13 DUNNICHEN ROAD, KINGSMUIR

BAT SURVEY

MAY - JUNE 2021

David Dodds Associates Ltd

Ecological Consultants

TABLE OF CONTENTS

1 INTRODUCTION

This report refers to 13 Dunnichen Road, Kingsmuir, located less than 2km south-east of Forfar. It is proposed to demolish the existing double garage, as well as updating, repairing, and extending the existing house, and bat surveys are therefore required.

David Dodds Associates Ltd was commissioned on behalf of owners to carry out the necessary surveys, and this report details the methods and results, together with conclusions drawn and recommendations for further action.

Further information may be obtained from:

[redacted]
Charlotte Meyer-Wilson BA BSc MSc
Consultant Ecologist
(NatureScot Bat Roost licence 164702)

David Dodds Associates Ltd, 3 Newhall Farm Cottages, Traquair, Scottish Borders, EH44 6PY

Email: Charlotte@daviddoddsassociates.com
Tel: 0131 608 0012

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2 SUMMARY

A full suite of bat surveys, stage 1 preliminary roost assessment and stage 2 bat activity survey, were conducted at this site in line with current national guidelines and local planning policy. The stage 1 bat survey investigated the roost potential of the buildings and potential of the surrounding habitat to support bats. The stage 2 bat activity survey consisted of **one sunset** survey based on the roost potential of the buildings and the surrounding habitat.

During the surveys, the following observations were made:

- No direct evidence of bats was found within the structure of the buildings during the stage 1 preliminary roost assessment.
- The buildings were found to have **low suitability** to be used by roosting bats.
- Two species of bats were recorded in flight at the site during the stage 2 bat activity survey.
- No bat roosts were identified within the structure of the buildings during the stage 2 bat activity survey.

This survey report is valid until 1st December 2022.

3 LEGAL PROTECTION

3.1 Protection of bats under Scots and European law

All bat species were designated as European Protected Species (EPS) by Article 12 of **The European Habitats Directive 92/43/EEC (1992)**. This was enshrined in Scots Law by **The Conservation (Natural Habitats etc) Regulations (1994).**

3.2 Possible offences

The following actions constitute criminal offences:

- **Capturing or killing bats.** This is an absolute offence – there is no need for the prosecution to demonstrate an intention to commit the offence to secure conviction.
- **Harassing bats.**
- **Disturbing bats:**
    a. **Affecting their ability to survive, breed or rear young.**
    b. **Affecting their local distribution or abundance.**
    c. **Whilst rearing or caring for their young.**
    d. **Whilst occupying a structure or place used for shelter or protection.**
- **Obstructing bats from accessing a breeding site or resting place.**
- **Damaging or destroying a breeding site or resting place used by bats.**
- **Possessing any live bat, dead bat or part of a dead bat.**

In addition, the following are also offences:

- **Attempting to commit one of the above offences**
- **Knowingly causing or permitting someone else to commit one of the above offences.**

Maximum fines for committing one of the above offences are £5,000 **per animal.**

3.3 Avoiding committing an offence

Most of these offences (excluding 1) can be committed recklessly as well as deliberately, meaning that ignorance of the presence of bats is not a defence: you are expected to do all you can to find out whether bats (or other protected species) are present and whether you are at risk of committing an offence. In practice this means instructing a consultant ecologist to carry out surveys and taking account of their professional advice.

3.4 Licensing

Derogation Licence:

In certain circumstances, a Scottish Government derogation licence may be obtained, permitting an offence to be committed without prosecution. For a licence to be issued, three legal tests must be met:

- The reason for committing the offence must fall within certain narrow parameters, including:
    a. The proposal is in the public interest, e.g. the construction of a school or community centre.
    b. The proposal is necessary on grounds of safety.
    c. The proposal is necessary to safeguard property.
    d. The proposal is necessary to safeguard livestock.
- All reasonable alternatives must have been considered.
- The favourable conservation status of the bat species must be undiminished.

This usually requires a mitigating work programme to minimise disturbance/harm and usually compensation measures to ensure the bats are not disadvantaged, e.g. the creation of a replacement roost.

Applications for derogation licences can take up to 8 weeks to be processed and often require strict timetables for action. Early action can therefore reduce delays caused by licencing, mitigation, and compensation.

Bat Low Impact Licencing (BLIMP):

In certain circumstances, a Scottish Government BLIMP licence may be obtained, permitting an offence to be committed without prosecution. For a BLIMP licence to be issued, the following criteria must be met:

1. The proposal affects non-breeding soprano pipistrelle or common pipistrelle roosts.
2. Bat surveys have been overseen by licenced bat worker.
3. Works on site affecting bats will commence within 18 months of the date bat surveys were completed.
4. A site-specific bat protection plan written by a licenced bat worker is in place, detailing how to minimise impacts on bats and bat roosts.
5. There is no alternative to the proposal will avoid the impact to bats.
6. The proposal has any needed statutory permissions in place.
7. The site has been registered with NatureScot licensing team.
8. Prior to works commencing on each site mitigation must be in place, i.e. woodcrete/woodstone bat boxes.
9. Prior to works commencing on site, all workers have been briefed by a licence holder.
10. A copy of the site-specific bat protection plan is displayed on site for the duration of all works covered by the BLIMP licence.

A BLIMP licence will permit the following actions:

- damage or destruction of non-breeding soprano pipistrelle or common pipistrelle bat roosts.
- temporary disturbance of those species in those roosts.
- obstructing access to those roosts.
- temporary handling of any bats of those species found during the course of works.

The BLIMP licence will not cover activities affecting other bat species or other types of roost. However, this will not preclude working under the BLIMP licence at a site where other species or roost types are present providing that the works will not affect them.

3.5 Disclaimer

David Dodds Associates Ltd has no qualifications pertaining to law and therefore cannot offer a legal opinion. It is strongly recommended that legal advice be sought before taking any action which might expose you to a risk of prosecution. The author can recommend a specialist environmental lawyer.

4 BAT SPECIES IN SCOTLAND

4.1 Bat Ecology

There are 17 species of bat currently resident in the UK. Nine species are known from Scotland. All are believed to have declined as they face many threats to their highly developed and specialised life cycles. In general, their dependence on insects has left them vulnerable to habitat destruction, land drainage, habitat fragmentation, agricultural intensification, and increased use of pesticides. Their reliance on buildings and decaying trees has also made them vulnerable to felling, repairs, and the use of timber treatment chemicals.

In the UK, bats are generally active from late March to mid-October, hibernating from late October to mid-March. In early summer, females gather in maternity roosts to give birth, normally producing a single offspring per year. This slow rate of reproduction inhibits repopulation in areas of rapid decline. Bats are generally born in June/ July and are dependent on their mothers for about six weeks. In autumn and winter, male and females gather for mating. The females are able to store sperm until spring when an egg may be fertilized. In winter, bats hibernate in sites that have a cool, humid, and stable climate.

Bats generally return to the same roost sites every year which makes them particularly vulnerable to disturbance or destruction of these sites. Some species of bat move roost frequently and use a number of different roost sites.

4.2 Bat Species

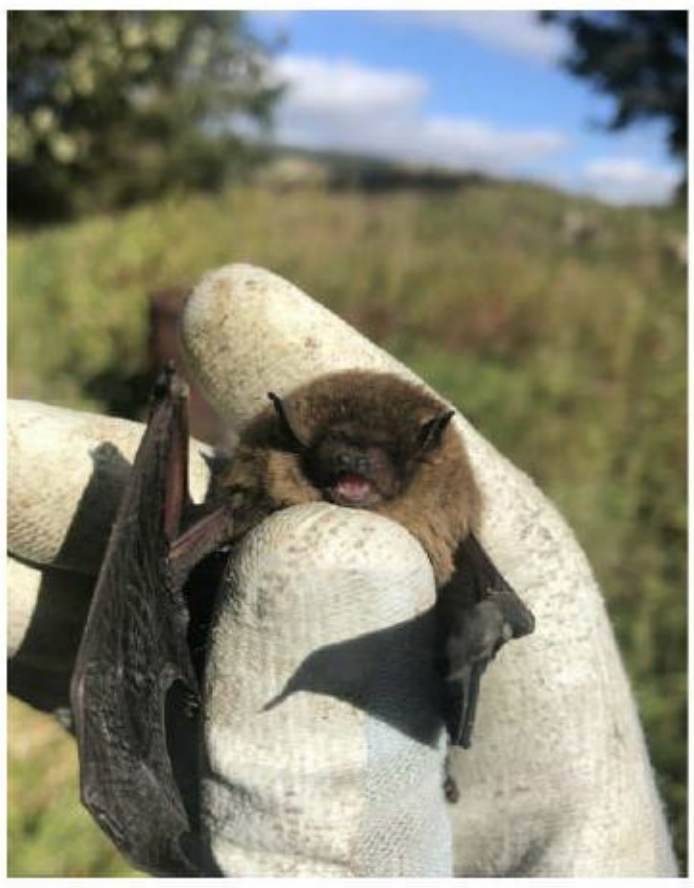


Fig. 1 - Soprano Pipistrelle

Soprano Pipistrelle *(Pipistrellus pygmaeus)* is the most frequently encountered species in Central Scotland. They roost mostly in modern buildings, but occasionally in trees or other crevices. They range up to 4km from their roosts, using hedgerows and woodland edges to provide commuting routes to foraging sites and eat small flying insects and midges, with an affinity for habitats with a riparian element.

