



BAT

SURVEY REPORT

**WITH DUSK EMERGENCE & REMOTE
MONITORING SURVEYS**

WINSOR HOUSE, BOW

for

MANDY COLES

June-July 2022

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CONTRACT SHEET

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Winsor House, Bow

Bat Survey Report with Dusk Emergence & Remote Monitoring Surveys

Contract No.	Project Contact/Author	Issue No.	Date of Issue
00LE637	Tamsin Lee Ecological Consultant	01	26 July 2022

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1. SUMMARY OF RESULTS & RECOMMENDATIONS

1.1 Results

1. The applicant is applying for Listed Building Consent to replace the roof to the rear of the property to prevent further water ingress. No other works are proposed. The survey site is centred on Ordnance Survey National Grid Reference SS 720 018.
2. A daytime bat survey was undertaken by an experienced and appropriately licensed ecologist from Lee Ecology on 28 June 2022. Weather conditions at the time of survey were dry, calm and overcast with an average ambient temperature of 15⁰C.
3. Both internal and external examinations of the barn were made, in addition to the area of the house covered by the same roof. A small number of bat droppings, broadly characteristic of those produced by long-eared bats, were found in the barn (on a window sill at the northern end). No bats were seen in situ.
4. An old bird's nest was noted at the roof hip but no bird nesting activity was recorded at the time.
5. No evidence of barn owls was noted within the barn.
6. Following the findings of the initial daytime survey, two dusk emergence surveys were undertaken on 12 and 25 July 2022. A remote detector [Anabat Express] was placed within the barn (first floor) and set to record continuously between the dusk emergence surveys.
7. No bats were confirmed emerging from the subject building during the dusk emergence surveys.

8. No bat roosting activity was recorded during the remote monitoring survey.
9. General bat activity (flight passes) was recorded during the dusk emergence surveys by noctule, common pipistrelle, soprano pipistrelle, *Myotis* and long-eared bat.
10. No impact on bat activity (i.e. foraging and commuting) is anticipated as no vegetation removal is proposed and no formal external lighting scheme will be implemented.

1.2 Recommendations

The following recommendations are made to ensure compliance with wildlife legislation (e.g. the Wildlife and Countryside Act 1981 as amended, the Conservation of Habitats & Species Regulations 2010), biodiversity legislation (e.g. the Natural Environment and Rural Communities Act 2006), government guidance and best practice (e.g. UK Biodiversity Action Plan).

1. Based on current proposals and providing the following recommendations are undertaken, it is not thought necessary to apply for a European Protected Species Licence at this juncture (i.e. that works are undertaken when bats are likely to be absent and the building can continue to be used by bats in the future).
2. Major works should not commence during very cold temperatures (i.e. below 7°C on three consecutive days) due to the small risk of a hibernating bat within the building (although considered reasonably unlikely a precautionary approach is advised as good practice). It is recommended that work *commences* during the autumn of 2022 and be completed by the following spring. A licensed

ecologist will be 'on call' during works and can undertake a check for presence of bats, prior to works commencing, if required.

3. When removing roofing material ensure that it is lifted carefully, not slid off. If bats are found during works, the bat(s) should be left to disperse of its own volition and all works should cease until advice has been sought. Any material covering the bat should be replaced gently. Contractors should not attempt to handle bats.
4. A small gap, of 20mm, should be provided at the wall top (post completion of works) to allow bat access and ensure there is no overall net loss in biodiversity. Please see the schematic diagram in the Appendix as an example.
5. Bats should not be allowed to come into contact with modern breathable roofing membranes as they can cause entanglement due to the presence of fibres.
6. As an enhancement feature, and to promote a net gain in biodiversity, at least one bat or bird box should be erected on site. Bat boxes should be installed at height (at least 4 metres but higher if possible and safe to do so), with a south or south-west facing aspect and have a clear flight path (i.e. they should not be obscured by vegetation etc). Bird boxes should be installed at a height where they will not be easily reached by cats and should not be heavily obscured by vegetation. Avoid placing bird nesting boxes in a sunny spot to avoid overheating.
7. The results of this survey are deemed to be valid for 12 months from date of issue. If development works are to be carried out after this time has elapsed an update check will be required to ascertain the site's current status (i.e. change in habitats, condition of buildings, species present etc). Please be aware that, because the natural environment is dynamic, ecological reports generally have a limited period of validity. Many statutory authorities now

regard one year as the maximum time that should elapse before a report will need to be updated (this time period may vary depending on the Local Planning Authority in question).

