PRELIMINARY ROOST ASSESSMENT & BAT ACTIVITY SURVEYS

BARN AT IVY HOUSE FARM, ROWNALL, WETLEY ROCKS, STAFFORDSHIRE

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1. NON-TECHNICAL SUMMARY

Eyebright Ecology Ltd. was commissioned by Sammons Architectural Ltd. on behalf of John Pointon & Sons to undertake bat surveys of a stone barn at Ivy House Farm, Rownall, Wetley Rocks, Staffordshire, ST9 0BT. The surveys were required to inform a planning application for the conversion of the existing building into a two-storey residential dwelling.

A preliminary roost assessment was undertaken, which involved an internal and external building inspection on 31 March 2017. The surveys were led by an experienced ecologist who is a full member of the Chartered Institute of Ecology & Environmental Management (CIEEM) and holds a current Natural England bat licence.

Two old bat droppings were found but no evidence of a roost was found during the building inspection. The building had several features which could be used by roosting bats, including gaps under tiles and crevices in stone walls, and therefore the building was assessed to be of moderate potential for roosting bats.

A dusk emergence survey and dawn re-entry survey were undertaken on separate occasions on 17 July 2017 and 2 August 2017 respectively. On both surveys one common pipistrelle was seen to emerge / re-enter a crevice near the apex of the eastern gable end of the building.

It was concluded that the building supports a non-breeding day roost for an individual common pipistrelle bat.

If the roost can be retained in-situ ensuring no disturbance in the area of the roost, a licence will not be required. A licence from Natural England **would** be required if there is any unavoidable work to the east gable wall, which has potential to:

- disturb or harm bats (e.g. heavy vibration near the roost, drilling nearby on the outside or inside of the wall, rebuilding of the gable wall, re-roofing, external lighting near the roost)
- block access points (e.g. scaffolding, re-pointing)
- damage or destroy the roost (e.g. rebuilding of the gable wall, re-roofing)

As a precaution, it is recommended that a pre-works endoscope check of any crevices due to be lost or re-pointed within the stonework of the barn is undertaken, as there is a small risk of bats using such features at other times of year. If any evidence of bats was found in any of the crevices, a licence would be required before re-pointing takes place.

The barn supported nesting house sparrows and it is recommended that any works to the building are undertaken between October and February when birds are least likely to be nesting. A pre-works check for 'out of season' nesting birds should also be undertaken. It is recommended that two sparrow terrace nest boxes are installed on the external walls of the barn to allow house sparrows to continue nesting at the site in future.

2. INTRODUCTION

2.1 Background & Objectives

Eyebright Ecology Ltd. was commissioned by Sammons Architectural Ltd. on behalf of John Pointon & Sons, to undertake a bat survey of a barn at Ivy House Farm, Rownall, Wetley Rocks, Staffordshire, ST9 0BT (SJ 95023 50157). The surveys were required to inform a planning application for the conversion of the existing building into a two-storey residential dwelling.

A preliminary roost assessment was undertaken on 31 March 2017. Following this, a dusk emergence and dawn re-entry bat activity survey were undertaken on separate occasions during July and August 2017.

The surveys aimed to establish whether the property supported a bat roost, and if so, the species and numbers present, and status of the roost. The findings will inform any necessary mitigation to ensure the development is undertaken legally and sensitively.

The surveys were led by an experienced and licensed ecologist who is a full member of the Chartered Institute of Ecology & Environmental Management (CIEEM) and holds a current Level 2 Natural England bat licence.

Unless the client indicates to the contrary, information on the species found to be present on the site will be passed to the county biological records centre to update records held for the area.

2.2 Site Description

The site comprised a traditional stone barn within a farm complex of old and modern agricultural buildings (stables and barns) and a residential farmhouse. The surrounding farmland was predominantly semi-improved grassland used for cattle and sheep grazing. Approximately 180m to the south of the site there was a large fishing pool, which was connected to a small tree-lined brook that continued to the east and connected to another wooded watercourse. The village of Wetley Rocks was located approximately 1.8km to the south-east.