Common Pipistrelle *(Pipistrellus pipistrellus)* is less common in Scotland than further south, but still frequently encountered. Its habits are very similar to the Soprano Pipistrelle but uses more generalised habitats.

Nathusius' Pipistrelle *(Pipistrellus nathusii)* is one of Britain's rarest bat species, with only a handful of records in Scotland. They tend to roost in tree-holes or buildings and are most commonly associated with large water bodies, such as reservoirs.

Brown Long-eared Bat *(Plecotus auritus)* is a relatively common, but rarely seen woodland bat. Primarily gleaners, they pick larger insects and arachnids off shrubs and trees, mostly in dense woodland. They roost in hollow trees or in the roof spaces of older buildings or barns, always very close to woodland.

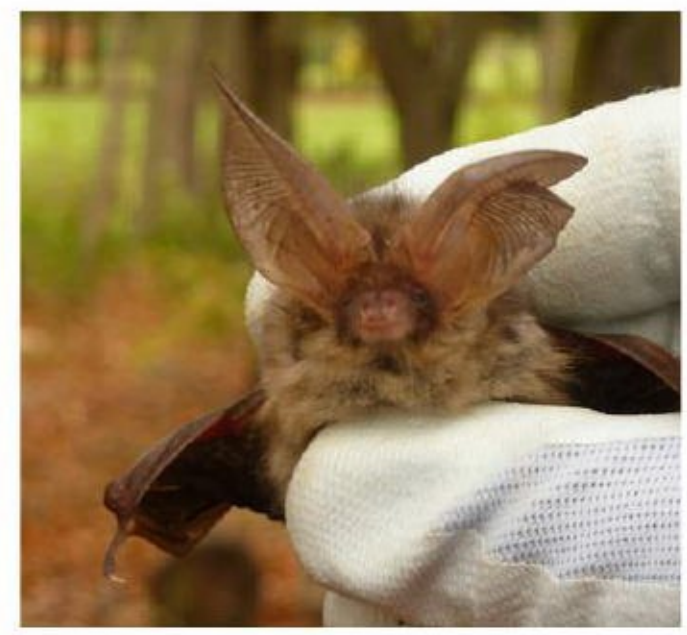


Fig. 2 – Brown Long-eared Bat

Natterer's Bat *(Myotis nattereri)* is primarily a woodland bat, catching insects in flight and occasionally gleaned from trees and shrubs, though they also forage low over pasture. They most commonly roost in hollow trees, occasionally also in buildings near to woodland.

Whiskered Bat *(Myotis mystacinus)* is known in Central Scotland from a small number of records, though it is easily confused with Natterer's Bat and may be under-recorded. They forage in a variety of habitats, including hedgerows, woodland, and parkland. They roost in old stone buildings, and in tree crevices.

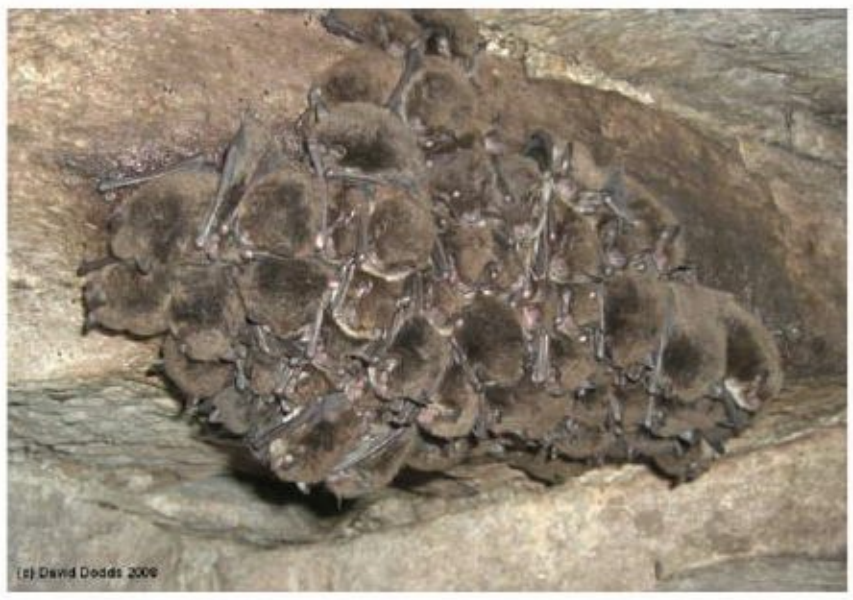


Fig. 3 – Cluster of Daubenton's Bats

Daubenton's Bat *(Myotis daubentonii)* forages almost exclusively over water, eating insects and other arthropods gaffed from the water surface or caught in flight just above it. Their roosts tend to be close to water, usually in hollow trees or cavities in bridges or other waterside structures.

Noctule *(Nyctalus noctula)* is the largest bat in Scotland and only rarely found north of the Borders. They mostly roost in hollow trees and emerge, often before dark to forage high over parkland, woodland, and pasture on large flying insects.

NB: All images of bats are for illustrative purposes only, including image on front cover.

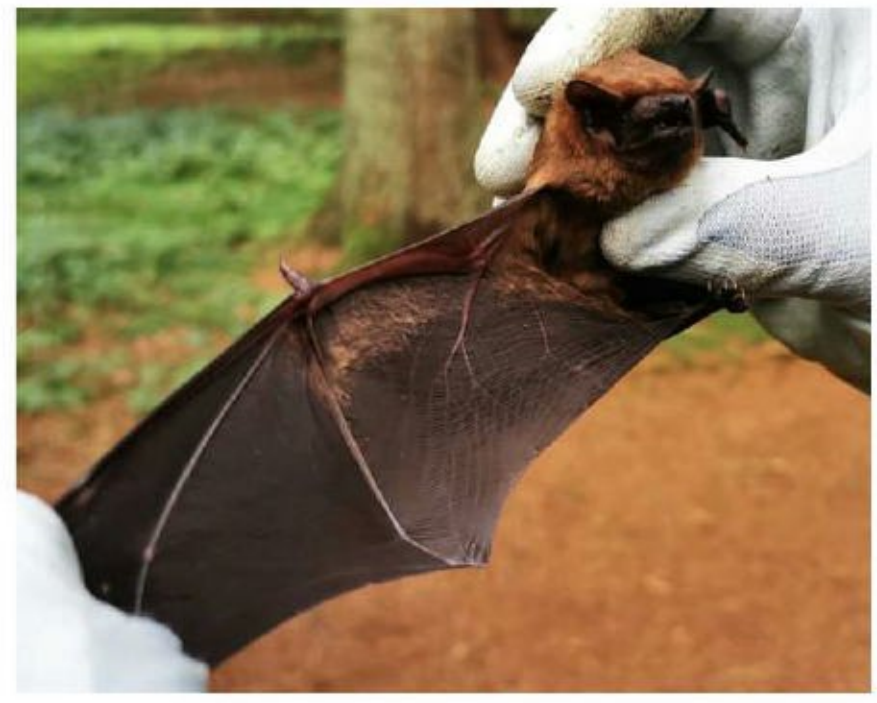


Fig. 4 – Noctule Bat

5 SURVEY METHODS

5.1 Desk study

Records of bats within a 5km radius of the site were obtained from appropriate sources of biological records. 1:25 000 and 1:10 000 Ordnance Survey maps were consulted, together with satellite pictures, in order to assess the surrounding habitat. The NatureScot Sitelink website was consulted, to establish whether the site lay within or close to any designated sites.

