

Bat Survey Report for

Wester Cowden Farm

Easter Langside Lane

Dalkeith

Midlothian

EH22 2FN

April - September 2016

Prepared for **ark architecture + design**, 14 Royal Terrace, Glasgow, G3 7NY

On behalf of Buccleuch Property

by

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Executive Summary

Acorna Ecology Ltd. was commissioned by ark architecture + design on behalf of Buccleugh Property in April 2016 to carry out an extended Phase I habitat survey with protected species walkover survey. The ecological surveys included the Phase I habitat survey, a desk study, and a walkover protected species survey that considered the potential presence of relevant European Protected Species (bats), Badgers, and breeding birds. The surveys identified a number of potential roost features on trees and buildings alike, so roosting bats were considered to be a potential ecological constraint and further survey work was considered appropriate to confirm the presence or absence of bats prior to planning approval.

The presence/absence surveys identified two bat roosts both used by a single Soprano Pipistrelle, possibly the same individual bat. As bats have been confirmed as an ecological constraint at this site it will be necessary to apply for a regulation 44 licence from SNH to allow legal disturbance of the roosts and subsequent destruction of roosts before any area of the site within 30m of the bat roost locations can be worked on. The application to SNH for the licence must include: A copy of this bat survey report and Bat Protection Plan, copy of approval of works or any warrants required for the works, maps/drawings showing the proposed works locations, and the application form all of which will be sent to SNH for review. Approval of a licence may take up to eight weeks but can be less depending on the volume of applications SNH has received. The Bat Protection Plan will detail the proposed methodology to minimise roost disturbance, while also minimising the potential for harm to the bats. It will also detail proposed mitigation. SNH do not require short-term temporary mitigation for minor roosts but will stipulate that long-term roost provision is provided in any new build project or on restored buildings either during renovation or at completion.

Note: The license application will only be submitted to SNH after full planning permission has been approved, or if a demolition warrant is in place.

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1. Introduction

Acorna Ecology Ltd. was commissioned by ark architecture + design on behalf of Buccleugh Property in April 2016 to carry out an extended Phase I habitat survey with protected species walkover survey for a proposed development site at Wester Cowden Farm, Dalkeith (NT 35135 67095), where the applicant is currently only seeking outline planning consent. The development site included the existing farm steading (excluding farmhouse), and a row of occupied cottages and associated gardens on Easter Langside Lane to the north of the steading, with the steading being open ground with scattered buildings, small area of scrubby woodland, hedges, and boundary trees, with open arable farmland to the east, and residential development to west, north, and south. The survey included a walkover daylight survey for bat roost potential, which confirmed that roost potential was present although no evidence of bats was detected: this work identified the need for further survey work to maintain a high due regard for roosting bats so a suite of presence/absence surveys was proposed and subsequently completed. This report presents the findings of all of the bat survey work completed during 2016.

2. Scope of Assessment and Survey

The baseline ecological surveys included the Phase I habitat survey, a desk study, and a walkover protected species survey that considered the potential presence of relevant European Protected Species (bats), Badgers, and breeding birds. Subsequent bat survey work focused on presence/absence surveys for roosting bats.

3. Relevant Policy and Guidance

This ecological assessment has been undertaken with regard to the legislative requirements given in the following:

- The Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations);
- The Conservation (Natural Habitats &c.) Amendment (Scotland) Regulations as amended (2004, 2007, 2008, 2011, and 2012);
- Nature Conservation (Scotland) Act, 2004;
- Wildlife and Countryside Act 1981 (and subsequent amendment through The Conservation (Natural Habitats &c.) Amendment (Scotland) Regulations 2007, 2009, & 2011);
- Wildlife & Natural Environment (Scotland) Act (2011);
- Wild Mammals (Protection) Act, 1996;
- The Convention on the Conservation of European Wildlife and Natural Habitats (The Berne Convention), 1979;
- The Land Reform (Scotland) Act, 2003;
- Scottish Planning Policy (June 2014) replaces NPPG14 and SPP (February 2010);
- The Midlothian Local Biodiversity Action Plan 2006;
- The UK Biodiversity Action Plan (BAP), revised priority list 2007; and the
- Scottish Biodiversity List 2007

3.1. Biodiversity Status

The UK Biodiversity Action Plan (BAP) is the UK Government's commitment to the Convention on Biological Diversity signed in 1992. It is comprised of two types of Action Plans developed to set priorities for nationally and locally important habitats and wildlife:

Habitat Action Plans

- Broad Habitat Statements - summary descriptions of 28 natural, semi-natural and urban habitats and the current issues affecting the habitat and broad policies to address them; and
- UK BAP Priority Habitat Action Plans - detailed descriptions for 45 habitats falling within the Broad Habitat classification and detailed actions and targets for conserving these habitats.

Species Action Plans

- Produced for UK BAP Priority Species: information on the threats facing 382 species and action plan targets to achieve a positive conservation status;
- Grouped Species Action Plans - common policies, actions and targets for similar species, for example for Eyebrights, or Commercial Marine Fish. There are nine grouped action plans;
- Species Statements - overview of the status of species and broad policies developed to conserve them for two groups of species.

Several bat species are UK BAP priority species with action plans. Soprano Pipistrelles are a UK Biodiversity Action Plan priority species but Common Pipistrelle bats have now been removed from the list (2007). Daubenton's bat is a species of UK conservation concern.

Local Biodiversity Action Plans

Each Local Biodiversity Action Plan (LBAP) partnership, usually but not always at the local authority level identifies and establishes actions to conserve local priorities and also link this action to the delivery of national Species and Habitat Action Plan targets wherever possible. Grouped action plans at this level include bats, and Waders, for example.

Soprano Pipistrelle, Common Pipistrelle, Daubenton's Bat, Whiskered Bat, Brown Long-eared Bat, and Natterer's Bat are key species in the LBAP.

3.2. European Protected Species: The Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations)

Full consideration of European Protected Species (EPS) must be given as part of the planning application process, not as an issue to be dealt with at a later stage. The European Protected Species of animal of potential relevance to this survey area were bat species found in the Central Belt of Scotland.

European Protected Species are protected in Annex IVa in the EC Habitats and Species Directive, which is transposed into UK legislation by the Conservation (Natural Habitats &c.) Regulations 1994 (Schedule II of The Habitats Regulations). The full details of this legislation can be viewed at:

http://www.opsi.gov.uk/SI/si1994/Uksi_19942716_en_4.htm

This legislation was amended on the 14th February 2007 (The Conservation (Natural Habitats &c.) Amendment (Scotland) Regulations 2007.), and explanatory guidance on this was published by the Scottish Government in April 2007. The amendment removed all EPS from Schedule 5 of the Wildlife & Countryside Act 1981. There are therefore now no defences in the WCA 1981 whatsoever for any actions impacting on EPS, and protection is afforded by the following legislation only:

Under Regulation 39 of the Conservation (Natural Habitats &c.) Regulations 1994 (The Habitats Regulations) it is now a criminal offence (subject to specific exceptions) to:

(a) deliberately or recklessly to capture, injure or kill a wild animal of a European protected species; (only defences are mercy killing, capture for tending a disabled animal or circumstances where the animal is captive bred and lawfully held).

(b) deliberately or recklessly-

(i) to harass a wild animal or group of wild animals of a European protected species;

(ii) to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;

(iii) to disturb such an animal while it is rearing or otherwise caring for its young;

(iv) to obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place;

(v) to disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs; or

(vi) to disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;

(c) deliberately or recklessly to take or destroy the eggs of such an animal; or

(d) to damage or destroy a breeding site or resting place of such an animal.

It should be noted that only the offence of damaging or destroying a breeding site or resting place of an EPS is a strict liability offence. The remaining offences are offences only where they are carried out "deliberately" or "recklessly".

In Scotland licenses may be granted by Scottish Natural Heritage (SNH) to permit certain activities that would otherwise be illegal due to their potential impact on EPS or their places of shelter/breeding, whether or not they are present in these refuges. This includes for developmental work. Under Regulation 44 of The Habitats Regulations, the provisions in Regulation 39 (protection of animals) do not apply to anything done for any of the purposes defined in Regulation 44 provided that any action is carried out "under and in accordance with the terms of a licence granted by the appropriate authority".

Three tests must be satisfied before a development licence for disturbance of an EPS or damage to a site/destruction of a site used by EPS will be granted. Note: A license application will fail unless all three tests are satisfied.

- Test 1 - the licence application must demonstrably relate to one of the purposes specified in Regulation 44(2). This regulation states that licences may be granted by SNH where the activities to be carried out under any proposed licence are for the purpose of "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment";
- Test 2 - Regulation 44(3)(a) states that a licence may not be granted unless Scottish Natural Heritage is satisfied "that there is no satisfactory alternative"; and
- Test 3 - Regulation 44(3) (b) states that a licence cannot be granted unless Scottish Natural Heritage is satisfied "that the action authorised will not be detrimental to the maintenance of the population

of the species concerned at a favourable conservation status in their natural range”.