2.3 Relevant Legislation

Bats

All 18 British bat species and their roost sites are protected under the Wildlife and Countryside Act (WCA) 1981 as amended and are included in Schedule 2 of the Conservation of Habitats and Species (Amendment) Regulations 2012. Combined, this legislation means that it is illegal to:

- Deliberately or intentionally kill, injure or take a bat.
- Deliberately, intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not)

- Deliberately, intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.

Birds

The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act (CRoW) 2000) and the Natural Environment and Rural Communities Act (NERC) 2006 consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions)
- Disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting.

3. METHODOLOGY

3.1 Preliminary Roost Assessment

An internal and external building inspection of a stone barn at Ivy House Farm (marked Building A on the plans) was undertaken by Eleanor Weir (Natural England bat licence number: 2015-12689-CLS-CLS) accompanied by Carl Capewell (ecologist) on 31 March 2017.

A powerful torch (Clulite, one million candlepower), and binoculars were used to search for evidence of bats which includes droppings, urine splashes, feeding remains, staining and individual bats. Potential roost sites and access points were also recorded.

The building was assessed for potential to support an unseen bat roost, based on the criteria in the table below, which is taken from current Good Practice Survey Guidelines (Collins, 2016).

Potential Suitability for Roosting Bats	**Roosting Habitat**
Negligible	No habitat features (such as crevices, suitable roosting surfaces, access points) present within the structure or tree; where minimal features exist they may be assessed to be very unlikely to be used by bats due to other factors such as lighting, isolation, poor surrounding habitat etc.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, the potential roost sites do not provide enough space/shelter/protection/appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be used for maternity or hibernation).
Moderate	A structure or tree with one or more potential roost sites that could be used by roosting bats but is unlikely to support a roost with high conservation status (e.g. maternity / hibernation roost).
High	A structure or tree that with one or more potential roost sites that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

A search for evidence of nesting birds was also undertaken using binoculars and torch to locate any remains such as active or old nests or nesting material, feathers, egg shells, droppings, pellets and individual birds.

3.2 Dusk & Dawn Bat Activity Survey

A dusk emergence survey of the barn was undertaken on 17 July 2017 with two surveyors. A separate dawn re-entry survey was undertaken on 2 August 2017 also with two surveyors.

The dusk survey commenced 15 minutes before sunset and continued for 2 hours. The dawn survey commenced 2 hours before sunrise and continued 15 minutes after sunrise.

The surveyors used the following bat detectors: Elekon Batlogger M, Anabat Walkabout and Batbox Griffin, with recording devices, to record and identify any bats hears. Bat calls were analysed using BatSound 4.2 and BatExplorer. General bat activity on site (foraging, commuting) was also recorded.

The weather conditions for the surveys are shown in Table 1 below.

Date	Survey Timing	Sunset/ Sunrise	Start / End of Survey	Temperature	Wind (Beaufort Scale)	Cloud cover	Rain
17.7.17	Dusk	21:25	Start	18°C	2	20%	Dry
			End	15°C	1-2	10%	Dry
02.8.17	Dawn	05:28	Start	14°C	2-3	100%	Dry
			End	13°C	2	100%	Dry

3.3 Personnel

The building inspection was led by Eleanor Weir, an experienced ecologist who has held a Natural England bat licence for 13 years (Natural England Level 2 bat licence number: 2015-12689-CLS-CLS) and is a full member of CIEEM. Eleanor was accompanied by Carl Capewell, an ecologist who has been gaining experience of bat surveys since 2015 and has undertaken breeding bird surveys for over 5 years. Carl is a graduate member of CIEEM and is shortly applying for his Level 1 bat licence.

On the dusk emergence and dawn re-entry survey, the lead surveyor was Dave Allen, an experienced ecologist who has undertaken bat surveys for over 6 years. Dave was accompanied by Carl Capewell as the second surveyor on the dusk survey. On the dawn re-entry survey, the second surveyor was Laura McClelland, a graduate ecologist who is gaining experience of bat surveys and other protected species.

3.4 Survey Constraints

An internal assessment of the single-storey lean-to shed connected to the eastern gable end of the barn was not undertaken, as access was limited due to the building being locked.

Bats may use many different roost sites through the seasons, and dusk and dawn surveys undertaken at any time during the main activity season of May to September are likely to be a 'snap-

shot' of the overall picture. Surveys between May and mid-August should determine whether a maternity roost is present, as well as regularly used non-breeding summer roosts.