5.2 Preliminary roost assessment

The buildings were systematically examined for signs of bats and for structures with suitability for roosting bats. A high-power spotlight, close-focusing binoculars, ladders, and an endoscope were used where necessary, to understand the structure.

Structures with suitability could include sarked slate or tile roofs, wall-heads, cavity walls, attic voids, lofts, masonry crevices, rubble-filled walls, cellars, barrel-vaulted ceilings etc.

Signs of bat roosts could include droppings, urine spots, smear marks, corpses, ectoparasites, odor and social calls or scrabbling noises.

Upper stories, attics etc. were examined where they were accessible, and it was judged safe to do so.

5.3 Stage 2 (activity) Bat survey

The sunset emergence survey commenced 30 minutes before sunset and finished 90 minutes after sunset. Surveyors surrounded the buildings, in the locations marked in figure 5, which allowed all relevant faces of the buildings to be monitored for signs of emerging or returning bats. Contact was maintained with all surveyors by radio.

Each surveyor was equipped with a Peersonic RPA2 heterodyne/full spectrum bat detector with integral digital recorder. The audio output was monitored for bat activity and the full spectrum output was recorded to a Secure Digital memory card. This allowed for further analysis using Anabat Insight software, where necessary. As well as surveyors, infrared cameras were used to clearly see dark areas of the building.

The supervising ecologist was equipped with a Titley Electronics Anabat Walkabout detector. This records bat calls to a memory card, whilst displaying them as a real time sonogram, allowing immediate identification and subsequent analysis if required.

A log of bat activity was maintained, paying particular attention to locations where bats may have emerged from and to, and to behaviour that could indicate commuting or hunting activity.

Weather conditions (ambient temperature in degrees Celsius, cloud cover in Oktas, wind speed using the Beaufort Scale and precipitation notes) were recorded at the start and end of the survey. Significant changes in weather during the survey were noted. Light conditions (measured in Lux) were recorded at the start and end of the survey.

5.4 Survey team

The survey program was planned by the director, David Dodds, a licensed bat specialist who has worked with bats for over ten years and who holds NatureScot (N.S.) bat scientific, conservation and training license number 135635. The stage 1 survey was carried out by the consultant ecologist Charlotte Meyer-Wilson, who has extensive experience carrying out bat surveys, and holds a N.S. bat license number 164702.

Stage 2 survey was conducted by the lead field ecologist, Laura McHarry, who was assisted by members of our bat survey team, all of whom are undergraduates or graduates in ecology or biological sciences and have undergone an intensive training program. The training program includes bat ecology, use of bat detectors, bat call identification, bat survey methods, health and safety and professional standards. Their individual experience is given in the table below.

Survey	Surveyor	Experience
1st June 2021	Marika Calzavara	2 months
1st June 2021	Gareth Powell	2 years
1st June 2021	Niamh Ni Nagy	2 years
1st June 2021	Ruth McAlister	3 years

5.5 Survey limitations

All British bats are peripatetic and move between different roosting sites through the seasons and sometimes within seasons. The absence of bats on a particular occasion does not necessarily rule out their presence at other times. An absence of physical signs does not always indicate the absence of a roost.

Physical surveys were carried out where it was safe to do so. Where unstable structures rendered it unsafe to enter a structure survey effort was reduced.

5.6 Site plan

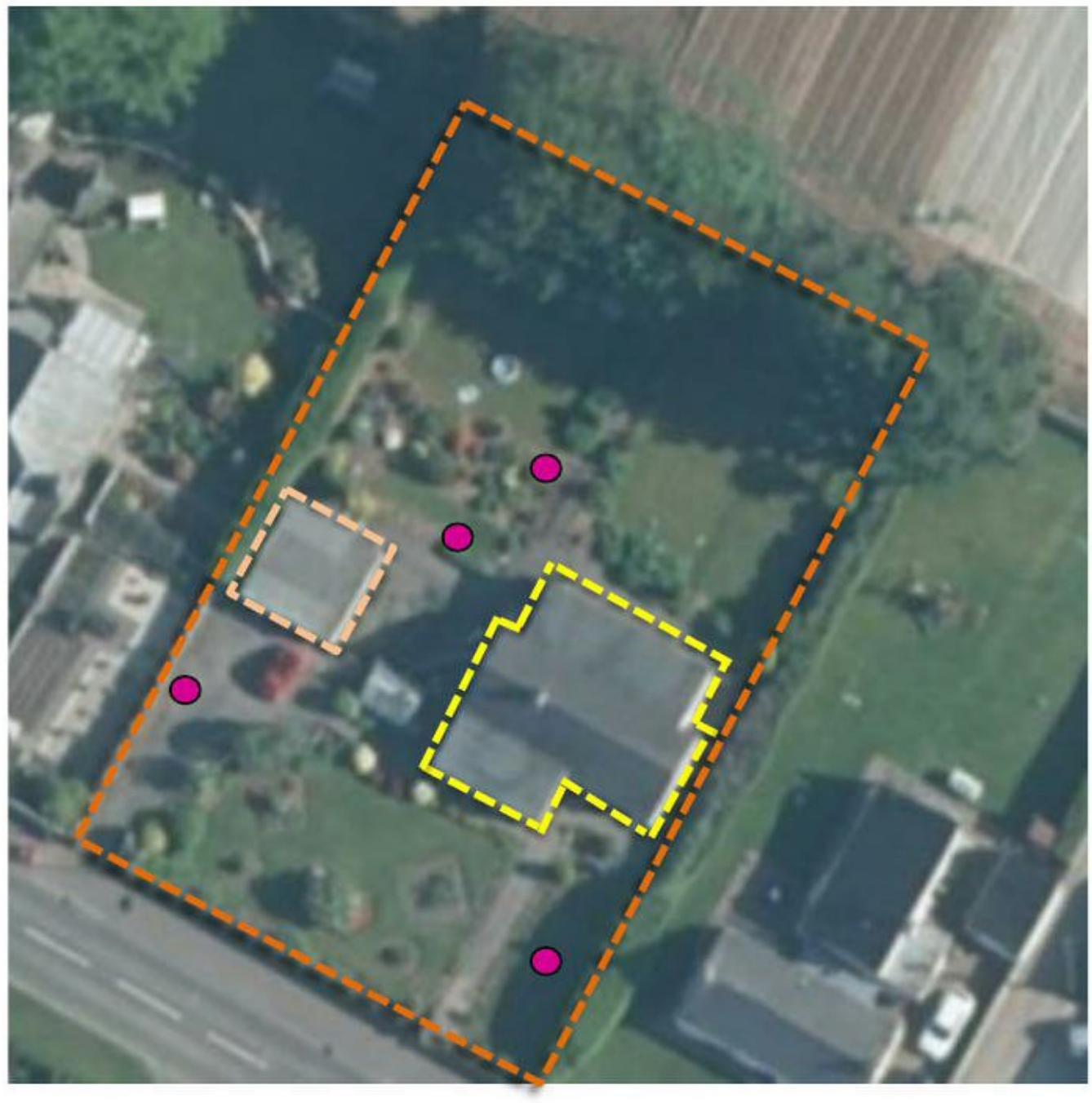


Fig. 5 – Satellite picture of the site, showing the subject buildings and surveyors' locations during the stage 2 survey.

KEY

Location of surveyors during sunset survey

House

Garage

Approximate site boundary

6 RESULTS

6.1 Desk study

6.1.1 Designated sites

The survey site does not lie within or adjacent to any designated sites.

The nearest designated site is Restenneth Moss Site of Special Scientific Interest (SSSI), located approximately 2.3km north of the site. Approximately 3.2km north of the site is Turin Hill SSSI. Rescobie and Balgavies Lochs SSSI is located approximately 3.2km north-east of the site.

Restenneth Moss SSSI was designated in 2010 to protect its mesotrophic wetland plant communities. Turin Hill SSSI was designated in 2009 to protect its non-marine Devonian age rock sequence and its fossils. Rescobie and Balgavies Lochs SSSI was designated in 1990 to protect its basic and transition open fen wetlands, and rare vascular plant assemblage.

6.1.2 Biological records

Records show two species of bat recorded within 5km of the site: Soprano Pipistrelle and Brown Long-eared bat.

6.1.3 Surrounding habitat

The site lies less than 2km south-east of the town of Forfar. The subject buildings are surrounded primarily by arable farmland.

The largely coniferous woodland to the east of the site is less likely to be used by foraging bats, but the edge habitat surrounding them is likely to be used by foraging Pipistrelle species, as are woodland edges, gardens etc. Houses and buildings in the immediate area and further afield in Forfar are likely to provide roosting opportunity for these crevice-roosting species.