Note: Breach of Licensing Conditions

A new regulation 46A came into force on 15th May 2007. This now makes it an offence to breach any conditions attached to a licence. Licence conditions should therefore be adhered to at all times.

3.3. Additional Legal Protection for Bats

- Additional protection is afforded through the Bern Convention (1979), enacted in Scotland through the Nature Conservation Act (Scotland) 2004;
- Appendix III, the Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1980), Appendix 2; and
- The Bonn Convention’s Agreement on the Conservation of Bats in Europe (London, 1991).

It is also a legal obligation in Scotland to consult with SNH before you do anything that might affect bats or their roosts such as:

- Removal of hollow, old, or decaying trees;
- Blocking, filling, or installing grilles over old mines or caves; and
- Building, alteration, maintenance, or re-roofing

In all cases where bats are found to occupy trees or buildings and there is a developmental issue, SNH must be informed before any development takes place. A licence to permit development may then be obtained from SNH if appropriate.

4. Desk Study

A desk-based review of sites designated for their nature conservation interest was completed in April 2016. **The desk study found no historical records of bats for the development site or in close proximity to it.**

At least eight species of bats are known in Midlothian (Midlothian LBAP notes four species only but is out of date as further species have been recorded since it was published): Common, Soprano and Nathusius’ Pipistrelles, Whiskered Bat, Brown Long-eared Bat, Natterer’s Bat, Noctule Bat, and Daubenton’s Bat [Pers. obs., Lothian Life, NBN Gateway, The Wildlife Information Centre (TWIC) and Central Scotland Wildlife Information Centre (CSWIC)].

4.1. Consultation with The Wildlife Information Centre

TWIC provided 171 records of bats within 5km of the Site, including six species of bats: Common and Soprano Pipistrelles, Whiskered Bat, Brown Long-eared Bat, Natterer’s Bat, and Daubenton’s Bat. The nearest record to the Site was of an unidentified bat in flight at Whitehill in October 2015 (N. Harmsworth recorder). The majority of records were distributed along the River South Esk corridor between Newbattle Abbey and Dalkeith Country Park, with Common and Soprano Pipistrelles, and Daubenton’s Bat all recorded (David Dodds Associates Ltd. recorder). Appendix 1. Contains a summary of the data purchased from TWIC.

4.3. Other records

The NBN Gateway (NBN) was consulted directly in September 2016 for relevant species records from datasets posted by SNH/JNCC because Paul Baker has written permission to cite data from SNH data sets (Colin McLeod) and from the Mammal Society dataset for commercial purposes:

The following datasets on the NBN Gateway were checked:

- JNCC collation of taxon designations" provided by Joint Nature Conservation Committee;
- SNH Species Repository;
- Compilation of records of 12 Article 17 terrestrial mammal species in Scotland; and
- SNH Bat Casework records 1970-2007.

The NBN Gateway posted SNH dataset that we had permission to cite provided 24 records for six species of bats within 5km of the Site: Common, Soprano and Nathusius's Pipistrelles, Whiskered Bat, Brown Long-eared Bat, Natterer's Bat, and Daubenton's Bat (SNH staff recorders ref.). These records have not been copied from the NBN Gateway website due to potential confidentiality matters as they include roosts, and also because none of the records were within proximity to the Site so have a low relevance to this study: No records were within 1km of the Site, and most were of bats along the River South Esk corridor between Newbattle Abbey and Dalkeith Country Park.

The Central Scotland Wildlife Information Centre (CSWIC) was consulted in April 2016 for records of protected species on Site and in the wider area but all bat records obtainable were further than 2.5km from the Site, with records predominantly in the Eskbank – Newton Grange area. CSWIC confirmed the presence of four species of bat in the wider area: Common and Soprano Pipistrelles, Daubenton's bat, and Brown Long-eared Bat, with a fifth, Natterer's present within 6km of the Site (SO, SM, MP, and GB recorders). These records are all confidential and specific details cannot be published.

5. Bats in Scotland

5.1. Background Information

Four species of bat are relatively widespread in Midlothian:

- Common Pipistrelle Bat (*Pipistrellus pipistrellus*) 45 kHz;
- Soprano Pipistrelle Bat (*Pipistrellus pygmaeus*) 55 kHz;
- Daubenton's Bat (*Myotis daubentonii*);
- Brown Long-eared Bat (*Plecotus auritus*); and

Another five species occur in Central Scotland but tend to have restricted distributions, or less is known about their distribution:

- Natterer's Bat (*Myotis nattereri*) Scattered throughout Central Belt including Midlothian;
- Noctule Bat (*Nyctalus noctula*) (more of a southern Scottish distribution but recorded in West Lothian and East Dunbartonshire, and in Midlothian - <http://www.lothianlife.co.uk/2009/01/noctule-bat-arrives-in-midlothian/>);
- Nathusius's Pipistrelle Bat (*Pipistrellus nathusii*) 38 kHz –(Stirlingshire and Midlothian);
- Whiskered Bat (*Myotis mystacinus*) – within the Lanarkshire and Midlothian areas; and
- Leislers Bat (*Nyctalus leisleri*) (more of a southern Scottish distribution but known southwest of Glasgow, and in Argyll).

5.2. *Bat Roost Types*

Nine main types of roost have been identified (Collins 2016). These are:

- Day roosts (March – November but more-so in the summer): used for resting during the day, and may be occupied daily by solitary or small numbers of males, or may be used infrequently as part of a chain of roost sites alternated daily but are rarely occupied at night. Whole colonies of some species such the Leisler’s bat will change roost during the day including taking young with them;
- Night roosts (March – November): a place where bats rest or shelter during the night but are rarely present during the day. Can be used by solitary bats or entire colonies, and are often indicated by large accumulations of insect remains and some droppings;
- Feeding roosts (May – November): a place where individual bats or small groups may rest or feed during the night between bouts of foraging, in times when weather changes, or just for a temporary rest. May be used by solitary bats to whole colonies but are rarely used during the day;
- Transitional/occasional roosts (spring or autumn generally but may be used April-October): Some roosts may be transitional, when small numbers are present for a limited period, usually during the spring and autumn.
- Swarming sites (August – November) tend to be around caves and mines and may be used for hibernation as well as being important for mating, with large numbers of male and female bats gathering from late summer to autumn.
- Mating roosts (September – October): where mating takes place from late summer and may continue through the winter;
- Maternity roosts (May - August): the most obvious roost type. These consist almost exclusively of females, most of which give birth and raise a single young but sometimes may include males in some species of bats. These colonies usually disperse by the autumn, although some species may remain in one roost all year round;
- Hibernation roosts (October – March); roost sizes may vary from individual to groups but must have a high humidity and constant cool temperature above freezing but generally less than 4°C; and
- Satellite roosts (May – August): alternative roosts near to maternity roosts used by a few breeding females or small groups of females throughout the breeding season;

Note: swarming sites (August – November) tend to be around caves and mines and may be used for hibernation as well as gathering for mating.

In Scotland, most species of bats roost by concealing themselves in crevices and are not easy to find. The presence of droppings is a key sign to their presence but numbers of droppings vary widely and even some large roosts have little evidence of droppings to indicate their presence. Hibernating bats however leave little or no trace of their presence. Other possible signs are a characteristic odour like ammonia. In addition, a clean or polished area at a place through which light can enter may suggest an entrance/exit hole.

5.3. *Bats and Trees*

Trees may provide safe dry places for bats to roost, although some bats prefer to roost in buildings when suitable buildings are present. Some bats remain roost faithful for prolonged periods, while others may have several alternate roost sites, and others may range much further using roosts several

kilometres apart as weather conditions, food availability, and seasons change. Potential roost sites in trees may include:

- Crevices in bark;
- Gaps under loose bark on dead branches or trunks;
- Rotted knot holes;
- Hollow trunks;
- Cracks, splits etc. in stems and branches;
- Rotted-out branches;
- Growth deformities, compression forks, cankers;
- Gaps between overlapping branches;
- Dense ivy coverage;
- Woodpecker and Squirrel holes;
- Bird nesting boxes/bat boxes already present; and
- Crow, Magpie, and Buzzard nests.

5.4. Bats and Buildings

Buildings may provide safe dry places for bats to roost, although some bats prefer to roost in trees even when suitable buildings are present. Some bats remain roost faithful for prolonged periods, while others may have several alternate roost sites in a steading or housing estate, and others may range much further using roosts several kilometres apart as weather conditions, food availability, and seasons change. Outbuildings and barns are often used as night roosts and shelters.

Potential locations for either access for roosting or for actual roosts in houses and outbuildings include:

Walls:

- Behind cladding, external tiles or weatherboarding;
- Gaps in mortar/stonework allowing access inside the cavity wall spaces;
- At the top of solid walls;
- In window frames or windowsills;
- Behind loose render;
- Behind loose wall slates; and
- Potentially in any existing bat boxes already present on the building

Note Bat droppings may be found on the ground, garden furniture or other external objects such as bins and cars, or on windows and stuck to walls may also serve to focus attention on specific areas of a building to look for a roost.