2. INTRODUCTION

2.1 Scheme Background

This bat survey has been commissioned to provide supporting information on the possible presence of protected species at the site and direct appropriate further works including additional surveys, mitigation, compensation and licensing if required.

2.2 Survey Objectives & Limitations

The objectives of the survey were:

1. to carry out a bat survey of the site in order to determine the possible presence of these species in relation to planning requirements;
2. to provide a concise written report of the results, making any appropriate recommendations to ensure compliance with wildlife law and recognised best practice.

The daytime survey was undertaken in the month of June; it is recognised that field signs of bats and barn owls can be identified by an experienced ecologist at any time of year (e.g. Mitchell-Jones, 2004).

Bat activity surveys are often required to supplement daytime survey findings and are normally undertaken in the summer months (May – August/September inclusive). These surveys have been undertaken within the recognised survey season.

The rear face of the building (eastern elevation) was not surveyed as it lies within the curtilage of another property (not under applicant's ownership).

3. METHODS

3.1 Daytime Bat Survey

One licensed ecologist (bat licence registration number 2015-13745-CLS-CLS, barn owl licence number CL29/00073) undertook this survey on 28 June 2022 following the methods recommended by the Bat Conservation Trust and Natural England (Collins, 2016; Mitchell-Jones, 2004).

Equipment included a hand torch, head torch, ladder, endoscope, hand lens, collecting pots, camera, binoculars and bat detector. A diurnal inspection was made for any bat field signs or evidence of bat roosting. Signs of bat activity may include droppings, feeding remains, absence of cobwebs, vocalisations, staining, urine drops, scratch marks, odour and live/dead bats.

3.2 Dusk Emergence Survey

The dusk emergence survey was conducted using hand-held Echo Meter Touch and Batbox Duet detectors with time expansion, frequency division and heterodyne functions (and recording capability). The surveyor was situated at a strategic point around the building, so as to ensure all sides of the building highlighted as having the potential to support roosting bats (that was accessible), were visually and electronically surveyed. The building was observed for the duration of the survey, in order to record the emergence of any bats.

The dusk survey commenced fifteen minutes before sunset and continued for at least one hour after sunset.

The following personnel were present on the surveys:

Tamsin Lee (licence no. 2015-13745-CLS-CLS) – one surveyor was able to view the accessible elevations.

3.3 Remote Monitoring Survey

An Anabat Express recorder was installed within the first floor of the barn (on a beam) prior to the dusk emergence survey on 12 July 2022 and was scheduled to record continuously to pick up day and night roosting activity. The Anabat Express was collected from the barn on 25 July 2022.

4. RESULTS

4.1 Bat Survey

4.1.1 General Site Description

The survey site comprises a two-storey barn, which is attached to Winsor House, located within the village of Bow. The barn is set within a small courtyard setting and is immediately surrounded by other buildings and gardens with hedge-lined agricultural land in the wider landscape.

4.1.2 Barn

The barn is a two-storey structure constructed of [exposed] cob and brick. The hipped roof is of king post construction and is comprised of unlined corrugated metal sheets. Electric lights are present on the first floor and are in working order. No loft void is present. A single window [intact, closed] is present at the northern gable end wall, allowing some natural light penetration. Gaps were noted at the eaves. A small number of bat droppings, broadly characteristic of those produced by long-eared bats, was noted on the window sill.

No fascias, soffits, hanging slates/tiles or cladding are present externally. The barn is attached to Winsor House at its southern end.



Plate 1: Front of barn (facing south-east)



Plate 2: First floor of barn (facing north)



Plate 3: Underside of barn roof



Plate 4: Bat dropping (pen for scale)



Plate 5: External view of roof (facing north)

4.1.3 Winsor House

A small section of the roof (to be replaced) is located above part of the living space. A loft void is present within this area. The access hatch is intact and kept closed. Height to apex is approximately 1.5 metres. Fibreglass insulation has been laid on the floor of the void. The underside of the roof is unlined. A small number of bat droppings were noted near the access hatch.