Hedgerows and the few, small sparse patches of broadleaved woodland to the north and south may provide foraging opportunities for Pipistrelle species, as well as providing commuting opportunities for a range of bat species.

The nearest large waterbodies are Loch of Forfar approximately 4km north-west of the site, Rescobie Loch and a cluster of smaller water bodies approximately 4km north of the site, and Balgavies Loch approximately 5.5km north-east of the site. All have broadleaved trees bordering them and may be suitable to support riparian specialists, Daubenton's bat.

6.2 Preliminary roost assessment

Date of survey	21 May 2021
Weather conditions	Dry
Light conditions	Bright

The subject buildings are a single storey detached residential bungalow with a small internal attic space, and a detached double garage. The house comprises a sarked pitched slate roof and a flat roof over the front sunroom and the rear extension.

The slate roof is in overall good condition, however, does have a few slipped or raised slates that may be used by crevice roosting bat species. The attic was examined, and although there is potential to be used by attic dwelling bat species, no evidence of bats was found during the stage 1 preliminary roost assessment.

The walls are of ashlar stone and pebbledash, with no apparent cracks or crevices. The sunroom extension has a timber frame that is cracked and rotting in places, leaving gaps that have the potential to be used by bats.

The garage comprises a slightly pitched corrugated steel roof, with wooden cladding, and pebbledash elevations. The timber frame within the garage is exposed and there are some gaps behind the wooden fascia, making it suitable to be used by roosting bats.

The buildings were found to have **low suitability** to be used by roosting bats.

6.3 Photos

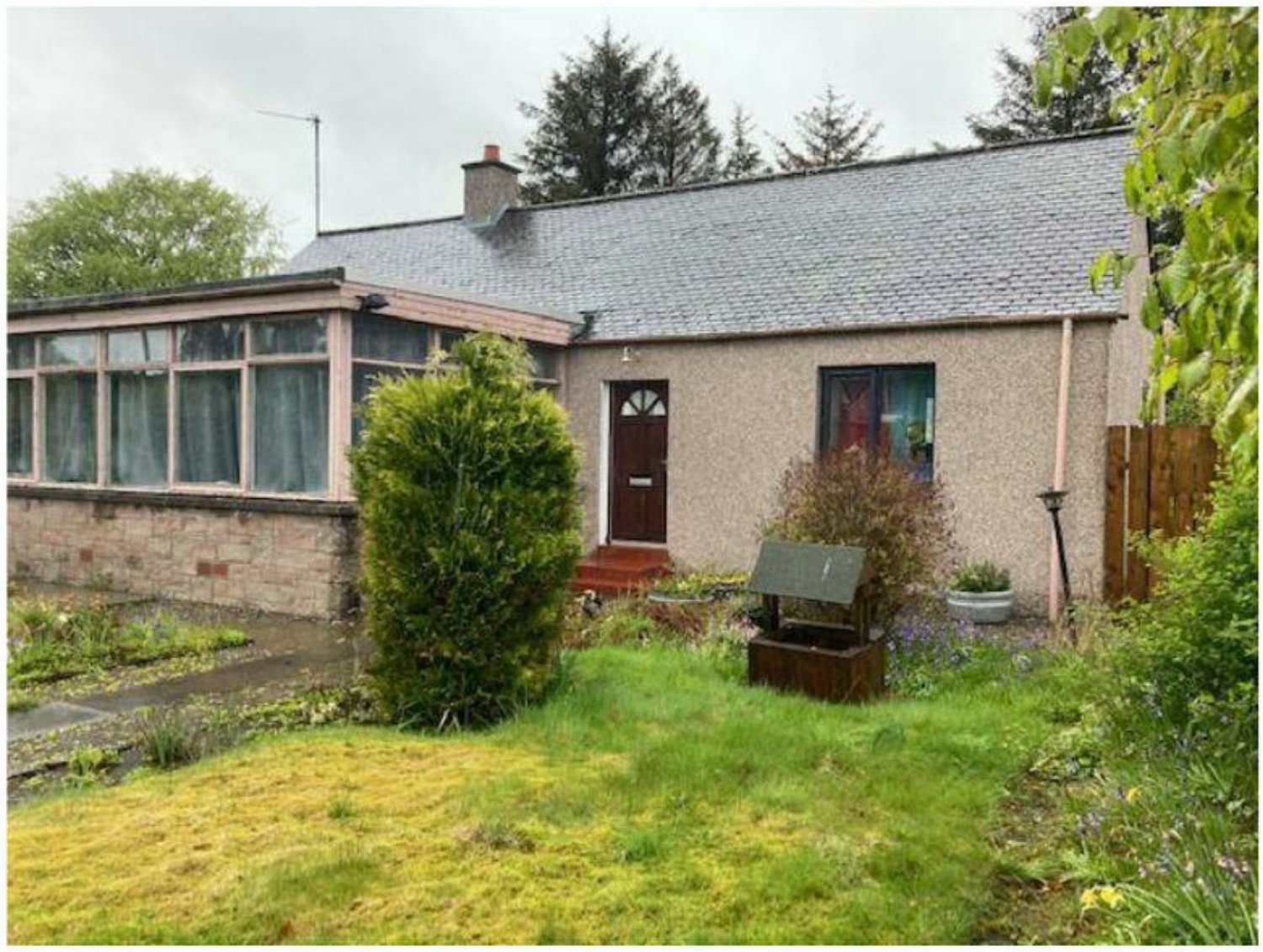


Fig. 6 – South elevations of the house.

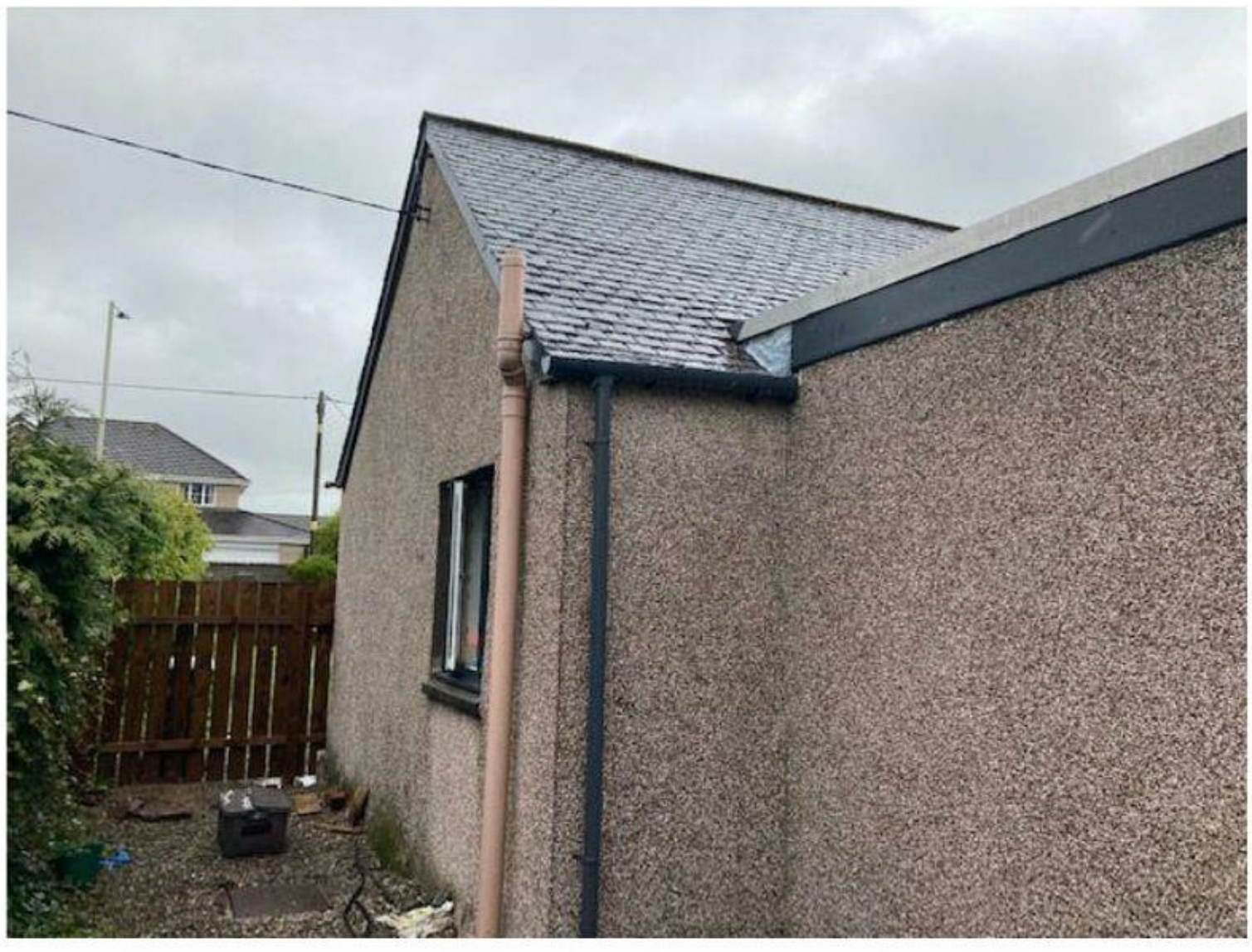


Fig. 7 – East elevation of the house.