Eaves:

- Between soffit and bargeboard; and
- Behind bargeboards or fascias

Roofs and lofts:

- Space under ridge tiles;
- Between under-felt or boards and tiles or slates;
- Inside roof space at ridge ends or roof junctions;
- Inside roof space in gaps between timber and brickwork of chimneys;
- The junction of roof timbers, especially where ridge and hip beams meet;
- The top of gable end or dividing walls;
- Lower corners of the eaves;
- Between loft insulation and ceiling; and
- Space between joist and ceiling.
- The top of chimney breasts;
- Ridge and hip beams and other roof beams;
- Mortise and Tenon joints;
- All beams (free-hanging bats);
- Behind purlins; and
- Under lead/tin flashing

Within rooms in residential buildings

- The floor and surfaces of any furniture or other objects;
- Behind wooden panelling;
- In lintels above doors and windows;
- Behind window shutters and curtains;
- Behind pictures, posters, furniture, peeling paintwork,
- Peeling wallpaper, lifted plaster and boarded-up windows; and
- Inside cupboards and in chimneys accessible from fireplaces.

In agricultural buildings

- Gaps in mortar/stonework allowing access inside the rubble-filled cavity of the walls from inside the building;
- Wall top;
- Between exposed roofing tiles at the ridge where no sarking is present;
- Crevices between timbers or between timbers and walls/roof; and
- In lintels above doors and windows

Note: The above lists are not exhaustive – the surveyor should use professional judgement based on experience to decide where inspection is necessary.

6. Survey Methods

All methodology followed Bat Conservation Trust Bat Surveys: Good Practice Guidelines (Collins 2016). Note on the Bat Survey Guidelines from Bat Conservation Trust (January 2016):

“Professional judgement and surveyor experience: The guidelines are not a prescription for professional bat work. They do not aim to override professional judgement and cannot be used to replace experience. Deviations from the methods described are acceptable providing the ecological rationale is clear and the ecologist is suitably qualified and experienced. In some cases it may be necessary to support such decisions with evidence, particularly if they may lead to legal challenge.”

Bat work for this project is managed by Dr Paul Baker MCIEEM and Ross Preston MCIEEM (licensed bat worker).

6.1. Preliminary Ground Level Assessment of Trees for Roost Potential

The aim of this survey was to determine if any trees within the development site had potential value for use by roosting bats or evidence of any actual bat presence by a detailed inspection of the exterior of the tree from ground level. The survey looked for features that bats could use for roosting (PRFs) and categorised the trees according to their individual potential value for use by roosting bats (Table 6.2. below). Mature trees within the site were checked for PRFs such as crevices, holes, splits, tears, and ivy that could be used by bats to enter roosting sites such as those listed above, along with field signs of bat occupancy such as urine streaking, grease marks, smooth or worn surfaces, or droppings caught on bark or on webs. Where appropriate, inspections were made using binoculars.

Trees with no bat roost potential were not recorded individually.

6.2. Preliminary Ground Level External Assessment of Buildings for Use by Bats

All buildings within the development site boundary were assessed externally during daylight to look for PRF such as access points that could potentially be used by bats to enter crevices that could be used as roosting sites such as under loose or missing panels or cracks and crevices, loose flashing etc. on the building. Each potential access point was examined with binoculars for signs indicative of use by bats such as droppings, urine streaking, polished, or worn surfaces, or staining marks at the potential entry point. The ground along the walls was also checked for dropping accumulations, and brickwork and windows were also checked for the presence of occasional droppings. Internal access was taken to steading buildings but not the occupied cottages or farmhouse as these were either private or outwith the development site respectively. Buildings were scored according to Table 6.2. below to grade each building by its suitability for use by roosting bats

Table 6.2. Tree/building suitability assessed according to the Categories listed in the BCT Guidelines (Collins 2016)

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^a and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential ^c
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.

a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments. This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

6.3. Preliminary Internal Assessment of Buildings for Use by Bats

The internal survey for bat signs was limited to buildings B1 – B4, B6 & B7 due to access restrictions but it was not considered necessary to survey within building B5 due to the construction of the building (metal fabricated with metal girders and view into it through a window, or Buildings B8 – B13 due to lack of prf. For those buildings accessed the inspections looked for evidence of bats having been present such as single droppings, accumulations of droppings under roosting perches, smell of ammonia from damp droppings, moth wings and other prey remains, and dead bats, as are occasionally found in roosts or where bats have entered and become trapped. In addition to the visual search, the bat worker carried an SSF2 Bat Detector, which picks up any bat social chatter as is often found in larger roosts in particular. The SSF2 is ideal for this purpose as it constantly scans all frequencies between <20kHz and >65kHz and so any bat “noise” will be picked up on the spot without reviewing recordings later.

6.4. Bat Emergence Surveys

The survey was targeted at locations of PRF identified during the survey work completed for 6.1. and 6.2. above: where features had been identified that could potentially be used by bats for roosting. The dusk surveys commenced from a half hour before sunset and continued for a minimum of 1.5 hours after sunset. Each survey was completed by six surveyors in suitable weather conditions for bat activity (temperatures 10°C or greater, light wind or no wind, and dry) on 27th July and 11th August 2016 (Table 6.4.).

Note: SSF Bat -2 and Batbox Duet detectors were used during the surveys, with SSF Bat-2 detectors scanning all frequencies for echolocating bats, and allowing immediate switching to that frequency for identification purposes.

Table 6.4. Date and survey coverage for dusk surveys

Date	# Surveyors	Surveyors
27/07/2016	6	PB, JK, NK, TB, SO, MP
11/08/2016	6	PB, JK, NK, TB, SO, MP

Note: surveyors have between 12 years (PB & SO) and six years (TB) of experience completing bat emergence and return to roost surveys, with many hundreds of such surveys completed throughout Scotland, and more than 150 roosts found including tree and building roosts from one bat to over 300 in number. Surveyors have experience of a wide-range of species found in Scotland including Soprano and Common Pipistrelle, Daubenton's Bat, Brown Long-eared Bat, Natterer's Bat, Noctule and Leisler's Bats. Team experience is more than adequate to satisfy SNH Species Licensing Team for any developmental bat license application, and the team has never had a bat licence application turned down by SNH in 12 years of operation. Ross Preston the team leader has been a licensed bat worker for 14 years.

6.5. Bat Pre-dawn Return to Roost Survey

The pre-dawn return to roost survey was completed by six surveyors (Table 6.5.) on 24th August 2016 and took place from two hours before dawn until 15 minutes after sunrise (Collins 2016).

Table 6.5. Date and survey coverage for pre-dawn survey

Date	# Surveyors	Surveyors
24/08/2016	6	PB, JK, NK, TB, SO, MP

6.6. Limitations

There were no significant constraints on any of the survey work as completed. Note TWIC as consultant to the Local Authority recommended five bat workers to cover the steading. We provided six bat workers to ensure that the minimum specified was not only met but was exceeded, so that coverage would be considered as more than adequate at this stage of investigations.

7. Results

7.1. Preliminary Ground Level Assessment of Trees for Roost Potential

There were five trees that had potential roost features that could be used by roosting bats (Table 7.1., and Figure 1.):

Table 7.1. Trees with features of potential value for use by roosting bats

Ref #	Grid reference	Tree Species	BCT Category	Comments
T1	NT 35159 67217	Sycamore	Moderate	Ivy covered
T2	NT 35155 67198	Wych Elm	Moderate	Ivy covered
T3	NT 35152 67188	Beech	Low	Crow nest
T4	NT 35153 67173	Sycamore	High	Large cavity in trunk at 10m
T5	NT 35182 67140	Sycamore	High	Mature tree, lots of broken limbs, trunk cavities between 6m and 15m, lots of ivy covering lower part of tree

7.2. External Assessment of Buildings for Bat Roost Potential

There were thirteen buildings within the development site (Figure 1.). In addition, the farmhouse was also surveyed due to its proximity to the development site (lay within indicative site boundary but was not part of proposal):

Table 7.2. Building features of potential value for use by roosting bats

Building #	Building Structure	Suitability for roosting	PRF #	Comments
B1	Sandstone walls, corrugated zinc roof/half of roof is slate, tin ridge	High	1	Hole in sandstone/loose mortar
			2	Birds nesting under wooden board so potential access for bats
			3	Lots of loose and raised slate
			4	Raised tin ridge
			5	Crack around chimney stack
			6	Holes in brickwork
B2	Sandstone walls,, slate roof, zinc and clay ridge	High	1	Loose slates
			2	Holes under gutter
			3	Birds nest
B3	Sandstone gable walls, wooden slatted walls to side on top of blocks, asbestos roof	Low	1	Hole beside top window
B4	Old sandstone walls slate roof, tin ridge	High	1	Large hole side of building
			2	Raised tin ridge
			3	Covered in ivy
			4	Hole in brick, covered in ivy