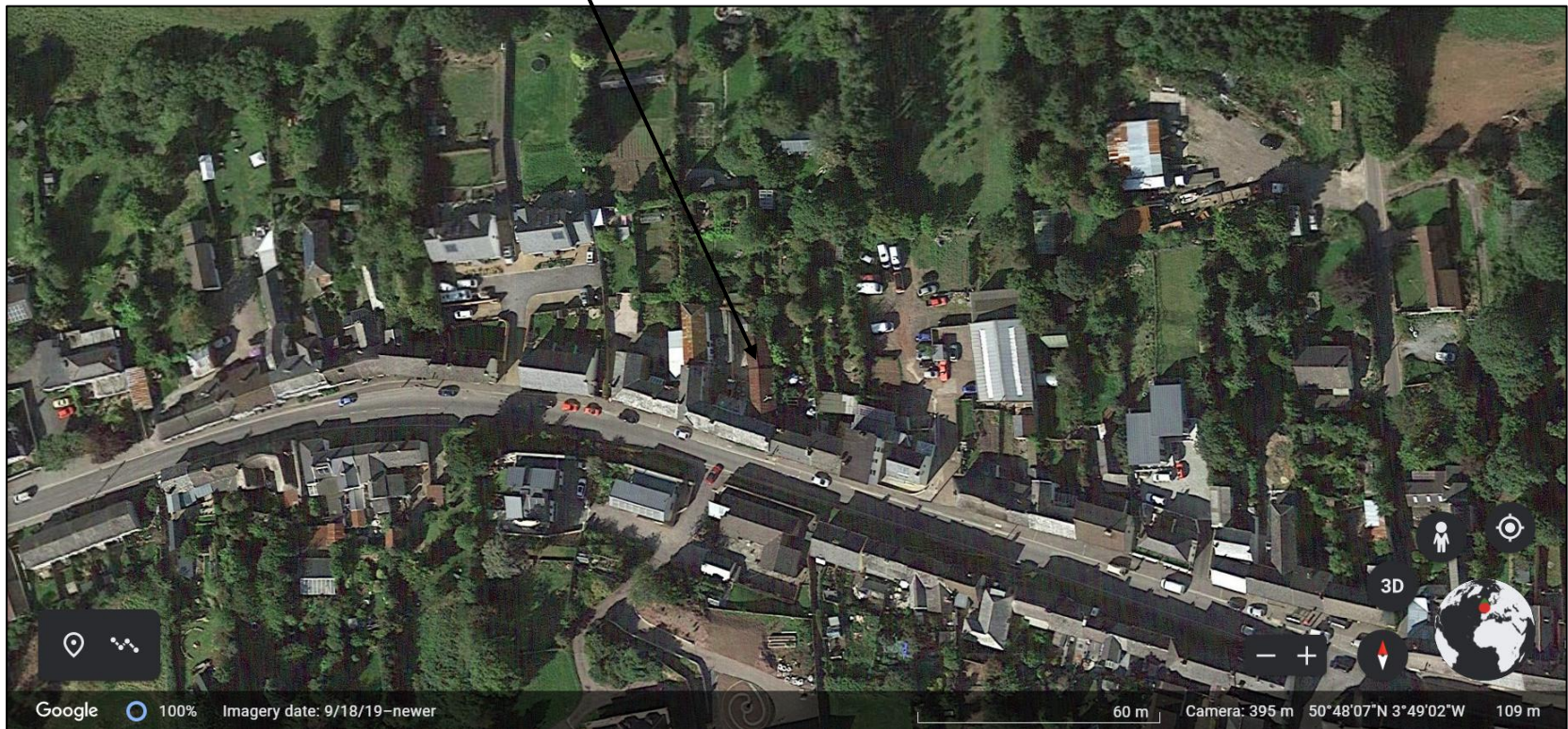


Plate 6: Roof void above living space (facing south)

No obvious external signs of use by bats (e.g. droppings adhered to walls, window panes etc.) were noted on the day of survey although external evidence of bats is subject to degradation as a result of the elements (heavy rain etc.). In its current context the barn was considered to have **moderate** bat roosting potential.