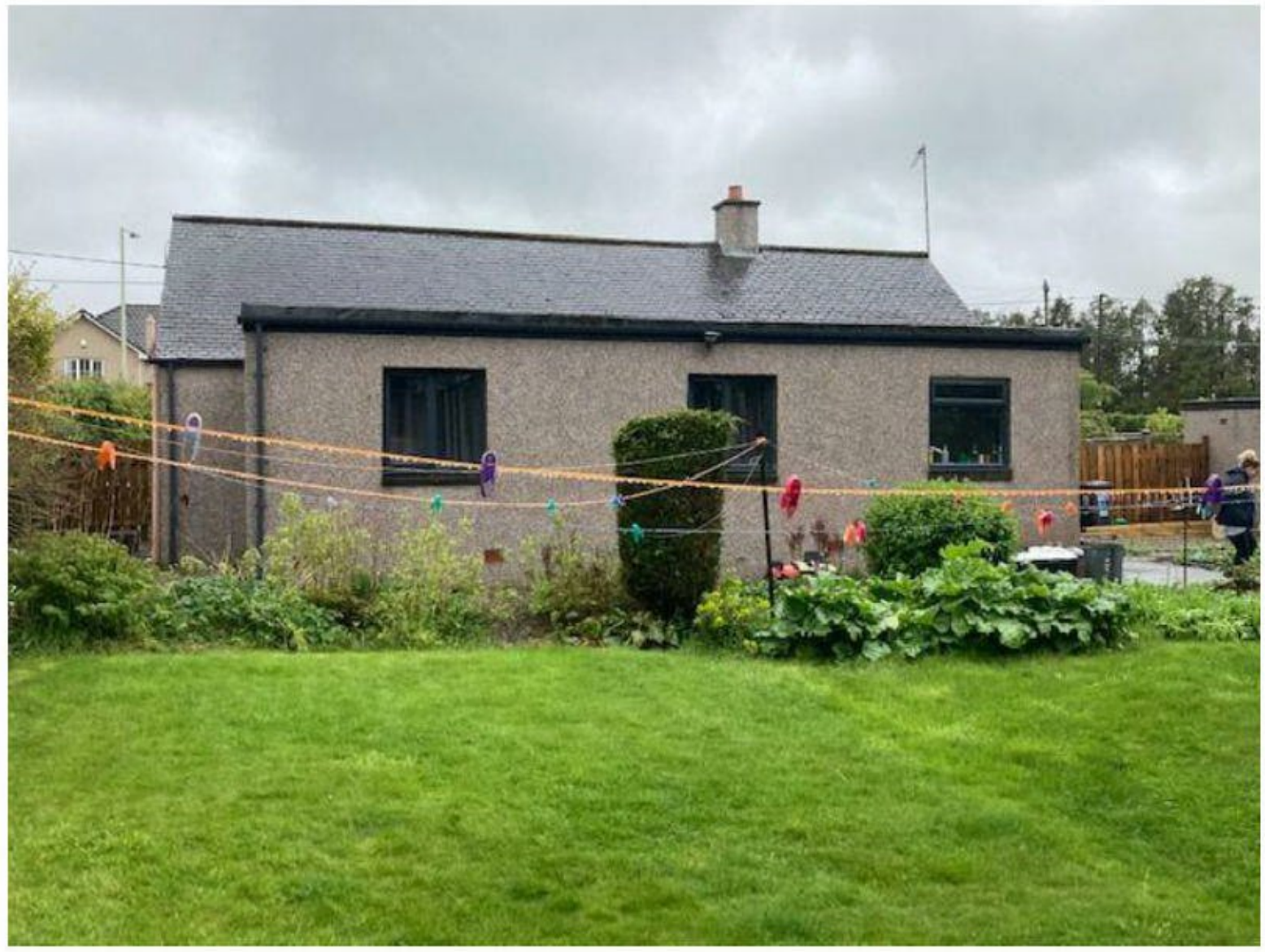


Fig. 8 – North elevation of the house.

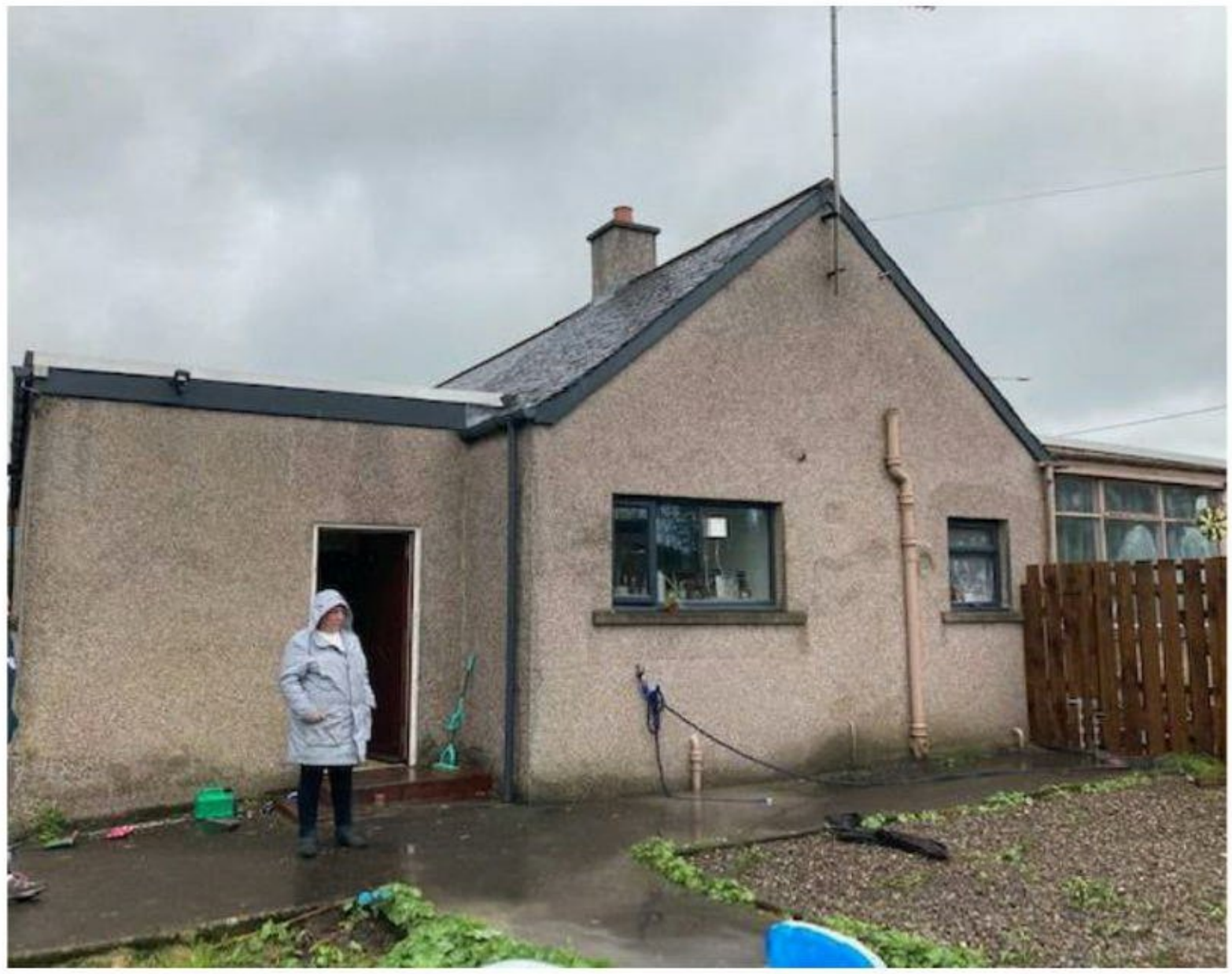


Fig. 9 – West elevation of the house.

