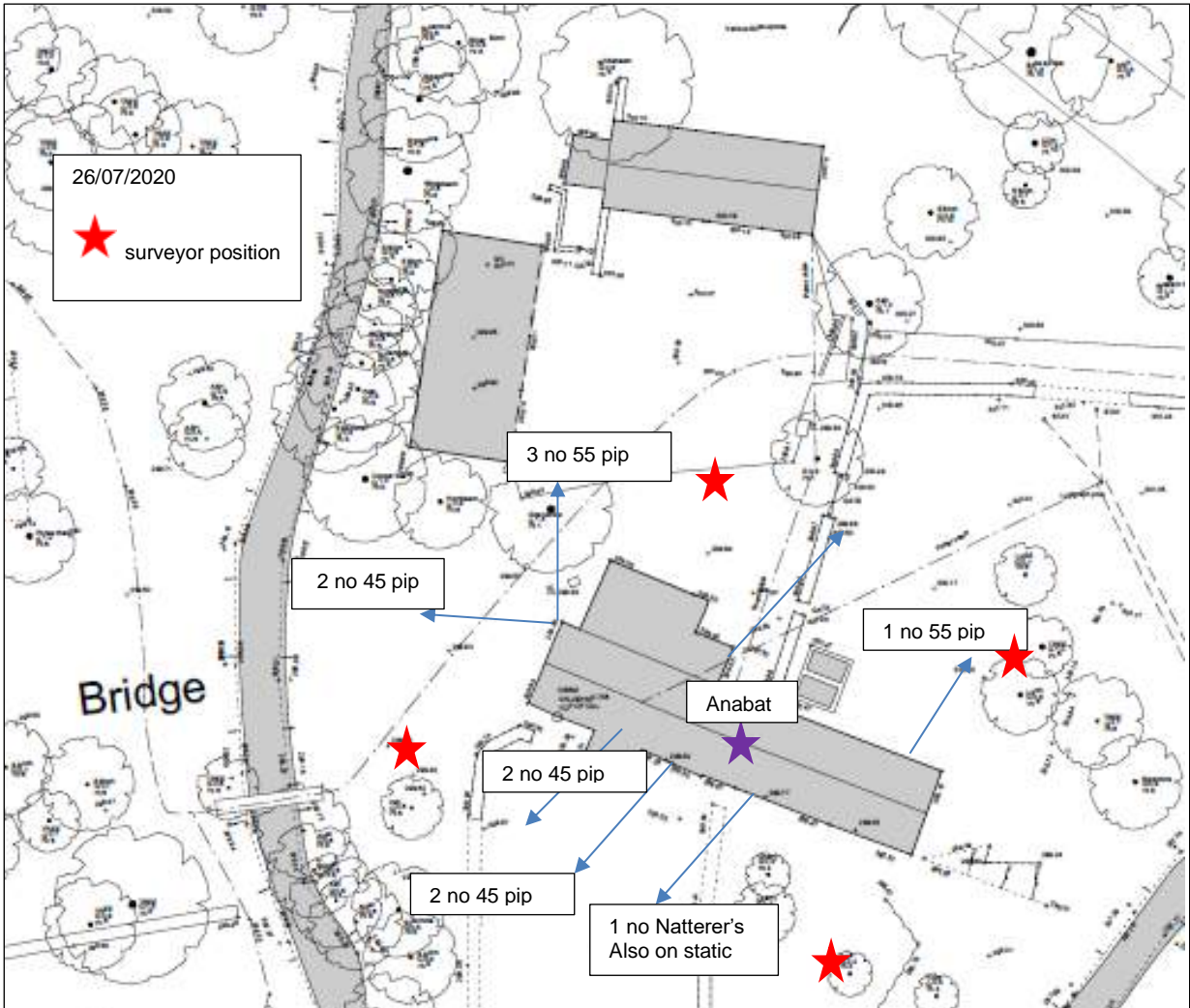
Location	Date	Sunrise	Start	Finish	Temp	Wind	Cloud cover		
3Stoneburn house	18/08/2019	05:46	04:30	06:30		1	60		
Survey or	Time Obs	Species	No of bats	Emergence	Entry	Forage	Commute	Height	Notes
<b>IB</b>									<b>Camera duty</b>
JB	04:35	Spip	1						
JB	04:40	Cpip	1						
JB	04:51	Spip	3						
ST	04:52	?							
TB	04:52	Cpip							
ST	04:53	Cpip							
JB	04:53	Spip	1						
ST	04:54	Cpip							
ST	04:55	Cpip							
TB	04:55	Cpip							
JB	04:55	Cpip	1						
ST	04:56	Cpip							
TB	04:56	Cpip							
JB	04:56	Cpip	1						
ST	04:57	Cpip							
ST	04:57	Spip							
TB	04:57	Spip							
ST	04:58	Spip							
TB	04:58	Spip							
JB	04:58	Cpip	1						
ST	04:59	Spip							
ST	04:59	Cpip							
JB	04:59	Cpip	1						
ST	05:00	Spip							
TB	05:00	Spip							
TB	05:01	BLE							
JB	05:01	Spip	2						
ST	05:02	Cpip							
TB	05:02	Cpip							
TB	05:02	Spip							
TB	05:03	BLE							
ST	05:04	Cpip							
TB	05:04	Spip							
JB	05:04	Spip	1						
JB	05:05	Spip	1						
ST	05:06	Cpip							
TB	05:06	Spip	3						
ST	05:07	Cpip							
TB	05:07	Cpip							
JB	05:07	Cpip	3						
ST	05:08	Cpip							
TB	05:08	Cpip	2						