4.1.4 Location Plan

Site



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Please note: this plan is intended only to indicate the approximate location of features and should therefore, not be treated as an accurate scale plan.
Images sourced from Google Earth

4.2 Dusk Emergence Surveys

The dusk emergence bat surveys were undertaken using Echo Meter Touch and Batbox Duet bat detectors with time expansion/heterodyne/frequency division functions and recording capabilities.

Table 1: Weather conditions during dusk surveys at Winsor House

<i>Date</i>	<i>Weather Conditions</i>	<i>Temperature</i>
12 July 2022	Dry, wind speed 0, 75% cloud cover	22°C start, 21°C end
25 July 2022	Dry, wind speed 1, 75% cloud cover	17°C start, 15.5°C end

Table 2: Sunset and survey times

<i>Date</i>	<i>Sunset</i>	<i>Survey Times</i>
12 July 2022	Sunset: 21:26	Start: 21:07 End: 22:35
25 July 2022	Sunset: 21:12	Start: 20:55 End: 22:15

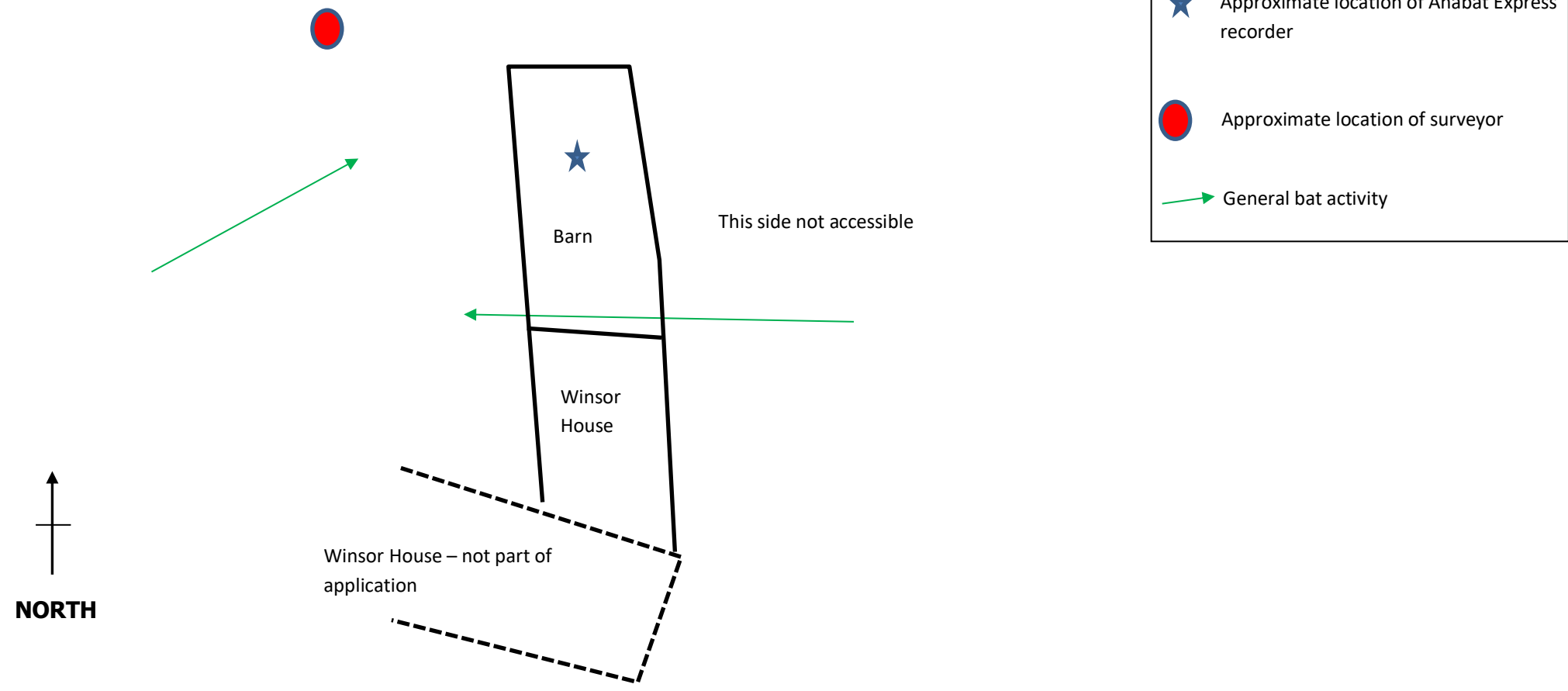
12 June 2022

The first bat recorded during the survey was a noctule at 21:12 (observed flying high overhead heading from east to west). Foraging and flight activity was recorded intermittently during the survey by noctule, common and soprano pipistrelle and a *Myotis* bat. The last bat recorded was a *Myotis* pass (heard not seen) at 22:24.

25 July 2022

The first bat recorded during the survey was a noctule at 21:31 (observed flying high overhead heading from east to west). General bat activity was greatly reduced during the second survey with a Myotis pass recorded at 21:49 (heard not seen) and a long-eared bat pass at 21:52.

4.2.1 Survey Plan



KEY

- ★ Approximate location of Anabat Express recorder
- Approximate location of surveyor
- General bat activity

NORTH

4.3 Automated Survey

A remote detector [Anabat Express] was placed within the first floor of the barn (on a beam) and was set to record continuously from 12 July 2022, to record day and night roosting behaviour.

Weather conditions during this time period were generally dry and calm with no prolonged periods of adverse weather recorded.

No confirmed bat roosting activity was detected during this period.

5. DISCUSSION OF IMPACTS

Site scale:

Applying the guidelines of Natural England (formerly English Nature) some works can be undertaken to bat roosts without recourse to a bat licence.

“Examples of works that, if carefully planned, may not need a licence include: Re-roofing, if carried out while bats are not present and the access points and roosting area are not affected;”