Building #	Building Structure	Suitability for roosting	PRF #	Comments
B5	Block building, asbestos roof		1	Ivy on building
B5			2	Hole in block work
			3	Gap under edge
			4	Ivy on wall
			5	Crack in brick
			6	Window missing
			7	Covered in ivy
B6	Red brick shed with tin roof			
B7	Brick, sandstone, and wood walls, corrugated zinc roof	Moderate	1	Covered in ivy
B8 & B9	Sandstone walls well pointed, tin ridge, and slate roof	Negligible		No obvious potential
B10 & B11	Sandstone walls well pointed, tin ridge, and slate roof	Negligible		No obvious potential
B12 & B13	Sandstone walls well pointed, tin ridge, and slate roof	Negligible		No obvious potential
Farmhouse B14	Sandstone walls, slate roof, part tin ridge, part clay ridge	High	1	Raised tin ridge
Farmhouse B14 (cont.)	Sandstone walls, slate roof, part tin ridge, part clay ridge	High	2	Hole in face of building
			3	Holes under gutter
			4	Holes under gutter
			5	Hole in brick
			6	Hole in chimney
			7	Hole in brickwork
			8	Hole beside window

7.3. Internal Assessment of Buildings for Use by Bats

There were no signs of bats within the buildings surveyed internally. Several of the buildings were either open sided (B2) or open-ended (B1 north end, B6, and B7, while B3 had a large open doorway - agricultural shed that may remain open), which limited their potential value to bats especially as they were in good condition and well-mortared, although timber joists with crevices were present, and roofs were lined with wooden sarking, which may be considered as PRF. Building B3 had metal girders present as did the north end of B1 and B6.

7.4. Survey Conditions and Timings

Table 7.4. Weather Conditions and Times of Presence/Absence Surveys

Date	Temp start °C	Temp finish °C	Cloud cover (Oktas)	Dry/rain	Wind speed	Wind direction	Start time	End time
27/07/2016	13	12	1/8	Dry	2	NE	2103	2303
10/08/2016	17	14	4/8	Dry	2	E	2026	2226
24/08/2016	15	15	6/8	Dry	0	-	0403	0618

7.5. Bat Emergence Surveys

All bats detected were either Soprano Pipistrelles, with 56 detections (30 on 27th July and 26 on 10th August), or were Common Pipistrelles, with 24 detections on 27th July), Appendix 2. contains the detailed survey results, and general patterns of bat activity are illustrated on Figure 2. A maximum of four bats were detected in flight simultaneously on one occasion but most records were of lone bats commuting or foraging around the Site.

Only one roosting bat was detected on 27th July: a single Soprano Pipistrelle emerged from just above the gutter at the southwestern end of Building B1 (Roost 1).

Roost 1 was not known to be occupied during subsequent survey work but a second roost site (Roost 2) used by a single Soprano Pipistrelle was found in the roof of the cottage within 30m of Roost 1 (may be same bat) during the second dusk survey.

Key flightlines detected were to the east of Tree 5 and between buildings B1/B2 and B3 but bat numbers observed were always low, indicating a low value for use by foraging/commuting bats.

7.6. Pre-dawn Bat Return to Roost Survey

All bats detected were Soprano Pipistrelles, with 19 detections on 24th August. Appendix 2. contains the detailed survey results, and general patterns of bat activity are illustrated on Figure 2. No bats were detected returning to roost.

8. Conclusions

The surveys identified two bat roosts both used by a single Soprano Pipistrelle, possibly the same individual bat. Roosts of this size and of a non-breeding status are not considered of significant conservation status, and in fact SNH Species Licensing Team does not class a roost of up to 50 Soprano Pipistrelles to be highly significant due to the common occurrence of such roosts throughout Scotland. As such the presence of two roosts used by either one bat or by two single bats is not considered to be a significant constraint for redevelopment of this Site: As bats have been confirmed as an ecological constraint at this site it will be necessary to apply for a regulation 44 licence from SNH to allow legal disturbance of the roosts and subsequent destruction of roosts before any area of the site within 30m of the bat roost locations can be worked on. The application to SNH for the licence must include: A copy of this bat survey report and Bat Protection Plan, copy of approval of works or any warrants required for the works, maps/drawings showing the proposed works locations, and the application form all of which will be sent to SNH for review. Approval of a licence may take up to eight weeks but can be less depending on the volume of applications SNH has received. The Bat Protection Plan appended to this report will detail the proposed methodology to minimise roost disturbance, while also minimising the potential for harm to the bats, and details the proposed mitigation. SNH do not require short-term temporary mitigation for minor roosts (Species Licensing Team pers. comm.) but will stipulate that long-term roost provision is provided in any new build project or on restored buildings either during renovation or at completion.

9. References/relevant reading

- Collins, J. (ed.) 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.) The Bat Conservation Trust, London. ISBN-13: 978-1-8727459-96-1
- Hundt, L. 2012. Bat Surveys – Good Practice Guidelines, 2nd Ed. Bat Conservation Trust, London. ISBN-13: 9781872745985

Mitchell-Jones, A.J., and A.P. McLeish. (Eds.) 2004. Bat Workers Manual 3rd Ed. JNCC

Figure 1. Locations of buildings surveyed for potential roost features (prf) and trees with prf