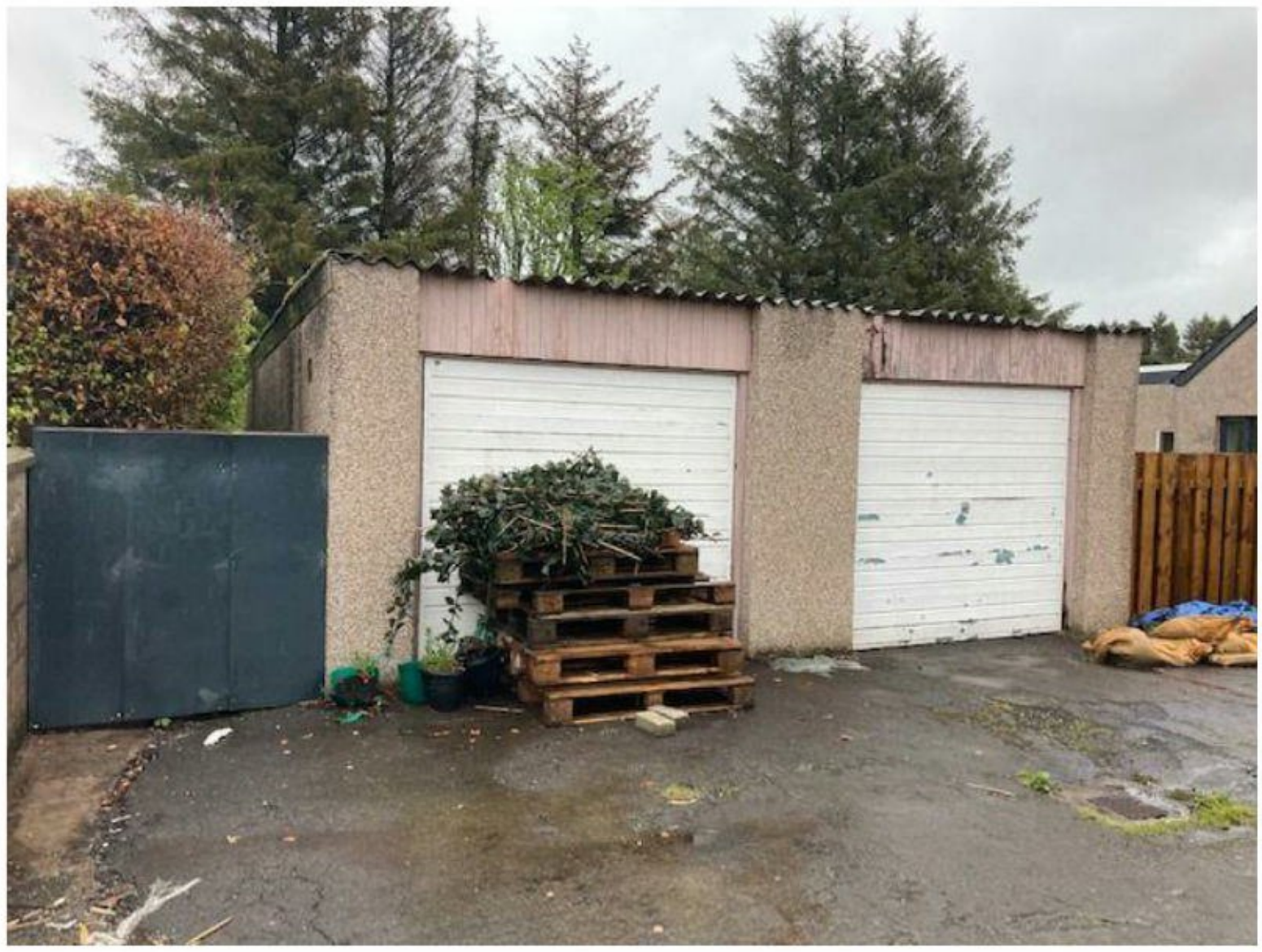


Fig. 10 – South elevation of the double garage.

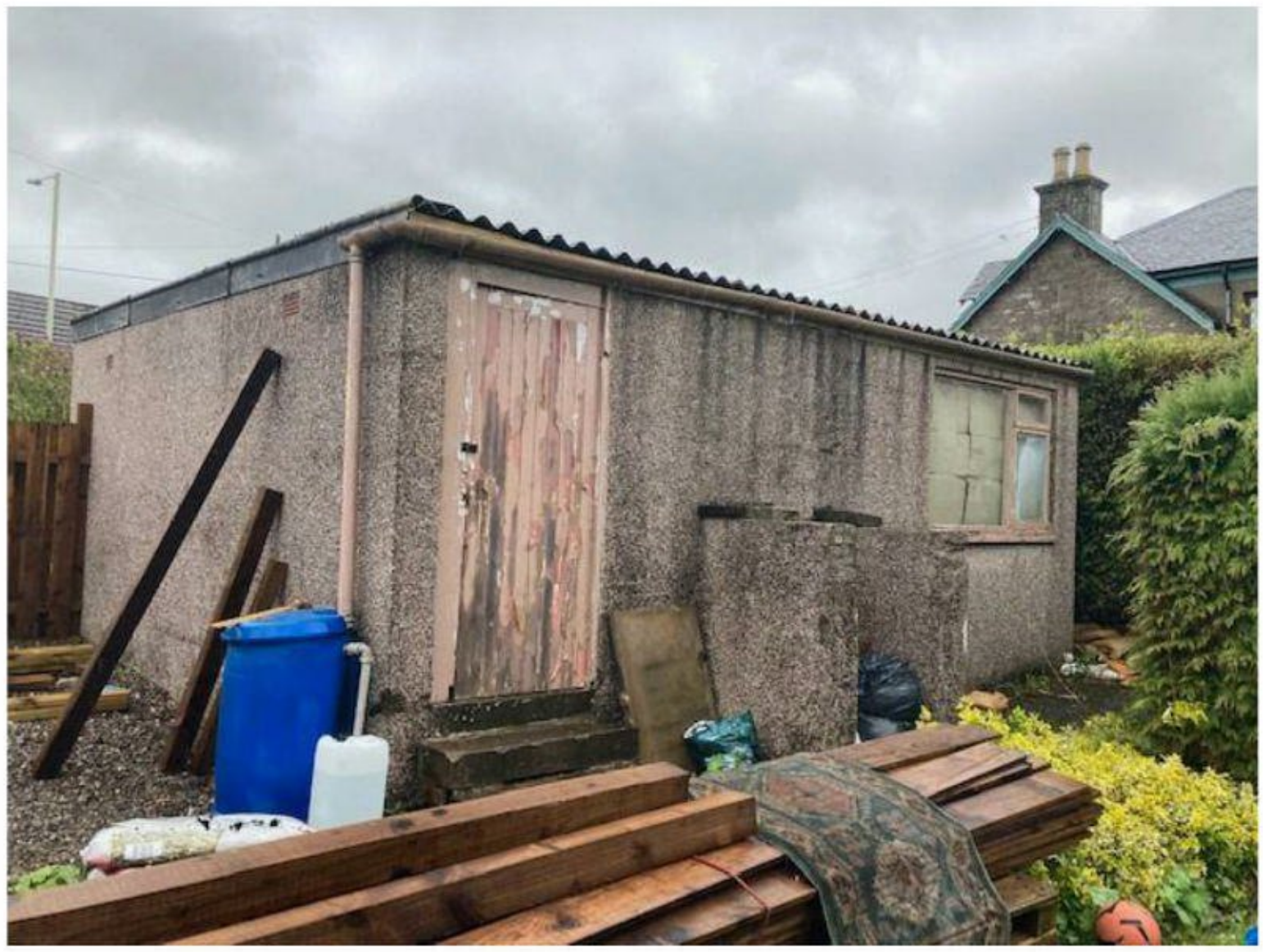


Fig. 11 – North elevation of the double garage.