The survey results to date do not indicate the presence of an active bat roost within the subject building(s); the droppings noted may have been produced by an opportunistic/investigating bat. It is therefore considered reasonably unlikely that the proposed works will have a negative impact on bats. The re-roofing works will not alter the structure of the building and are to be undertaken outside of the bat activity season. With this in mind, and applying proportionality, no further survey work is recommended. A precautionary approach to working methods is nevertheless advised due to the mobile and opportunistic nature of bats.

Nesting birds *may* occur in and around the site during the summer months and care will be required to ensure compliance with the Wildlife and Countryside Act 1981 (as amended) if applicable at the time.

Landscape scale: the proposed works will not have an impact on bat foraging and/or commuting behaviour. No impact, beyond the site scale, is anticipated.

6. REFERENCES & BIBLIOGRAPHY

Altringham, J. D. (2003). *British Bats*. Harper Collins Publishers, Glasgow, UK.

Briggs P. 2004. Effect of barn conversion on bat roost sites in Hertfordshire, England. *Mammalia* 68 (4): 353-364.

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

English Nature / The Barn Owl Trust (2002). *Barn Owls on Site. A guide for developers and planners*. English Nature, Peterborough, UK.

English Nature (2002). *Bats in roofs: a guide for surveyors*. English Nature, Peterborough, UK.

Hutson, A.M. (1993). *Action plan for the conservation of bats in the United Kingdom*. London: The Bat Conservation Trust.

Institute of Ecology and Environmental Management (2007). *Guidelines for Ecological Impact Assessment in the United Kingdom*. IEEM, Winchester, UK.

Joint Nature Conservation Committee (2004). *Bat Worker's Manual* (3rd Edition). Joint Nature Conservation Committee, Peterborough, UK.

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

Shawyer, C. R. (2011). *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting*. IEEM, Winchester.

The Conservation of Habitats and Species Regulations 2010. HMSO, London.

The Natural Environment and Rural Communities Act (NERC) 2006. HMSO, London.

The Wildlife and Countryside Act 1981 (as amended). HMSO, London.

Wray et al (2010). *Valuing Bats in Ecological Impact Assessment*. IEEM In Practice Magazine.