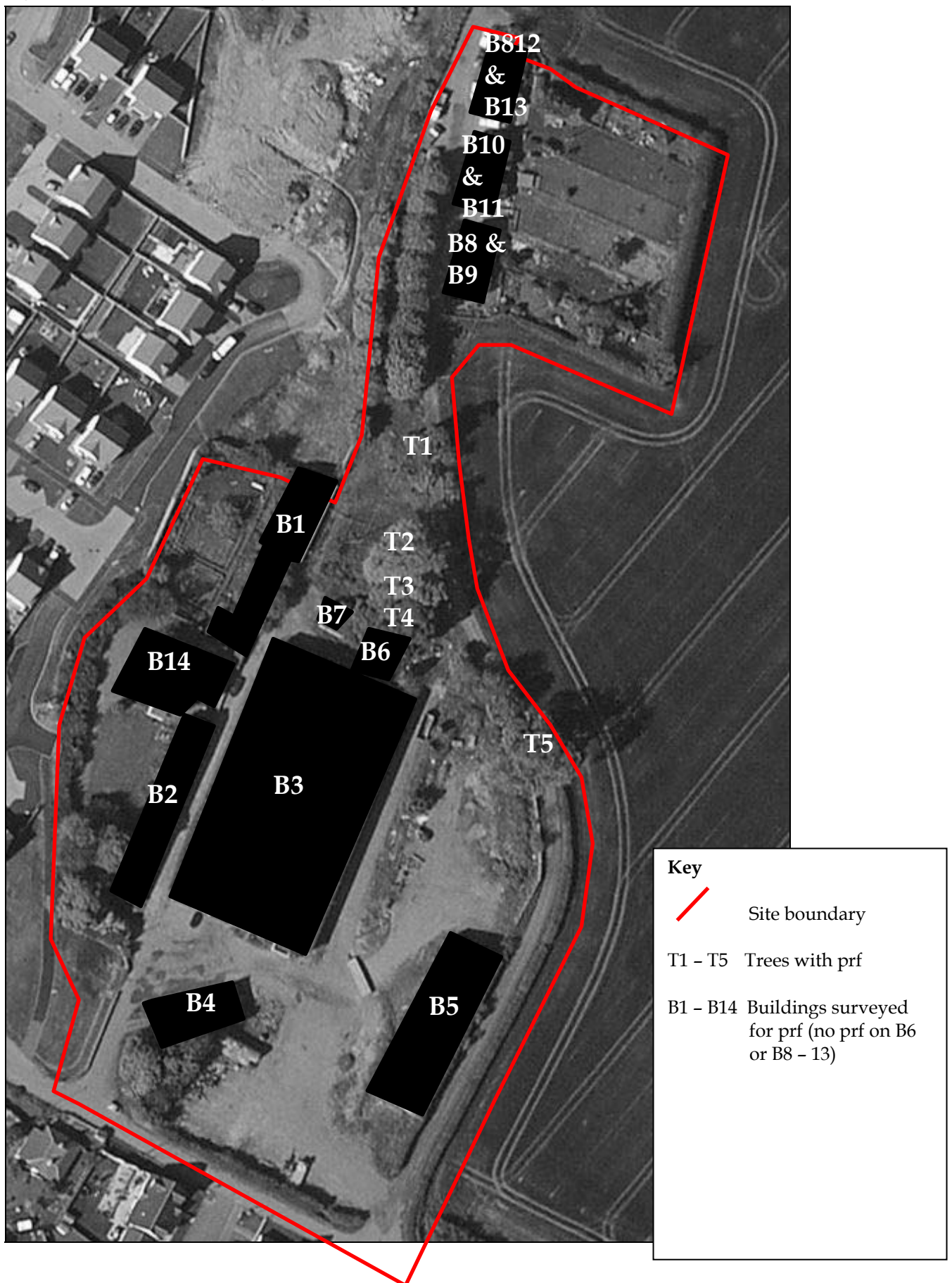
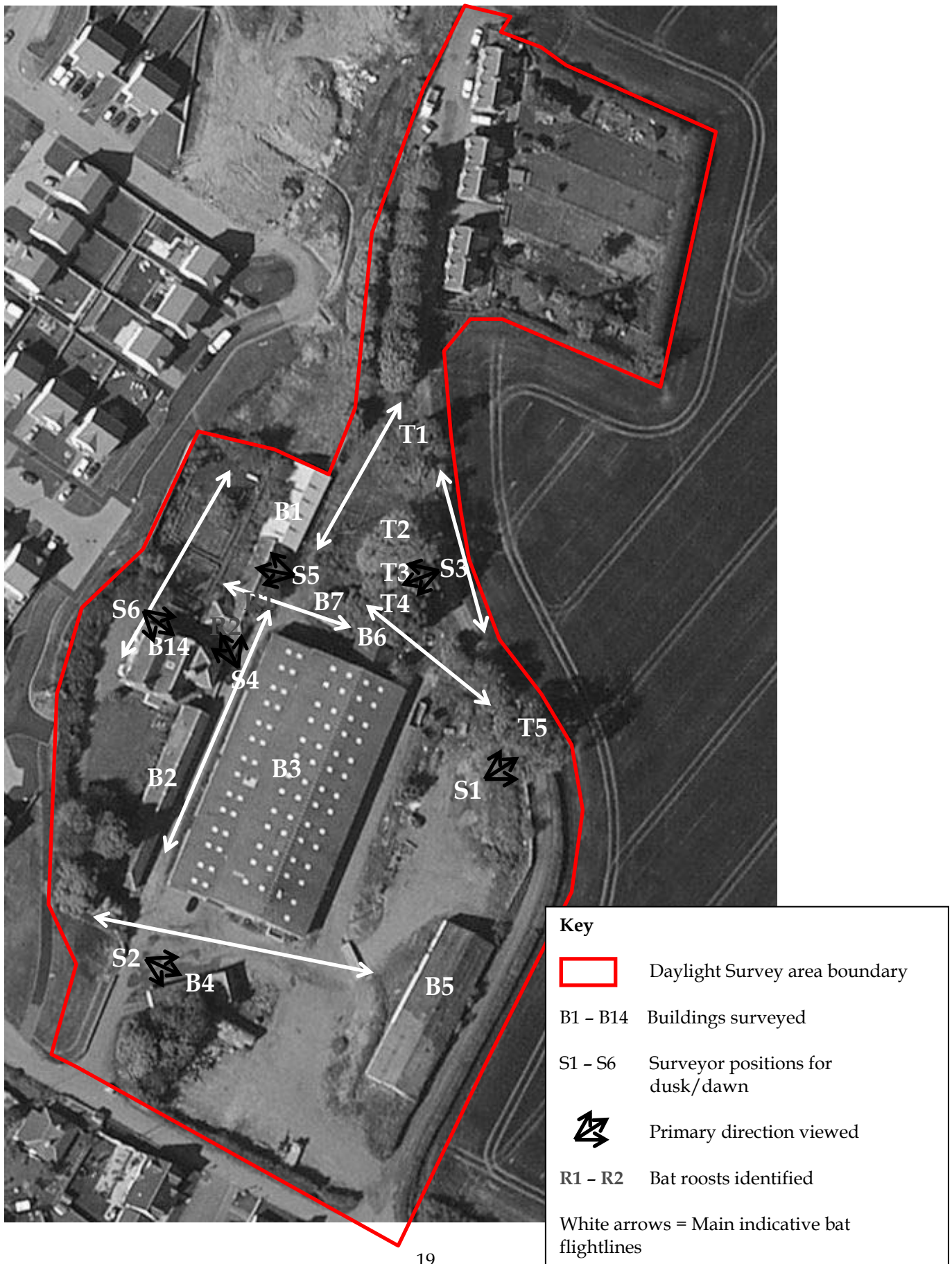


Figure 2. Locations of surveyors, roosts found, and key bat flightlines



Appendix 1. Desk Study data:

Table 1. TWIC

Common Name	Location Name	Location	Grid Reference	Date	Comment	Source
Bats		Dobbies Road, Bonnyrigg patch	NT305653	January 2000 - March 2001	Max. 2.	Lothian Wildlife Information Centre - Local Patch Project (public)
Bats	Lasswade		NT3065	19/06/2011		David Dodds Associates Ltd
Bats	Lasswade		NT3065	19/06/2013		David Dodds Associates Ltd
Bats	Lasswade		NT3065	29/08/2013		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	03/08/2011		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	03/08/2011		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	03/08/2013		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	03/08/2013		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	26/07/2011		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	26/07/2011		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	26/07/2011		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	26/07/2013		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	26/07/2013		David Dodds Associates Ltd
Common Pipistrelle	Lasswade		NT3065	30/06/2011		David Dodds Associates Ltd
Pipistrelle Bat species	Lasswade		NT3065	29/08/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	03/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	03/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	03/08/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	03/08/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/06/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/06/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/06/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/07/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/07/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/07/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	26/07/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	29/08/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	29/08/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	29/08/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	29/09/2011		David Dodds Associates Ltd

Common Name	Location Name	Location	Grid Reference	Date	Comment	Source
Soprano Pipistrelle	Lasswade		NT3065	29/09/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	30/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	30/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	30/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	30/06/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Lasswade		NT3065	30/06/2013		David Dodds Associates Ltd
Bats		Edmonstone Terrace, Danderhall	NT309697	26/07/2001- 26/10/2001	Max. 2.	Lothian Wildlife Information Centre - Local Patch Project (public)
Bats	Dalkeith, Melville Castle Hotel		NT310670	27/07/1987	summer roost	Lothian Bat Group - Lothian Bat Roost recording
Soprano Pipistrelle	Bonnyrigg, Lasswade		NT3164	18/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Bonnyrigg, Lasswade		NT3164	18/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Bonnyrigg, Lasswade		NT3164	18/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Bonnyrigg, Lasswade		NT3164	18/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Bonnyrigg, Lasswade		NT3164	18/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Bonnyrigg, Lasswade		NT3164	18/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Bonnyrigg, Lasswade		NT3164	18/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Dalkeith		NT3266	28/05/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Dalkeith		NT3266	28/05/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Dalkeith		NT3266	28/05/2011		David Dodds Associates Ltd
Pipistrelle Bat species	Dalkeith, Iron Mill		NT326671	18/10/1990	occasional roost	Lothian Bat Group - Lothian Bat Roost recording
Pipistrelle Bat species	Millerhill		NT3270	09/06/2009		David Dodds Associates Ltd
Soprano Pipistrelle	Millerhill		NT3270	04/06/2009		David Dodds Associates Ltd
Soprano Pipistrelle	Millerhill		NT3270	04/06/2009		David Dodds Associates Ltd
Soprano Pipistrelle	Millerhill		NT3270	07/05/2009		David Dodds Associates Ltd
Soprano Pipistrelle	Millerhill		NT3270	09/06/2009		David Dodds Associates Ltd
Soprano Pipistrelle	Millerhill		NT3270	10/06/2009		David Dodds Associates Ltd
Soprano Pipistrelle	Millerhill		NT3270	14/05/2009		David Dodds Associates Ltd
Soprano Pipistrelle	Millerhill		NT3270	23/04/2009		David Dodds Associates Ltd
Pipistrelle Bat species	Newbattle Viaduct		NT32716482	15/03/2013	1 Adult. Found in vertical joint at 9m height during endoscope inspection	Recorder - Singleton, R
Pipistrelle Bat species	Dalkeith, Ironmill Park, Whitesprings		NT327673	22/07/1987	summer roost	Lothian Bat Group - Lothian Bat Roost recording
Pipistrelle Bat species	Newbattle Viaduct		NT32806477	13/03/2013	1. Adult. Found in vertical joint at 15m height during endoscope inspection	Recorder - Singleton, R
Bats		Newbattle Abbey Crescent Estate	NT329658	May 1997 - December 2000	Max. 1.	Lothian Wildlife Information Centre - Local Patch Project (public)