Myotis bats are difficult to be sure of species from echolocation call alone, as their call parameters can overlap, depending on the habitat they are flying in. With respect to this site, *Myotis* species are likely to be one of the following: Whiskered *Myotis mystacinus*, Brandt's *Myotis brandtii*, Daubenton's *Myotis daubentonii* or Natterer's *Myotis nattereri* bat.

4. RESULTS

4.1 Preliminary Roost Assessment

The barn was a large single-storey building which was constructed from stone and dated between the 18th and 19th century (Plate 1 & 2).

The barn was open to the roof inside (i.e. no roof space present), with a large internal void of approximately 20m in length x 6m in width (Plate 3). The building was not used for storage or any other purpose at the time of survey but it was noted that there were radiators running to keep the building dry; this may also have the effect of raising the internal temperatures slightly.

All the windows and doors were covered with translucent Perspex boards, which made the barn quite light and draught-free inside. The lintels above the doors and windows were constructed from either sandstone or wood. Above some of the wooden window lintels there were gaps (approximately 40mm) between the timbers (Plate 4) which have potential to be used by roosting bats.

The roof was lined with a breathable membrane, and appeared to have been re-roofed within the last 15 years. There had been some fairly recent structural work to the barn, with re-pointing of some of the internal walls and new roof beams. Despite this, there were still crevices present within the internal stone walls of the barn, at a range of heights (Plate 5), which could be used by roosting bats.

Externally, the barn had a single-pitched roof which was covered with clay tiles. Overall, the roof appeared to be well maintained although there were numerous gaps under lifted and missing tiles that were large enough to potentially be used by bats. There were several gaps under the ridge tiles on both the north and south sides of the building (Plate 6), as well as gaps under the end tiles on the gable ends which could allow birds and bats access to the wall tops and potentially into the internal space. The external walls were in good condition, appearing to have been re-pointed in recent years.

Two old bat droppings were found on the ground in the south-west side of the barn which could be from bats foraging through the barn in the past, as there were no fresh droppings or accumulations to suggest a roost was present.

Although there was no obvious evidence of a roost being present, the building does possess features which may be used by roosting bats which in summary include: crevices / cavities in the stone walls, gaps under missing or lifted roof tiles, ridge tiles and gable end tiles.

Given these factors, the building was assessed to have '**Moderate'** potential to support a bat roost.

Several house sparrows *Passer domesticus* were seen flying inside the barn with at least two active nests above a wooden window lintel (Plate 7) and within a wall cavity inside the building.

An attached single-storey lean-to shed was present at the eastern gable end of the barn, which was constructed of concrete blocks and had a corrugated asbestos roof (Plate 8). There was a single window which was boarded up, and a wooden door which had two wooden planks missing, potentially allowing bat or bird access inside. Although access was not possible at the time of the

survey, due to the structure of the lean-to, it is expected that bat roosting potential inside the lean-to is limited. No evidence of bats was found externally.

A plan of the building and results of the inspection are shown in Figure 1 (Appendix 1).

4.2 Dusk Emergence Survey

A dusk emergence survey of the stone barn was undertaken on 17 July 2017 and found one common pipistrelle *Pipistrellus pipistrellus* emerged from the eastern gable end at 29 minutes after sunset.

Bat activity around the building was infrequent, with both surveyors recording occasional common pipistrelles foraging around the site.

No other species of bats were recorded during the dusk survey.

4.3 Dawn Re-entry Survey

A dawn re-entry survey of the barn was undertaken on 2 August 2017 and found one common pipistrelle returning to roost in the east gable end at 46 minutes before sunrise, in a similar location to the bat which had emerged during the July survey. The bat appeared to enter a crevice near the apex (Plate 9 for approximate location). It appears likely the access point would allow the bat to roost on top of the gable wall near to the apex.

General bat activity during the survey was similar to the dusk survey, with common pipistrelles commuting and foraging through the site and *Myotis* bat species heard commuting infrequently.

A summary of the dusk and dawn bat survey is shown in Figure 2 (Appendix 1) and raw data tables are included in Appendix 2.