7. QUALIFICATIONS & EXPERIENCE

Tamsin Lee BSc (Hons) MSc MCIEEM

Tamsin holds a BSc (Hons) in Zoology from the University of Bristol and an MSc in Environmental Conservation Management and has experience of a wide variety of ecology surveys. Her fieldwork skills include protected species surveys (reptiles, great crested newts, bats, dormice etc.), reptile translocations, butterfly surveys, phase 1 habitat surveys as well as various studies of terrestrial and marine life outside of the UK. Tamsin is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), has held a Construction Skills Certification Scheme (CSCS) card and survey licenses for bats, barn owls and dormice. She has been registered with the Bat Conservation Trust (BCT) as a bat carer and is a member of various local wildlife groups.

8. APPENDIX

8.1 Ecology & Legal Protection

8.1.1 Bats

There are seventeen species of bats recorded as resident in the UK (one of these, Alcathe's bat (*Myotis alcathoe*) has only been discovered as resident in 2010); these species are split into two families, the **Rhinolophidae** or "horseshoe bats" and the **Vespertilionidae** or "vesper bats". The greater mouse-eared bat (*Myotis myotis*) was previously thought to be extinct as a UK mammal species until a single individual was discovered in 2002 at a known hibernation site in Sussex, this species is currently regarded by the Bat Conservation Trust as a vagrant/occasional winter visitor. All British bats are insectivorous, feeding on a wide range of invertebrates including gnats, beetles, spiders and moths. Bats have declined in range and numbers in the UK, due primarily to loss of roosts and suitable habitats (JNCC, 2004) as a result of agricultural intensification and development. All British bats use high frequency sound (range 20 - 130 kHz approx.) as a form of echolocation. This allows bats to orientate themselves within their environment, detect and catch prey and communicate with other bats. Healthy bats are solely nocturnal with 'peaks' of activity particularly noted around dusk and dawn during the late spring and summer months.

Bats will utilise a wide variety of structures for the purposes of roosting, including mature trees, caves, mines, buildings (both modern and ancient), bridges and tunnels. They are also commonly known to use purpose-built bat boxes and even empty bird nest boxes. Different types of roost or used by bats at different times of year; the most significant roosts sites are typically maternity and hibernation sites. Maternity roosts, where large numbers of female bats congregate to give birth and rear their young, are typically associated with warm, sheltered conditions. Hibernation sites are characterised by stable temperatures and high humidity. The use of roosts is rather unpredictable (although some species appear to be more 'loyal' to roosts than others), particularly amongst tree-roosting species, but female bats are typically loyal to maternity roosts.

The Conservation of Habitats and Species Regulations 2010 transpose the stipulations of Council Directive 92/43/EEC (“The Habitats Directive”) into UK Law. European Protected Species (EPS), which include bats, are listed in Annex IV of the Habitats Directive, and are thus afforded strict protection. Some bat species are regarded as being of higher conservation concern in a European context, and these are listed under Annex II of the Habitats Directive. The habitats of species listed on Annex II may be candidates for the designation of Special Areas of Conservation (SACs). Annex II bat species include the barbastelle, Bechstein’s and the two horseshoe bats. It should be noted that there is no longer a defence of harmful actions being “the incidental result of an otherwise lawful operation” for EPS. Specifically, the following actions are prohibited under this legislation:

- deliberate capture, injury or killing;
- deliberate disturbance likely significantly to affect population survival, breeding, rearing young, local distribution or abundance;
- damage or destruction of a breeding site or resting place;
- possessing, controlling transporting, selling or exchanging, or offering for sale or exchange, any bat or any part of a bat or anything derived from one.

The Wildlife and Countryside Act 1981 (WCA) provides protection to all British bat species. The WCA has been amended several times but was most recently strengthened by the Countryside and Rights of Way (CRoW) Act 2000, the Natural Environment and Rural Communities (NERC) Act 2006 and by the Conservation of Habitats and Species Regulations 2010 (above). The WCA specifically prohibits intentional or reckless damage of roosts. Sites known to be used by roosting bats are regarded as roosts regardless of whether they contain bats at the time of survey. This is based on the fact that bats will use several different roost sites throughout the year.