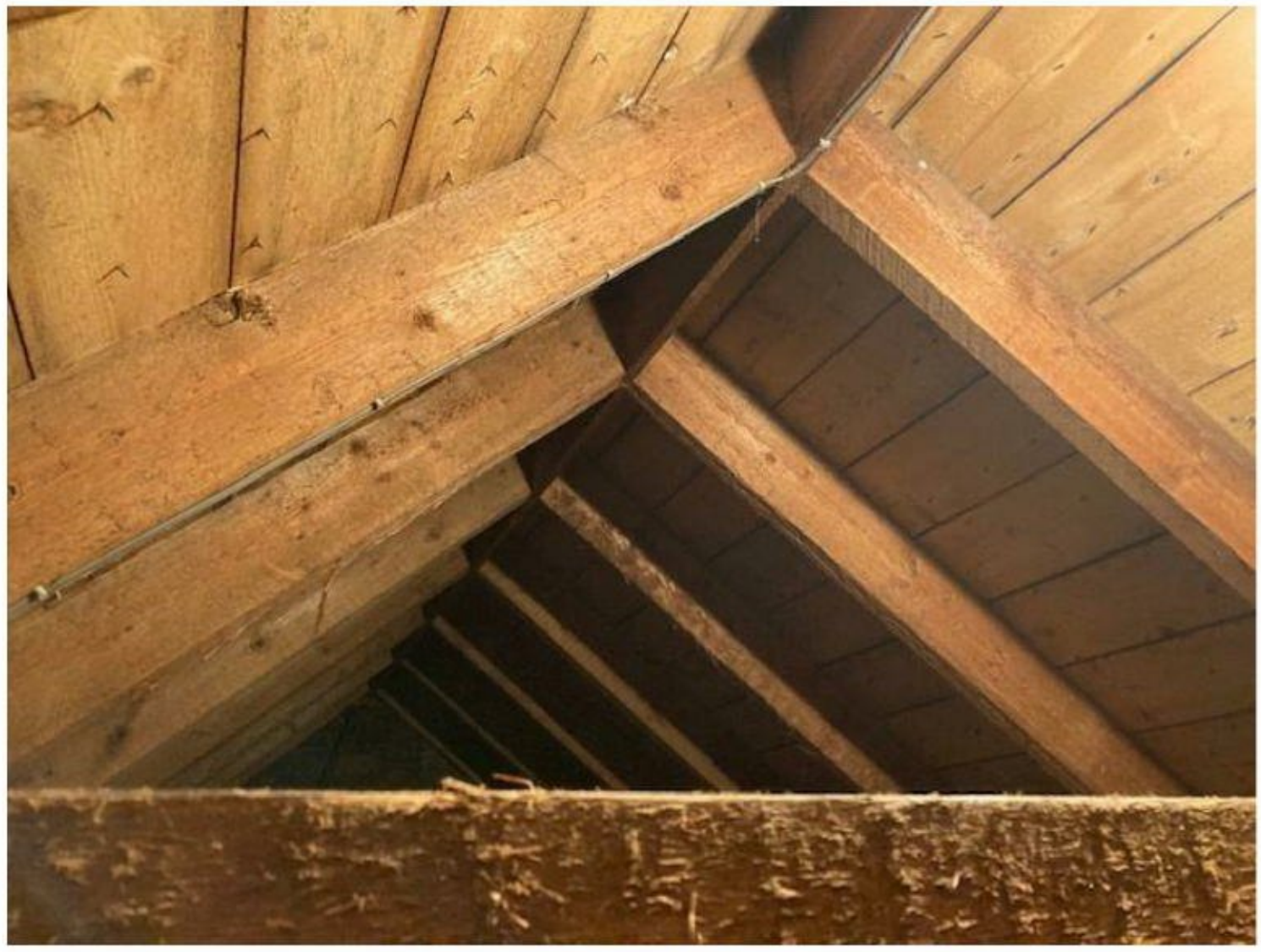


Fig. 12 – Attic space within the house.

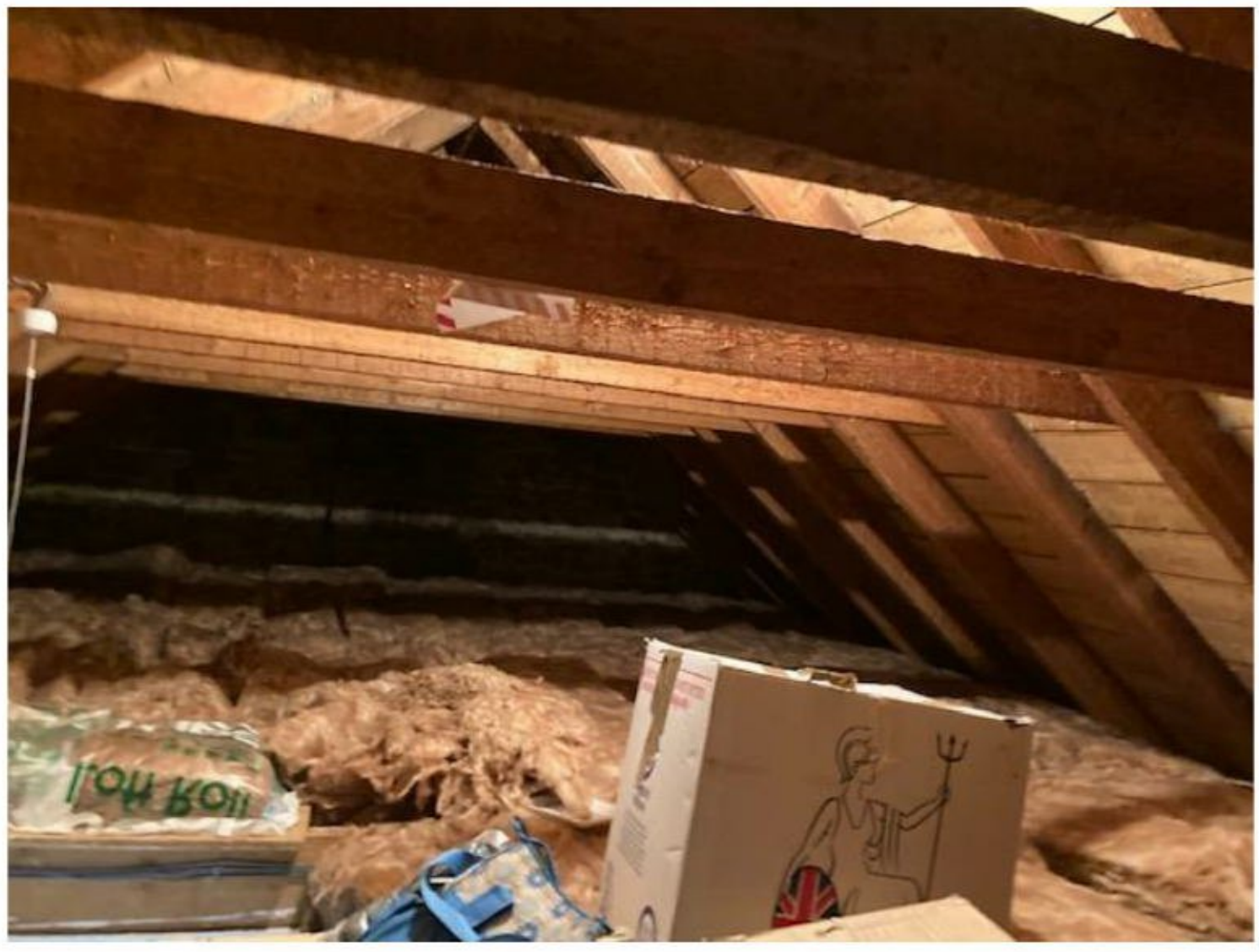


Fig. 13 – Attic space within the house.