Common Name	Location Name	Location	Grid Reference	Date	Comment	Source
Pipistrelle Bat species	Dalkeith, Lugton School		NT329678	07/05/1987	summer roost	Lothian Bat Group - Lothian Bat Roost recording
Daubenton's Bat	Dalkeith, Country Park, bridge over Esk		NT333682	23/09/2001	day roost?	Lothian Bat Group - Lothian Bat Roost recording
Bats		Lingerwood Cottages	NT335636	1988 - 2000	Max. 2.	Lothian Wildlife Information Centre - Local Patch Project (public)
Pipistrelle Bat species	Dalkeith High School		NT335671	17/09/1987	exclusion	Lothian Bat Group - Lothian Bat Roost recording
Soprano Pipistrelle	Newtongrange		NT3364	07/10/2011		David Dodds Associates Ltd
Common Pipistrelle	Lothianbridge		NT3365	23/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lothianbridge		NT3365	12/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lothianbridge		NT3365	12/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lothianbridge		NT3365	12/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lothianbridge		NT3365	19/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lothianbridge		NT3365	19/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lothianbridge		NT3365	23/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Lothianbridge		NT3365	23/08/2011		David Dodds Associates Ltd
Bats	Newbattle		NT3366	09/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	11/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	11/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	20/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	20/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	23/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	23/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	23/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle		NT3366	30/09/2011		David Dodds Associates Ltd
Common Pipistrelle	Newbattle, Dalkeith		NT3366	18/06/2013		David Dodds Associates Ltd
Common Pipistrelle	Newbattle, Dalkeith		NT3366	30/06/2013		David Dodds Associates Ltd
Daubenton's Bat	Newbattle, Dalkeith		NT3366	18/06/2013		David Dodds Associates Ltd
Daubenton's Bat	Newbattle, Dalkeith		NT3366	30/06/2013		David Dodds Associates Ltd
Pipistrelle Bat species	Newbattle		NT3366	11/09/2011		David Dodds Associates Ltd
Pipistrelle Bat species	Newbattle		NT3366	23/09/2011		David Dodds Associates Ltd
Pipistrelle Bat species	Newbattle		NT3366	23/09/2011		David Dodds Associates Ltd
Pipistrelle Bat species	Newbattle, Dalkeith		NT3366	18/06/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Newbattle		NT3366	11/09/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Newbattle		NT3366	20/09/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Newbattle		NT3366	20/09/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Newbattle		NT3366	23/09/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Newbattle		NT3366	23/09/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Newbattle, Dalkeith		NT3366	18/06/2013		David Dodds Associates Ltd
Soprano Pipistrelle	Newbattle, Dalkeith		NT3366	30/06/2013		David Dodds Associates Ltd
Common Pipistrelle	Dalkeith		NT3367	10/05/2011		David Dodds Associates Ltd
Common Pipistrelle	Dalkeith		NT3367	11/05/2011		David Dodds Associates Ltd
Common Pipistrelle	Dalkeith		NT3367	13/06/2011		David Dodds Associates Ltd

Common Name	Location Name	Location	Grid Reference	Date	Comment	Source
Common Pipistrelle	Dalkeith		NT3367	14/06/2011		David Dodds Associates Ltd
Common Pipistrelle	St Andrews Street, Dalkeith		NT3367	19/05/2010		David Dodds Associates Ltd
Pipistrelle Bat species	Dalkeith		NT3367	14/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Dalkeith		NT3367	10/05/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Dalkeith		NT3367	11/05/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Dalkeith		NT3367	13/06/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Dalkeith		NT3367	14/06/2011		David Dodds Associates Ltd
Bats	Reed Drive, Newtongrange		NT339649	04/06/1997	Remarks:"Eating moths".	Lothian Wildlife Information Centre - Mammal Survey (public)
Bats	Suttieslea Drive		NT3464	11/08/1997	Remarks:"Eating moths".	Lothian Wildlife Information Centre - Mammal Survey (public)
Bats	Inveresk Lodge National Trust garden, Midlothian.		NT3471	02/09/1997	Situation: in field below National Trust garden. Abundance: 5-6. Remarks: seen after dark, 9pm: quite small, possibly pipistrelles..	Lothian Wildlife Information Centre - Mammal Survey (public)
Bats	Inveresk Lodge National Trust garden, Midlothian.		NT3471	02/09/1997	Situation: garden. Remarks: quite small, possibly pipistrelle, seen after dark.	Lothian Wildlife Information Centre - Mammal Survey (public)
Bats	Near Whitehill Business Centre, Dalkeith		NT350667	08/10/2015	Bat seen flying at approx 19:17	Recorder - Harmsworth, N
Bats	Near Bielgrange		NT362675	04/12/1997		Lothian Wildlife Information Centre - Mammal Survey (public)
Bats		Carberry Tower	NT364697	February 1998 - March 2001		Lothian Wildlife Information Centre - Local Patch Project (public)
Bats	Dalkeith, Carberry Towers		NT365695	12/09/1988	tree hole roosts	Lothian Bat Group - Lothian Bat Roost recording
Bats	Vogrie Pond, Vogrie Country Park		NT3663	28/05/2015	Over pond	Recorder - Harmsworth, N
Bats	Crossgatehall, Whitecraig		NT3669	15/08/2011		David Dodds Associates Ltd
Bats		The Trows, Carberry	NT3669	May 1998 - April 2001	Max. 4.	Lothian Wildlife Information Centre - Local Patch Project (public)
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	22/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	22/08/2011		David Dodds Associates Ltd

Common Name	Location Name	Location	Grid Reference	Date	Comment	Source
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	22/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	25/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	25/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	25/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Soprano Pipistrelle	Crossgatehall, Whitecraig		NT3669	30/08/2011		David Dodds Associates Ltd
Bats		Backhill	NT374693	September 1998 - September 1999	Max. 4.	Lothian Wildlife Information Centre - Local Patch Project (public)
Bats	Dewarton		NT3764	18/05/1997	Woodland. Dead on pavement below trees.	Lothian Wildlife Information Centre - Mammal Survey (public)
Bats	Dewarton		NT3764	31/05/1997	In garden. Seen each day.	Lothian Wildlife Information Centre - Mammal Survey (public)
Bats	Dewartown		NT3764	09/05/1998	Probably Pipistrelle	Lothian Wildlife Information Centre - Mammal Survey (public)
Brown Long-eared Bat	Edgehead		NT3765	12/10/2007		David Dodds Associates Ltd
Brown Long-eared Bat	Edgehead		NT3765	12/10/2007-15/10/2007		David Dodds Associates Ltd
Brown Long-eared Bat	Edgehead		NT3765	28/08/2008		David Dodds Associates Ltd
Common Pipistrelle	Edgehead		NT3765	26/08/2008		David Dodds Associates Ltd
Common Pipistrelle	Edgehead		NT3765	28/08/2008		David Dodds Associates Ltd
Common Pipistrelle	Edgehead		NT3765	28/08/2008		David Dodds Associates Ltd
Natterer's Bat	Edgehead		NT3765	28/08/2008		David Dodds Associates Ltd
Soprano Pipistrelle	Edgehead		NT3765	26/08/2008		David Dodds Associates Ltd
Soprano Pipistrelle	Edgehead		NT3765	28/08/2008		David Dodds Associates Ltd
Unidentified Bat	Edgehead		NT3765	26/08/2008		David Dodds Associates Ltd

Common Name	Location Name	Location	Grid Reference	Date	Comment	Source
Soprano Pipistrelle	near Cousland		NT3767	13/08/2011		David Dodds Associates Ltd
Bats		Dewartown Village	NT378641	1998 - 1999	Max. 2/4	Lothian Wildlife Information Centre - Local Patch Project (public)
Bats	Near Cranston Country Nursery, Edgehead		NT379647	08/10/2015	Bat seen foraging at 19:08	Recorder - Harmsworth, N
Bats	Pathhead, Vogrie House		NT381633	04/06/1987	flying	Lothian Bat Group - Lothian Bat Roost recording
Brown Long-eared Bat	Pathhead, Vogrie House		NT381633	20/06/1988	summer roost	Lothian Bat Group - Lothian Bat Roost recording
Pipistrelle Bat species	Pathhead, Vogrie House SW turret		NT381633	07/06/1989	summer roost	Lothian Bat Group - Lothian Bat Roost recording
Whiskered Bat	Pathhead, Vogrie House		NT381633	20/06/1988		Lothian Bat Group - Lothian Bat Roost recording
Brown Long-eared Bat	Vogrie		NT3863	20/06/2005		David Dodds Associates Ltd
Common Pipistrelle	Vogrie		NT3863	09/10/2007		David Dodds Associates Ltd
Common Pipistrelle	Vogrie		NT3863	20/06/2005		David Dodds Associates Ltd
Pipistrelle Bat species	Vogrie		NT3863	09/10/2007		David Dodds Associates Ltd
Pipistrelle Bat species	Vogrie		NT3863	23/09/2006		David Dodds Associates Ltd
Soprano Pipistrelle	Vogrie		NT3863	20/06/2005		David Dodds Associates Ltd
Pipistrelle		Ford, Pathhead	NT386645	June 1998 - June 1999	Max. 900. Location: maternity roost nearby, numbers up from over 250 to about double that number. Increase in numbers.	Lothian Wildlife Information Centre - Local Patch Project (public)
Pipistrelle Bat species	Pathhead, Marmion Cottage, Ford		NT388645	19/07/1986	occasional roost	Lothian Bat Group - Lothian Bat Roost recording
Pipistrelle Bat species	Pathhead, Woodlands, Ford		NT388645	20/08/1986	summer roost	Lothian Bat Group - Lothian Bat Roost recording
Brown Long-eared Bat	Elibank Castle		NT395695	13/10/1996	hibernaculum?	Lothian Bat Group - Lothian Bat Roost recording
Daubenton's Bat	Elibank Castle		NT395695	13/10/1996	hibernaculum?	Lothian Bat Group - Lothian Bat Roost recording
Natterer's Bat	Elibank Castle		NT395695	13/10/1996	hibernaculum?	Lothian Bat Group - Lothian Bat Roost recording
Brown Long-eared Bat	Pathhead, 151 Main St		NT3964	14/11/1984	dead	Lothian Bat Group - Lothian Bat Roost recording