The NERC Act consolidates the requirements of the CRoW Act in placing duties upon government agencies, including local authorities, to ensure the conservation of Biodiversity.

8.1.2 Barn Owls

The barn owl is listed under Schedule 1 of the Wildlife and Countryside Act 1981 (WCA), as amended by the Countryside and Rights of Way Act 2000 (CROW). It is therefore a fully and specially protected species of bird, which in addition to the general protection afforded to the majority of British wild birds, is also protected from deliberate or reckless disturbance. Offences relating to Schedule 1 birds like the barn owl are the subject of a special penalty. The barn owl is also afforded protection by the EC Birds Directive and Appendix II of the Bern Convention. They are 'Amber List' species of conservation concern (BoCC Partners, 1996) and are described as 'globally threatened' within the UK Biodiversity Steering Group Report (1995).

Barn owls (*Tyto alba*) are a resident breeding bird in the UK. They preferentially hunt over open habitats, preferably rough grassland, and prey items include a variety of small mammal species such as the field vole. The barn owl has a large home range and is a notably sedentary species. It is common for the home ranges of neighbouring owls to overlap. Barn owls typically use a number of roosting sites within their home range. However, there is normally only a single nesting site for every three - five roost sites. Tall agricultural barns are the most commonly encountered roost site. However rock ledges and hollow trees may also be used for roosting purposes. Nesting sites require a level platform of at least 3 square metres and only rarely less than 2 square metres. The nesting period for barn owls is typically March to August however nesting barn owls have been recorded at every month of the year.

Barn owls have undergone significant population declines due to agricultural intensification, reduction in prey availability and loss of suitable nesting sites due to development. The foraging behaviour and flight pattern of barn owls means that they can be frequent road kill victims, particularly on major infrastructure routes.

8.1.3 Nesting Birds

All wild birds are protected under part 1 of the Wildlife and Countryside Act, 1981.

Therefore, in the UK it is an offence to:

- Take, damage or destroy the nest of any wild bird whilst it is being built or in use.
- Kill, injure or take any wild bird
- Take or destroy the eggs of any wild bird

To avoid committing an offence no works should be carried out on a structure/ feature that is being used by nesting birds. Nesting is deemed to be over when the young have fully fledged.

Certain species, which are listed in Schedule 1 of the Wildlife and Countryside Act, receive special protection. In these cases any form of intentional or reckless disturbance when they are nesting or rearing dependant young, constitutes an offence.

8.2 Examples of Bat Enhancement Features

Please note that these are not site-specific examples.