JB	05:08	Cpip	2						
ST	05:09	Cpip							
TB	05:09	Spip							
JB	05:09	Spip	2						
ST	05:10	Cpip	4						
TB	05:10	Cpip	2						
JB	05:10	Spip	2						
ST	05:11	Cpip	2						
JB	05:11	Cpip	4		X				
ST	05:12	Cpip	2						
TB	05:12	Cpip	2						
TB	05:12	Spip							
ST	05:13	Cpip							
TB	05:13	Cpip							
TB	05:14	Cpip							
TB	05:14	?							
ST	05:16	Spip							
TB	05:16	?	2						
ST	05:18	Cpip	2						
TB	05:18	Cpip	2						
JB	05:18	Spip	1						
ST	05:19	Cpip	3						
JB	05:19	Spip	4						
ST	05:20	BLE							
TB	05:20	Cpip	3						
ST	05:21	Cpip	3						
TB	05:21	Cpip	2						
ST	05:22	Cpip							
JB	05:22	Cpip	2						
ST	05:23	Cpip							
TB	05:23	Cpip							
ST	05:24	Cpip							
TB	05:24	Cpip	2						
JB	05:25	Cpip	1						
ST	05:26	Cpip							
ST	05:27	Spip							
JB	05:27	Spip	3						
ST	05:28	Cpip	3						
TB	05:28	Cpip							
TB	05:28	Npip							
ST	05:29	Spip							
TB	05:29	Cpip							
TB	05:29	Spip							
ST	05:30	Spip	2	X					
TB	05:30	Spip							
JB	05:30	Spip	1		X				
JB	05:34	?	1		X	pip social calls by sound analysis			



Location		Date	Sunset	Start	Finish	Temp	Wind	Cloud cover	
3Stoneburn house		01/09/2019	20:02	19:30	21:40	11	1	60	
Surveyor	Time Obs	Species	No of bats	Emerge	Entry	Forage	Commute	Height	Notes
ST	20:20	Cpip	1						HNS
TB	20:20	Cpip	1						
ST	20:21	Cpip	1						HNS
TB	20:21	Cpip	1						
JB	20:22	Cpip	1	X					
TB	20:23	?	1						
TB	20:24	Spip	1	x					
JB	20:28	?	2						
ST	20:28	?	1						SNH flew around house
JB	20:30	Cpip	1						
ST	20:30	BLE	1						HNS
TB	20:30	BLE	1						
ST	20:31	?	1						SNH flew over barn
JB	20:33	Cpip	1						
TB	20:36	Spip	1						
JB	20:38	Spip	1						
TB	20:38	Spip	1						
JB	20:39	Cpip	1						
TB	20:39	Spip	1						
JB	20:49	Cpip	1						
JB	20:50	Cpip	1						
ST	20:50	Cpip	1						HNS
ST	20:52	Cpip	2						HNS
ST	20:52	Myotis	1						HNS
TB	20:52	Myotis	1						
JB	20:53	Cpip	1						
JB	20:53	Myotis	1						
TB	20:53	Cpip	1						
ST	20:59	Cpip	2						HNS
TB	20:59	Cpip	2						
JB	21:00	Spip	1						
ST	21:00	Cpip	1						HNS
TB	21:00	Daub	1						
TB	21:00	Cpip	1						
JB	21:02	Spip	1						
ST	21:02	Spip	1						HNS
TB	21:02	Spip	1						
ST	21:03	Cpip	1						HNS
ST	21:03	Spip	1						HNS
TB	21:03	Spip	1						
ST	21:04	Spip	1						HNS
TB	21:05	Spip	1						
ST	21:11	Spip	1						HNS
TB	21:11	Spip	1						