Appendix 2. Presence/absence survey data

Date	Surveyor position	Observation #	Time	Species	Survey type	# bats	# passes	Comments
27/07/16	S1	1	2213	Soprano Pipistrelle	Dusk	1	1	Heard not seen
27/07/16	S1	2	2237	Soprano Pipistrelle	Dusk	1	1	Heard not seen
27/07/16	S2	1	2137	Common Pipistrelle	Dusk	1	1	Flew over roof of stables at entrance gate flew round corner at trees feeding towards barn at rear
27/07/16	S2	2	2202	Common Pipistrelle	Dusk	1	1	Flew over trees heading west
27/07/16	S2	3	2217	Common Pipistrelle	Dusk	1	Multi	Flying back and forth overhead, flew past trees then alongside of B3 for 10 mins
27/07/16	S2	4	2230	Soprano Pipistrelle	Dusk	1	1	Feeding at tops of trees , over roof of b2 then feeding overhead above courtyard
27/07/16	S2	5	2237	Soprano Pipistrelle	Dusk	1	Multi	Feeding at trees at top of trees back and forth from B4 to B3 feeding for 15 to 20 mins
27/07/16	S3	1	2159	Soprano Pipistrelle	Dusk	1	1	Flew past tree heading north
27/07/16	S3	2	2202	Soprano Pipistrelle	Dusk	1	Multi	Flew up and down road
27/07/16	S3	3	2206	Soprano Pipistrelle	Dusk	2	1	Flew from behind me and round behind tree
27/07/16	S3	4	2210	Soprano Pipistrelle	Dusk	1	1	Flew from behind tree and down road
27/07/16	S3	5	2213	Soprano Pipistrelle	Dusk	1	1	Flew up road from houses and into field
27/07/16	S3	6	2215	Soprano Pipistrelle	Dusk	1	Multi	Flew down path and behind trees multiple times
27/07/16	S3	7	2219	Common Pipistrelle	Dusk	1	1	Flew from behind tree and up path
27/07/16	S3	8	2222	Soprano Pipistrelle	Dusk	1	1	Flew from field and down path
27/07/16	S3	9	2223	Soprano Pipistrelle/Common Pipistrelle	Dusk	2	1	Flew from behind tree and up path
27/07/16	S3	10	2226	Soprano Pipistrelle	Dusk	1	Multi	Flying between tree and field
27/07/16	S3	11	2229	Soprano Pipistrelle/Common Pipistrelle	Dusk	2	1	Flew down path to rear of surveyor and behind tree
27/07/16	S3	12	2231	Soprano Pipistrelle	Dusk	1	Multi	Flying up and down path
27/07/16	S3	13	2233	Soprano Pipistrelle	Dusk	1	1	Heard not seen
27/07/16	S3	14	2235	Soprano Pipistrelle/Common Pipistrelle	Dusk	4	1	Flew down path towards houses
27/07/16	S4	1	2146	Common Pipistrelle	Dusk	1	1	Flew south to north straight down road
27/07/16	S4	2	2151	Soprano Pipistrelle	Dusk	1	1	Flew past through gap between the buildings and

								up the farm access
27/07/16	S4	3	2154	Soprano Pipistrelle	Dusk	1	1	Came out of gutter, flew overhead and off to north (ROOST 1)
27/07/16	S4	4	2201	Common Pipistrelle	Dusk	1	1	Flew south to north straight down road
27/07/16	S4	5	2204	Common Pipistrelle	Dusk	1	1	Flying around the buildings just to south of surveyor
27/07/16	S4	6	2207	Common Pipistrelle	Dusk	1	1	From right of me over building to my right
27/07/16	S4	7	2210	Common Pipistrelle	Dusk	2	Multi	Feeding up and down path
27/07/16	S4	8	2228	Soprano Pipistrelle/Common Pipistrelle	Dusk	2	Multi	Flying up and down road behind me, until the end of survey
27/07/16	S5	1	2146	Common Pipistrelle	Dusk	1	1	Flew straight down road
27/07/16	S5	2	2151	Soprano Pipistrelle	Dusk	1	1	Flew down road
27/07/16	S5	3	2145	Common Pipistrelle	Dusk	1	1	Flew down road
27/07/16	S5	4	2201	Common Pipistrelle	Dusk	1	1	Flew down road
27/07/16	S5	5	2204	Common Pipistrelle	Dusk	1	1	Flew past trees to house
27/07/16	S5	6	2207	Common Pipistrelle	Dusk	1	1	Flew from trees and over sheds
27/07/16	S5	7	2210	Common Pipistrelle	Dusk	2	Multi	Feeding up and down lane
27/07/16	S5	8	2226	Soprano Pipistrelle	Dusk	1	1	Flew over big shed and down road
27/07/16	S5	9	2228	Soprano Pipistrelle/Common Pipistrelle	Dusk	2	Multi	Flew past trees and over sheds
27/07/16	S5	10	2248	Soprano Pipistrelle/Common Pipistrelle	Dusk	2	Multi	Flew past trees and over sheds
27/07/16	S6	1	2208	Soprano Pipistrelle	Dusk	1	1	Flew from behind surveyor and over wall to left
27/07/16	S6	2	2209	Soprano Pipistrelle	Dusk	1	1	Flew from building straight ahead round to tree on right
27/07/16	S6	3	2209	Common Pipistrelle	Dusk	1	1	Flew from building circled and returned in same direction
27/07/16	S6	4	2214	Soprano Pipistrelle	Dusk	1	1	Flew over wall on left and past tree on far right heading south
27/07/16	S6	5	2216	Soprano Pipistrelle	Dusk	1	1	Flew over wall on left and past tree on right then circled and returned
27/07/16	S6	6	2218	Common Pipistrelle	Dusk	1	1	Flew from right and straight past tree on left
27/07/16	S6	7	2232	Common Pipistrelle	Dusk	1	1	Flew from behind and over wall on left
27/07/16	S6	8	2234	Soprano Pipistrelle	Dusk	1	1	Flew over trees on right
27/07/16	S6	9	2237	Soprano Pipistrelle	Dusk	1	1	Heard not seen
11/08/16	S1	1	2240	Soprano Pipistrelle	Dusk	1	1	Heard not seen

11/08/16	S2	1	2121	Soprano Pipistrelle	Dusk	1	1	Flew from trees
11/08/16	S2	2	2126	Soprano Pipistrelle	Dusk	1	1	Flew behind barn to road
11/08/16	S2	3	2139	Soprano Pipistrelle	Dusk	1	1	Heard not seen
11/08/16	S3	1	2115	Soprano Pipistrelle	Dusk	1	1	Came from north to trees and then flew south
11/08/16	S3	2	2122	Soprano Pipistrelle	Dusk	1	1	Flew north past trees
11/08/16	S3	3	2124	Soprano Pipistrelle	Dusk	1	1	Heard not seen
11/08/16	S3	4	2127	Soprano Pipistrelle	Dusk	1	1	Came from north then flew towards left side of tree and headed south
11/08/16	S3	5	2133	Soprano Pipistrelle	Dusk	1	Multi	Flying up and down to south of trees
11/08/16	S3	6	2144	Soprano Pipistrelle	Dusk	1	1	Flew from east past surveyor and headed west
11/08/16	S3	7	2148	Soprano Pipistrelle	Dusk	1	1	Came from south and flew north behind the trees
11/08/16	S4	1	2109	Soprano Pipistrelle	Dusk	1	1	Came out of south end of building B1 between chimney and slate (ROOST 2)
11/08/16	S4	2	2118	Soprano Pipistrelle	Dusk	1	1	Came through gap between buildings to west and flew over B3
11/08/16	S4	3	2121	Soprano Pipistrelle	Dusk	1	1	Came from north and flew overhead heading southwards
11/08/16	S4	4	2139	Soprano Pipistrelle	Dusk	1	1	Flew through gap between buildings B2 and farmhouse
11/08/16	S4	5	2145	Soprano Pipistrelle	Dusk	1	1	Flew through gap between buildings
11/08/16	S4	6	2202	Soprano Pipistrelle	Dusk	1	1	Came from roadside and through gap between steading buildings
11/08/16	S4	7	2213	Soprano Pipistrelle	Dusk	1	1	Came from north heading southwest
11/08/16	S5	1	2209	Soprano Pipistrelle	Dusk	1	1	Flew from south and towards the road to the north
11/08/16	S5	2	2121	Soprano Pipistrelle	Dusk	1	1	Flew from road to north heading southwards
11/08/16	S5	3	2139	Soprano Pipistrelle	Dusk	1	1	Flew from south and towards road to the north
11/08/16	S5	4	2145	Soprano Pipistrelle	Dusk	1	1	Flew from south and towards road to the north
11/08/16	S5	5	2202	Soprano Pipistrelle	Dusk	1	1	Flew from road to north heading southwards
11/08/16	S5	6	2212	Soprano Pipistrelle	Dusk	1	1	Flew from road to north heading southwards
11/08/16	S6	1	2129	Soprano Pipistrelle	Dusk	1	1	Flew from side of cottage and flew towards S4/S5
11/08/16	S6	2	2134	Soprano Pipistrelle	Dusk	1	1	Flew past house and to S4/S5
24/08/16	S1	1	0434	Soprano Pipistrelle	Dawn	1	1	Heard not seen