4.4 Photographs

Plate 1: North side and east gable of the stone barn at Ivy House Farm

Plate 2: Southern side and west gable of the stone barn at Ivy House Farm

Plate 3: Internal views of the barn showing radiators (left)

Plate 4: Gaps potentially suitable for roosting bats between wooden lintel inside the windows of the barn (left) and in wall cavity on external wall of barn (right).

Plate 5: Crevices within the internal stonework of the barn that could be used by roosting bats.

Plate 6: Gaps under ridge tiles and roof tiles of the barn (southern aspect) which could be used by roosting bats.

Plate 7: Active house sparrow nest above the wooden window lintel inside the barn.

Plate 8: The single-storey lean-to which was attached to the eastern gable end of the barn could not be accessed for internal inspection.

Plate 9: The area on the east gable wall where the bat emerged and returned during the dusk and dawn surveys. Likely roost site on top of gable wall (beneath tiles).

5. DISCUSSION & RECOMMENDATIONS

5.1 Summary of Findings

The preliminary roost assessment found no evidence of a bat roost inside the barn. Work had been undertaken on the barn (re-roofing in recent years, structural work and re-pointing) but there were still a number of crevices in internal and external walls, and gaps under tiles which could potentially be used by roosting bats. The barn was assessed to have 'Moderate' potential for roosting bats.

The dusk emergence and dawn re-entry surveys found that the east-facing gable of the barn supports a non-breeding day roost for an individual common pipistrelle bat.

General bat activity was confined to common pipistrelles mainly foraging and commuting through the site, with *Myotis* species recorded infrequently.

The building also supported nesting house sparrows.

5.2 Potential Impacts of Works

The proposals involve the conversion of the barn into a two-storey dwelling. The inside of the barn will become living space. The single storey lean-to on the east side of the barn will be demolished.

If any work is undertaken to re-point or block the crevice on the east-facing gable which allows bats to access their roost, bats could be injured or killed, and a roost would be lost.

If any external lighting causes the roost site to be illuminated at night, the roost may be abandoned.

If works were undertaken during the bird breeding season (generally taken to be March to August inclusive, although some species can nest outside of this period), active bird's nests could be destroyed if present.

5.3 Recommendations

It is recommended that the bat roost in the east gable wall is retained in-situ. The roost is currently being used by an individual common pipistrelle, and whilst it is of low conservation significance, it is legally protected even when the bat is not present.

As re-roofing has been undertaken in recent years, and the gable wall is in good condition, it is assumed that there is no need to disturb the roost as long as re-pointing is avoided in this area, and there is not due to be any external lighting on this end of the building.

The internal conversion works to the barn are unlikely to affect this roost site, as the bat is likely to be roosting on top of the gable wall rather than roosting on the inside of the barn.

A licence from Natural England **would** be required if there is any unavoidable work to the east gable end, which has potential to:

- disturb or harm bats (e.g. heavy vibration near the roost, drilling nearby on the outside or inside of the wall, rebuilding of the gable wall, re-roofing, external lighting near the roost)
- block access points (e.g. scaffolding, re-pointing)
- damage or destroy the roost (e.g. rebuilding of the gable wall, re-roofing)

Precautionary pre-works endoscope inspection

There were some crevices in the stonework and above lintels, mostly inside the building, which will be lost during the conversion work. Whilst there was no obvious evidence of bats using these crevices, there is a small risk that bats could roost in such crevices at other times of year. It is therefore recommended that as a precaution, a licensed bat worker undertakes an endoscope inspection inside the crevices immediately prior to re-pointing. If any evidence of bats is found during this pre-works check, a licence would be required before the crevice is re-pointed.

Birds

As there are active house sparrow nests present, any works undertaken which may affect the nesting sites should be programmed between October and February to avoid harming active nests. It is recommended that a check for nesting birds is undertaken by an ecologist prior to any works on the building, to ensure 'out of season' breeding birds are not present.