Bat Box



Schwegler 1FD



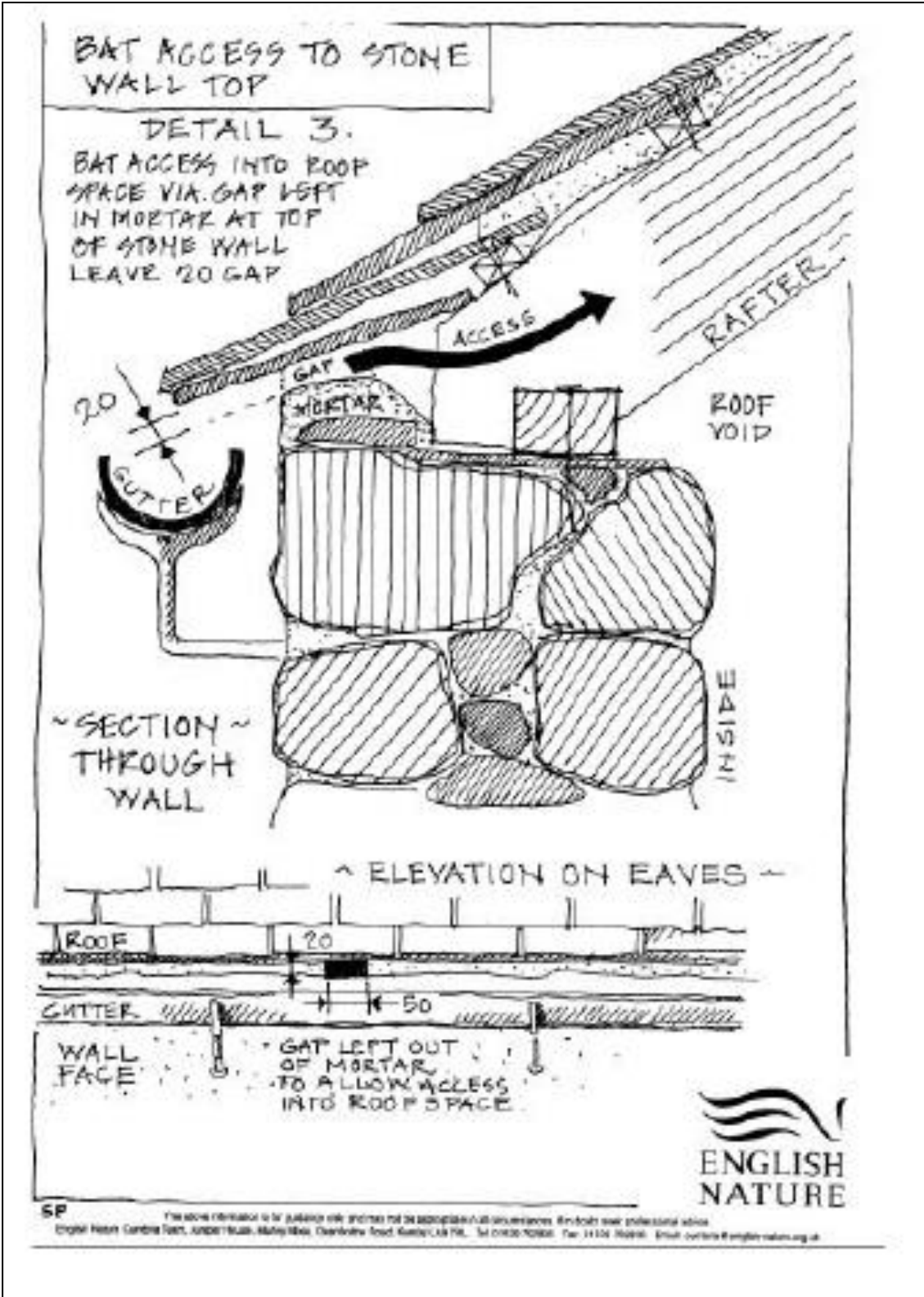
Schwegler 1FF



Schwegler 1FS
Large Colony Box



Schwegler 1FW
Hibernation Box



8.3 How to Identify Field Signs of Bats

The following notes are provided as a guide for site workers and operatives if they come across field signs that give rise to suspicion of bats in particular (it is assumed that all site operatives can identify bird nests and bird droppings).

Signs of bat activity may include (English Nature 2002; Mitchell-Jones 2004; JNCC 2004) the following:

- Droppings – Fresh droppings are soft and black, becoming lighter in colour as they age. Bat droppings typically contain fragments of insect exoskeleton and crumble (unlike those of small rodents, which typically harden with time). Bat droppings differ significantly from those of birds in that they have a distinctive 'bullet' shape and have none of the associated white uric acid powder associated with bird faeces. Bat droppings will stick to surfaces including walls, windows and window ledges. They may also become caught in cobwebs below a roost site or feeding perch.
- Feeding remains - these include the discarded wings of flying invertebrates, which may accumulate under a well-used feeding perch. Some species, such as the brown long-eared bat, favour moths of the noctuid family. Hence the accumulated wings of these moths assist in suggesting the presence of this bat.
- Oil staining - the fur of bats may leave an oily residue on surfaces close to occupied roost sites and access/egress points.
- Diurnal vocalisations - these are most pronounced at larger roost sites during periods of hot weather.
- Absence of cobwebs - a well used bat roost and its access points are typically clear of cobwebs.
- Scratchings - scratch marks produced by the claws of many bats may be apparent close to the access point for a well-used roost.
- Dead bats.
- Tracks in dust.
- Odour – most bats have a distinctive odour and certain species, such as the

noctule and soprano pipistrelle, are noted for their pungent roosts resulting from their urine scent marking activity and oily fur.