24/08/16	S1	2	0439	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S1	3	0509	Soprano Pipistrelle	Dawn	1	1	Came from west then flew east behind tree
24/08/16	S1	4	0514	Soprano Pipistrelle	Dawn	1	1	Flew overhead then flew west
24/08/16	S1	5	0539	Soprano Pipistrelle	Dawn	1	1	Came from my right flew by trees then flew over building
24/08/16	S2	1	0428	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S2	2	0434	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S2	3	0444	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S2	4	0509	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S2	5	0510	Soprano Pipistrelle	Dawn	1	1	Flew past B2 towards B5
24/08/16	S2	6	0514	Soprano Pipistrelle	Dawn	1	1	Flew from B2 area and went behind B4
24/08/16	S2	7	0539	Soprano Pipistrelle	Dawn	1	1	Flew from trees behind B2 over B4
26/08/16	S3	1	0521	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S4	1	0417	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S4	2	0508	Soprano Pipistrelle	Dawn	1	1	Heard feeding but didn't see
24/08/16	S5	1	0417	Soprano Pipistrelle	Dawn	1	1	Heard not seen
24/08/16	S5	2	0508	Soprano Pipistrelle	Dawn	1	1	Feeding buzz heard , but didn't see
26/08/16	S6	1	0502	Soprano Pipistrelle	Dawn	1	1	Heard not seen
26/08/16	S6	2	0518	Soprano Pipistrelle	Dawn	1	1	Heard not seen

Appendix 3. Bat Protection Plan

Introduction

Two roosts used by a single roosting bat have been confirmed as an ecological constraint at this site and it is therefore necessary to apply for a regulation 44 license from SNH to allow legal disturbance/destruction of the roost. The bat survey report, this Bat Protection Plan, copy of any warrant/permissions to work, and the application form will all be sent to SNH for review. Approval of a licence may take up to eight weeks but can be less depending on the volume of applications SNH has received. This may only be done following the successful approval of planning permission, which at this stage is outline only.

This Bat Protection Plan details the proposed methodology for minimising roost disturbance or for successful roost destruction, while minimising the potential for harm to the bats, as well as detailing proposed mitigation.

Assessment of Roosts

- Roost 1 (Figure 1.) was used by a maximum of one Soprano Pipistrelle in late July , but was not detected in Roost 1 during subsequent surveys; and
- Roost 2 (Figure 1.) was used by a maximum of one Soprano Pipistrelle in mid-August 2016, but was not detected returning to roost in late-August.

Conclusion: at the time of survey building B1 contained two roosts used by a minimum of one non-breeding bat -we assess the roost as a non-maternity roost. Suitability for hibernation purposes is not known but is considered to be suboptimal as they may experience fluctuating temperature conditions throughout the winter.

Bats as a Constraint for Redevelopment

The presence of the roosts is a constraint for works within 30 – 50m of the roosts (depending on the nature of works and type of activity – vibration causes more disturbance and at longer distances) so there is ample opportunity to work elsewhere on site without disturbance to these roosts and therefore without a bat licence for those other areas.

Impact Assessment

Loss of two non-breeding roosts used by single Soprano Pipistrelle(s) is not considered to have any significant potential for negative impact on the national, regional, or local conservation status of the species, with works completed in a short timeframe and outwith the bat maternity season, and can easily be mitigated for:

Mitigation & compensation for roost loss

- i. The client has offered to erect two bat boxes suitable for multi-season roosting on the new build to mitigate for roost disturbance/loss during works – a multi-season box also suitable for hibernation will be erected on the north face of one the new buildings where cooler temperatures suitable for hibernation will be experienced, while one other box will be erected facing south to provide different thermal conditions suitable for summer use.
- ii. Bat boxes will be within 100m of the location of the former roosts.

- iii. Bat box locations will be agreed with the project licenced bat worker who will sign off on the locations. Note: box locations will be subject to a health and safety risk assessment to ensure that access to erect them is not only possible but safe to do so.

Method Statement

1. Before any developmental works may commence it will be necessary to update the bat presence/absence surveys and also monitor the known roost locations by completion of roost characterisation surveys. These surveys will be a set of at least two dusk and one pre-dawn survey. The findings of those surveys may result in the Bat Protection Plan being amended prior to submission to SNH.
2. An application for a Regulation 44 license to permit lawful disturbance to any bats using the roost and subsequent roost destruction will be submitted after full planning permission has been achieved – at present it is outline only. Timing of an application for a license is therefore unknown and depends on timing of demolition warrant approval and planning approval.
3. Prior to any works on site all contractors will be given a toolbox talk on the location of the bat roost, their legal obligations, signs to watch for bat presence, and procedures on what to do if any bats were found during works, plus emergency numbers for contacts to call for advice should any bat be found.
4. Roost destruction will be supervised by a licenced bat worker and may not start without their presence (other than if the dusk/dawn survey completed the night before and morning that demolition commences finds bats are no longer present. If no bats are present then SNH are agreeable to a non-licenced ecologist supervising the works/or sealing up the roost entry point.
5. The licenced bat worker will be in attendance as necessary during the following series of actions (subject to bat presence):
 - i. Briefing of contractors as 2. above;
 - ii. Bat survey data: A further dusk emergence survey and a pre-dawn return to roost survey will be subsequently completed immediately prior to works commencing subject to temperatures appropriate for bat activity to confirm species and numbers of bats using each roost immediately prior to roost exclusion/destruction.
 - iii. Roost destruction – if no bat is present at dawn then the building containing the roost may simply be demolished under supervision.
 - iv. If a bat is present using the roost then the licensed bat worker will either:
 - a. supervise works to soft strip the roost location and up to a 5m² area around it (if practical) or will perform that task themselves. Any bat found will be removed from the roost and will be taken off-site by the licenced bat worker and placed in a temporary bat box for later release at dusk; or
 - b. Fit a one-way excluder, which will be left in place for 14 days before removal and the roost entry immediately sealed pending demolition. Exclusion protocol will follow that established by SNH for many other bat licences at present.
 - v. The entry points must be sealed with expanding foam to prevent any re-entry as in iv. above, or the building be demolished immediately.

6. SNH will be consulted for advice before any works may continue if more than five bats are present in the roost prior to roost exclusion/destruction.
7. Any timber treatments required as part of the repair works will be selected to avoid harm to bats – as per Natural England guidelines TIN092.
8. Bat roost exclusion/destruction must avoid mid-November to early March to avoid the hibernation season when bats may be extremely difficult to detect.

Timing of Actions: Due to the unknown timings for Full Planning Approval no timings can be estimated here for any action only the sequence of actions detailed.

1. Licence application submission to SNH (TBC);
2. Dusk/predawn emergence surveys immediately before work commences (TBC);
3. Bat worker briefing of contractors on location of roosts and legal obligations (TBC);
4. Destruction of bat roosts (TBC);
5. Update findings of surveys to SNH if appropriate and amend mitigation/compensation accordingly if necessary (TBC);
6. Bat worker supervision of soft stripping as appropriate (TBC);
7. Installation of bat boxes on new builds; and
8. Licence return as per completion of works.

Note: The license application will only be submitted to SNH after full planning permission has been approved, or if a demolition warrant is in place.

Maps/site plans (at an appropriate scale)

Have been submitted as part of the application for the current licence.

Discussion

The proposed works have so far taken a high due regard for the presence of known bat roosts by adequate levels of survey given the short notice and urgency of the works, providing adequate mitigation measures and appropriate working methods to minimise the potential for harm to bats by avoiding the breeding season. Continued works through the re-roofing process will ensure that the high due regard continues, and as a result that the site is actually enhanced for use by roosting bats.