JB	21:12	Spip	1						
ST	21:12	Spip	1						HNS
TB	21:12	Spip	1						
ST	21:13	Cpip	1						HNS
TB	21:14	Cpip	1						
JB	21:15	Cpip	1						
ST	21:15	Cpip	2						Flew over barn
TB	21:15	Cpip	1						
ST	21:16	Cpip	1						Foraging around barn and house
ST	21:17	Cpip	1						HNS
JB	21:18	Cpip	1						
ST	21:18	Cpip	1						HNS
JB	21:19	BLE	1						
ST	21:20	?	1						HNS
ST	21:20	Cpip	1						HNS
ST	21:20	Cpip	1						HNS
JB	21:22	Myotis	1						
ST	21:23	Cpip	1						HNS
ST	21:25	Cpip	1						HNS
ST	21:26	Cpip	2						HNS very faint calls
JB	21:31	Myotis	1						





Location		Sunset	Date	Start	Finish	Temp	Wind	Cloud cover	
3Stoneburn house		21:23	26/07/2020	21:10	23:00	16	1 to 2 BS	20%	
Surveyor	Time Obs	Species	No of bats	Emergence	Entry	Forage	Commute	Height	Notes
ST	21:36	55 pip	1						
ADF	21:39	pip	1				x		not close
TB	21:40	45 pip							HNS
JB	21:41	45 pip	1	x					not sure exactly where
TB	21:42	45 pip							HNS
JB	21:43	55 pip		x					flew past three times
ST	21:46	55 pip	1	x					SNH from under guttering (anabat picked up 55 pip)
ADF	21:47	55 pip	1				x		v fast pass close by
JB	21:51	50 pip	1	x					see plans
JB	21:51	45 pip	1	x					from chimney
TB	21:51	45 pip	1			x			
JB	21:53	55 pip	1	x					see plans
TB	21:53	55 pip	1	x					Poss E under gutter
JB	21:55	55 pip	1						flew around - 2 laps behind me and back over
JB	21:56	45 pip	1						unsure where form
TB	21:56	45 pip							HNS
TB	21:59	55 pip	2	x					Poss E under gutter
ST	21:59	45 pip	1						w. social calls
JB	22:00	45 pip	1	x					from gutter SNH
ADF	22:01	45 pip	1				x		v fast close by
JB	22:02	45 pip							HNS
JB	22:02	45 pip	1						from front of house towards and over me
TB	22:02	55 pip	1			x			2 passes
TB	22:04	45 pip	1			x			2 passes
JB	22:06	45 pip							HNS 3-4 calls
TB	22:07	Barn Owl	1						flew into metal shed (chicks heard later)
ADF	22:08	BLE?	1			x			not close
JB	22:09	barn owl	1						flying
TB	22:09	45 pip	1			x			1 pass
ADF	22:10	Noct	1			x			far away just registered
ADF	22:15	Bat	1	X					silent from doorway nearest house
JB	22:18	45 pip							HNS
TB	22:18	45 pip	1			x			
JB	22:19	BLE?							HNS
JB	22:19	55 pip							HNS
ST	22:19	55 pip	2						flying over roof together

JB	22:20	55 pip						HNS
JB	22:21	55 pip	1			x		flew from behind trees north
JB	22:23	55 pip	1			x		flew up and down past me
JB	22:27	45 pip						HNS
ST	22:29	55 pip	1					passed back?
JB	22:30	55 pip						HNS
JB	22:30	45 pip						HNS
ADF	22:35	Natterers	1			x	x	came around house poss E from gable
ST	22:35	My W/B	1					HNS
JB	22:37	Myotis						HNS long sweeps 30-80khz
JB	22:38	Myotis						same HNS
JB	22:40	Daubenton						HNS
ST	22:41	55 pip	2					HNS several passes
ADF	22:42	55 pip	1			x	x	HNS
JB	22:42	55 pip						HNS
ADF	22:44	45 pip	1			x	x	long sweep HNS couple passes or two bats
JB	22:44	55 pip						HNS - occasional short call
TB	22:44	45 pip						HNS
ADF	22:46	bats	3to 4			x		flying high above roofs
JB	22:51	55 pip	1					flew up burn and NE over house
TB	22:52	55 pip	1			x		1 pass
ST	22:52	My W/B	1					HNS same bat? 22.52 until 22:58
ADF	22:53	45 pip	1			x		HNS
TB	22:54	55 pip						HNS
ADF	22:56	45 pip	1			x		HNS v close for a long time
TB	22:56	45 pip						HNS
TB	22:57	55 pip						HNS
JB	22:58	55 pip						HNS faint calls
JB	22:59	45 pip						HNS odd call - social?
TB	22:59	55 pip						HNS
TB	23:01	55 pip						HNS
TB	23:02	Myotis						