As house sparrows are a 'red list' species which have suffered serious decline, partly due to loss of available nest sites in buildings, it is recommended that at least two sparrow terrace nest boxes (32mm entrance hole) are fixed to the external walls to provide nest sites for sparrows in future. The boxes should be installed on the north and east walls to avoid strong sunlight and high winds, and placed at 2-4m in height. 'Woodcrete' sparrow terrace boxes may be preferable to timber as this material is longer lasting. An example may be found at the following link: http://www.nhbs.com/title/174850/1sp-schwegler-sparrow-terrace

A range of bird boxes suitable for other species could be attached to the barn or nearby buildings / trees as a biodiversity enhancement. For example, starling *Sturnus vulgaris* nestboxes (45mm entrance hole) could be attached to the external walls of buildings, at least 2.5m above the ground and a minimum of two nestboxes – as starlings are communal nesting birds. Open fronted nest boxes suitable for robin *Erithacus rubecula* and wren *Troglodytes troglodytes* could also be installed on sheltered / vegetated areas on external walls or nearby trees, out of the reach of predators such as cats.

Further information on sourcing and siting nestboxes can be found at the following websites:

http://www.rspb.org.uk/birds-and-wildlife/read-and-learn/helping-birds/nestboxes/smallbirds/index.aspx

https://www.bto.org/volunteer-surveys/nrs/publications/bto-nestbox-guide

http://shopping.rspb.org.uk/rspb-sparrow-terrace-nest-box.html

http://shopping.rspb.org.uk/apex-starling-nestbox.html

http://shopping.rspb.org.uk/schwegler-open-front-nestbox.html

http://www.nhbs.com/browse/subject/908/bird-boxes

If the planned works do not commence within 18 months of this report it is recommended that an updated bat survey is undertaken to ensure there are no changes in roost status.

6. REFERENCES

Collins, J. (ed.) 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edn).* The Bat Conservation Trust, London.

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

Mitchell-Jones, A.J. & McLeish, A.P. [Eds.] (2004). *The Bat Workers Manual* (3rd edition). Joint Nature Conservancy Council, Peterborough.

Russ, J. (2012). *British Bat Calls – A Guide To Species Identification.* Pelagic Publishing, Exeter.

APPENDIX 1: Ivy House Farm (barn), Rownall, Wetley Rocks, Staffordshire

Figure 1: Building Inspection Results

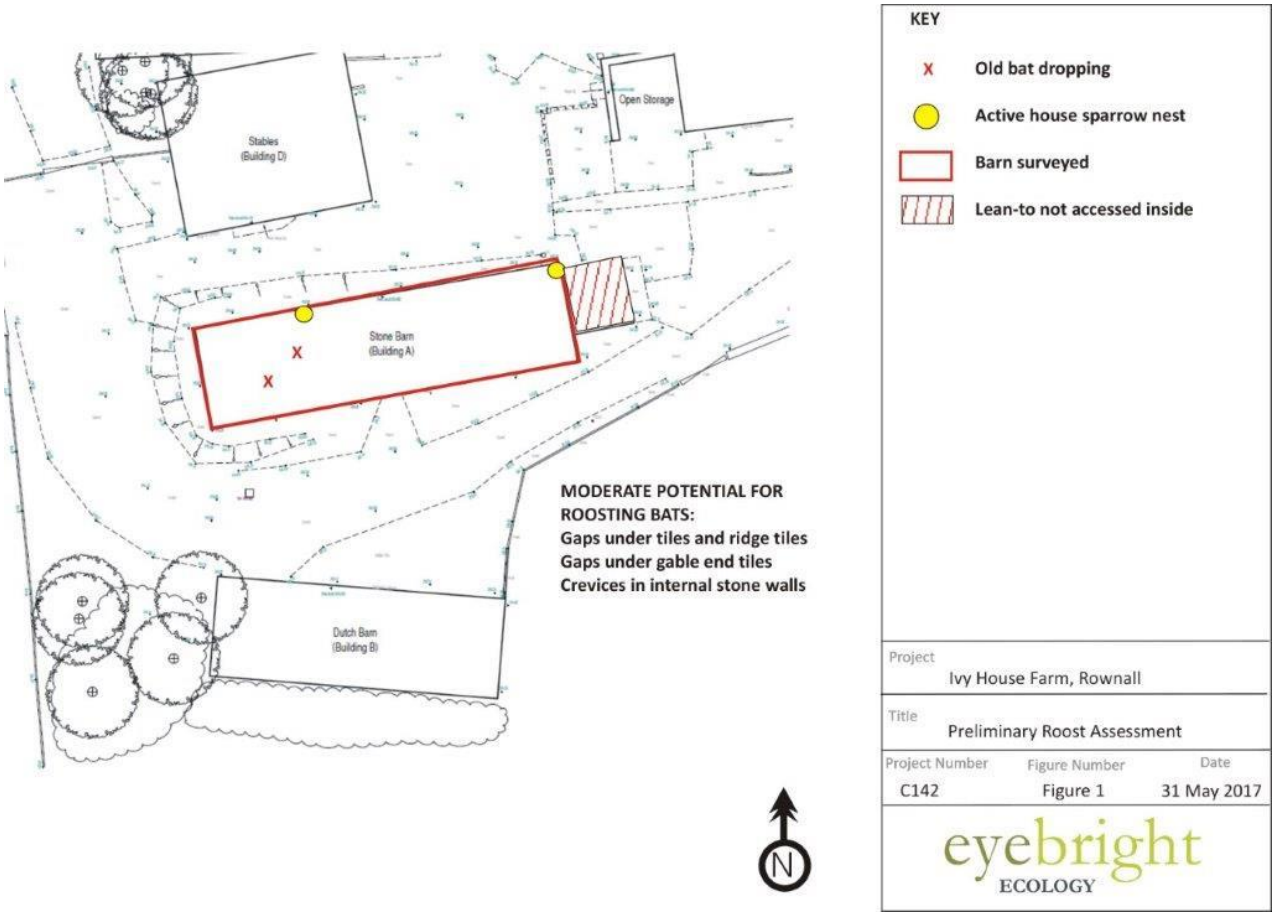
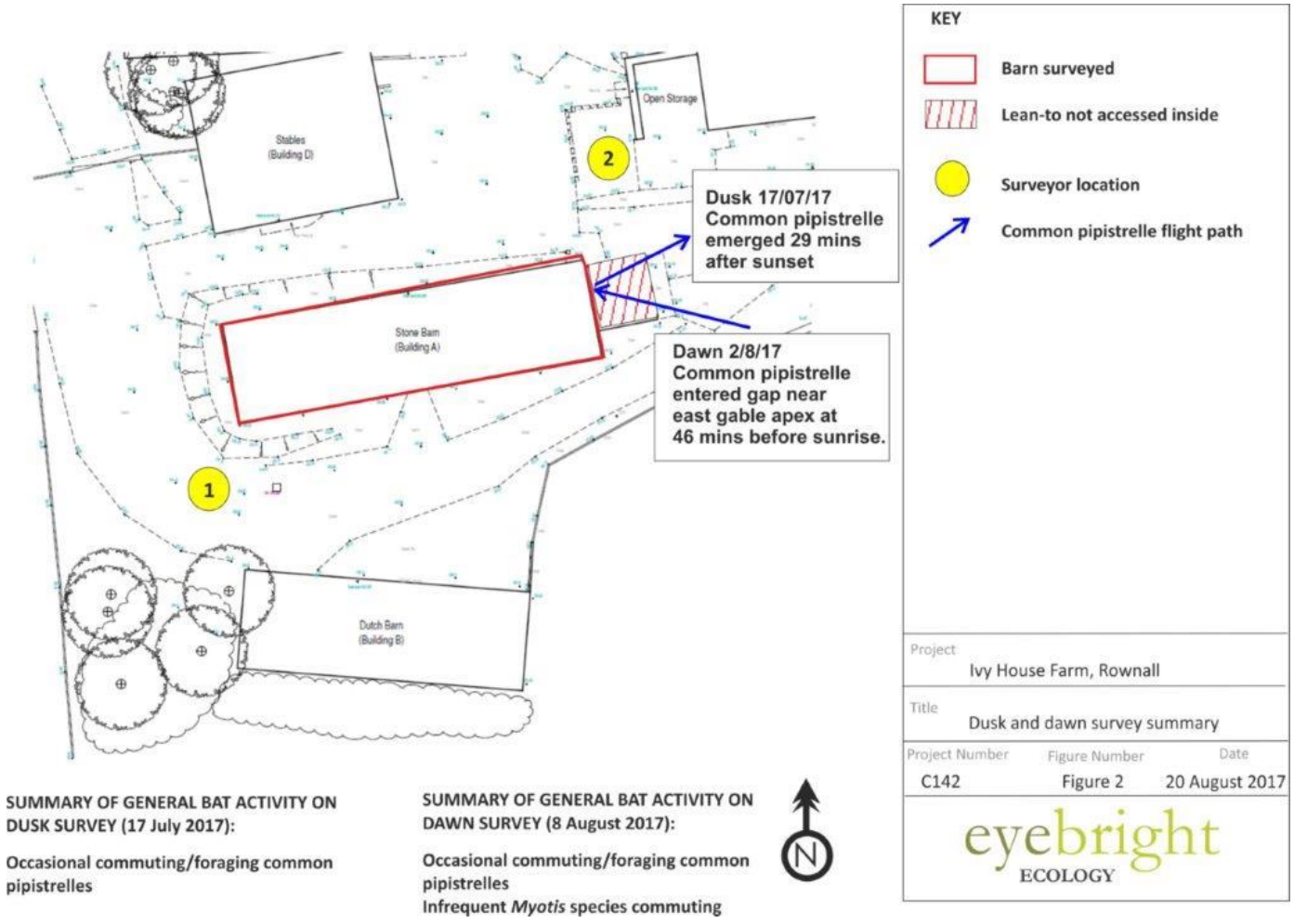


Figure 2: Dusk and Dawn Activity Surveys



APPENDIX 2: Bat Survey Raw Data

Table 2: Dusk emergence activity survey data – 17th July 2017 (See Figure 2 for summary and surveyor locations)

Sunset Time: 21:25

Surveyor 1: Watching southern and western aspects of the building (CC)

Time	Species / Numbers	Behaviour	Notes
21:55	Pipistrelle species	Foraging	Foraging in opposite barn
22:15	Pipistrelle species	Foraging	Foraging in opposite barn (constant)
22:16	Pipistrelle species	Foraging	Foraging in opposite barn (constant)
22:42	Soprano pipistrelle	Foraging	Foraging in opposite barn (constant)

Surveyor 2: Watching northern and eastern aspects of the building (DA)

Time	Species / Numbers	Behaviour	Notes
21:54	**Common pipistrelle**	**Emerged from roost**	**Emerged from eastern gable end**
22:09	Common pipistrelle	Foraging	Continuous for 5 minutes
22:13	Common pipistrelle	Foraging	Continuous for 15 minutes
22:41	Common pipistrelle	Foraging	
22:50	Pipistrelle species	Foraging	

Table 3: Dawn re-entry activity survey data – 02nd August 2017 (See Figure 2 for summary and surveyor locations)

Sunrise Time: 05:28

Surveyor 1: Watching southern and western aspects of the building (LM)

Time	Species / Numbers	Behaviour	Notes
03:54	Common pipistrelle	Commuting	Two passes, not seen
03:55	Common pipistrelle	Commuting	Not seen
04:25	Common pipistrelle	Foraging	West of barn
04:25	Pipistrelle species	Foraging	West of barn
04:25	*Myotis* species	Commuting	West of barn
04:31	Pipistrelle species	Commuting	West of barn
04:32	Pipistrelle species & common pipistrelle x 2	Foraging, chasing & social calling	South of barn
04:32	Common pipistrelle	Foraging	South of barn
04:34	Common pipistrelle	Commuting	South of barn
04:39	Pipistrelle species	Commuting	West of barn
04:45	Pipistrelle species	Commuting	Bat flew towards east gable end

Surveyor 2: Watching northern and eastern aspects of the building (DA)

Time	Species / Numbers	Behaviour	Notes
04:27	Common pipistrelle	Foraging	6 + passes
04:32	Common pipistrelle	Foraging	
04:33	Common pipistrelle	Foraging	
04:35	Common pipistrelle	Foraging	3 passes
04:38	Common pipistrelle	Foraging	
04:41	Common pipistrelle	Foraging	4 passes
04:42	**Common pipistrelle**	**Entered roost**	**Crevice in eastern gable end as seen in**

			previous dusk survey
04:46	Common pipistrelle	Foraging	10 + passes