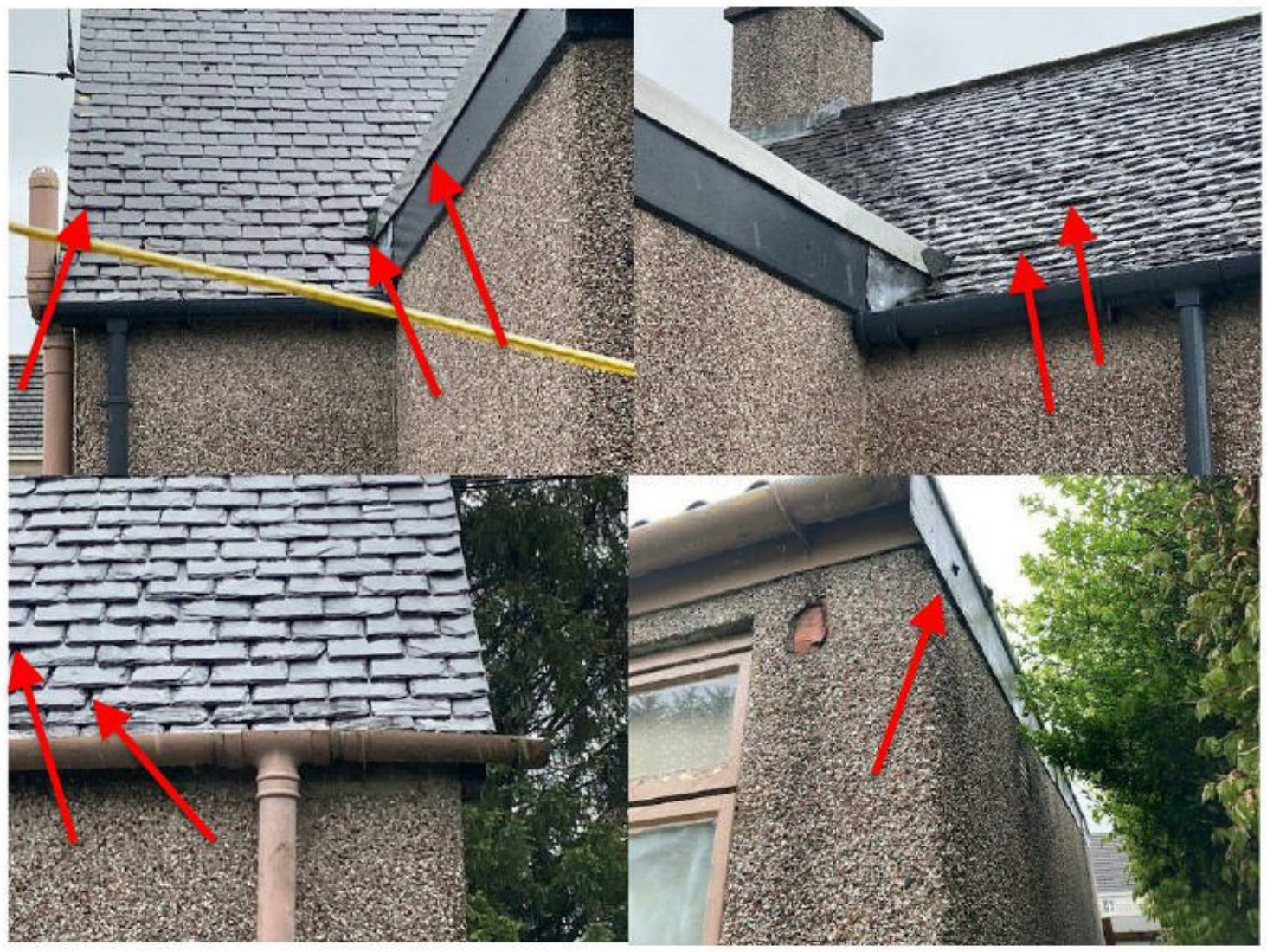


Fig. 14 – Examples of potential roost features in house.

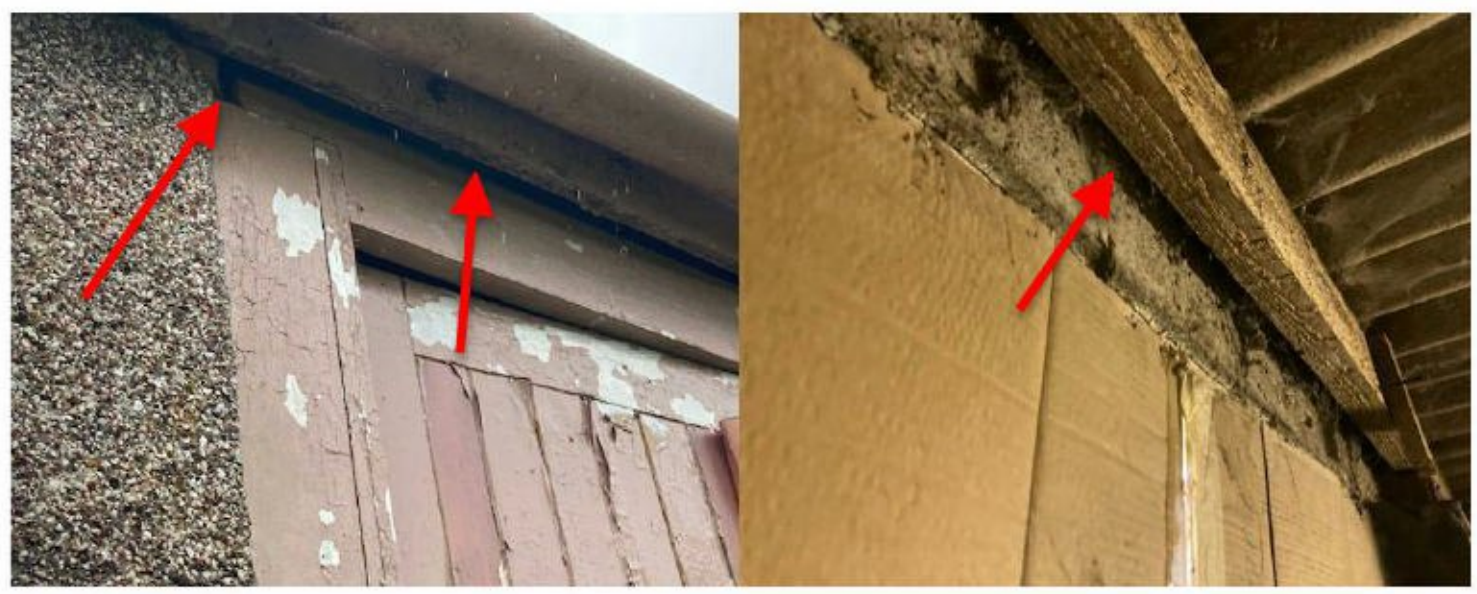


Fig. 15 –Examples of potential roost features in garage.

6.4 Stage 2 survey for bats

6.4.1 Sunset bat emergence survey

Timing:

Date	01 June 2021
Sunset	21:51
Start of survey	21:21
End of survey	23:05

Weather conditions:

	Temp. (Celsius)	**Relative humidity**	**Cloud cover**	**Precipitation**	**Wind Strength (Beaufort)**
Start of survey	12°C	73%	8 Oktas	Dry	F0
End of survey	09°C	92%	8 Oktas	Dry	F0

Light conditions:

Start of survey	350 Lux
End of survey	0 Lux

Bat activity recorded:

- At 21:59, a Soprano Pipistrelle commuted from north to north-east of the site.
- At 22:09, a Soprano Pipistrelle commuted north-east across the site.
- At 22:10, a Common Pipistrelle commuted south across the site.
- At 22:12, a Soprano Pipistrelle commuted west across the site.
- At 22:13, a Common Pipistrelle commuted west across the site.
- At 22:22, a Soprano Pipistrelle commuted north across the site.
- At 22:29, a Soprano Pipistrelle commuted south across the site.
- At 22:34, a Common Pipistrelle commuted south across the site.
- At 22:36, a Soprano Pipistrelle was recorded foraging to the west of the site.
- At 22:40, a Common Pipistrelle commuted south across the site.

7 DISCUSSION AND CONCLUSIONS

These surveys have been carried out to a suitable standard, using methods which comply with current guidelines.

No designated sites are relevant to this site with regard to bats.

Two species have been recorded within 5km of the site: Soprano Pipistrelle and Brown Long-eared bat.

The area surrounding the site has moderate suitability to be used by a limited range of bat species for roosting, foraging, and commuting.

No direct evidence of bats was found within the structure of the buildings during the stage 1 preliminary roost assessment.

The buildings were assessed as having **low suitability** to be used by roosting bats. Based on these findings **one sunset** survey, with sufficient surveyors, equipped with broadband bat detectors to view all elevations of the buildings was recommended and carried out.

Two species of bats were noted in the vicinity of the buildings during the stage 2 activity surveys: Common and Soprano Pipistrelles.

No bat roosts were identified within the structure of the buildings during the stage 2 bat activity survey.

8 REFERENCES

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

Dietz, C, von Helverson, O. & Nill, D. (2007) Bats of Britain, Europe and Northwest Africa. A & C Black, London

Gunnell, K., Murphy, B., William, C. (2013) Designing for Biodiversity: a technical guide for new and existing buildings (2nd ed.). R.I.B.A. Publishing, London

Mitchell-Jones, A.J., & McLeish, A.P. (ed.) (2004) The Bat Workers Manual (3rd ed.). The Joint Nature Conservation Committee, Peterborough

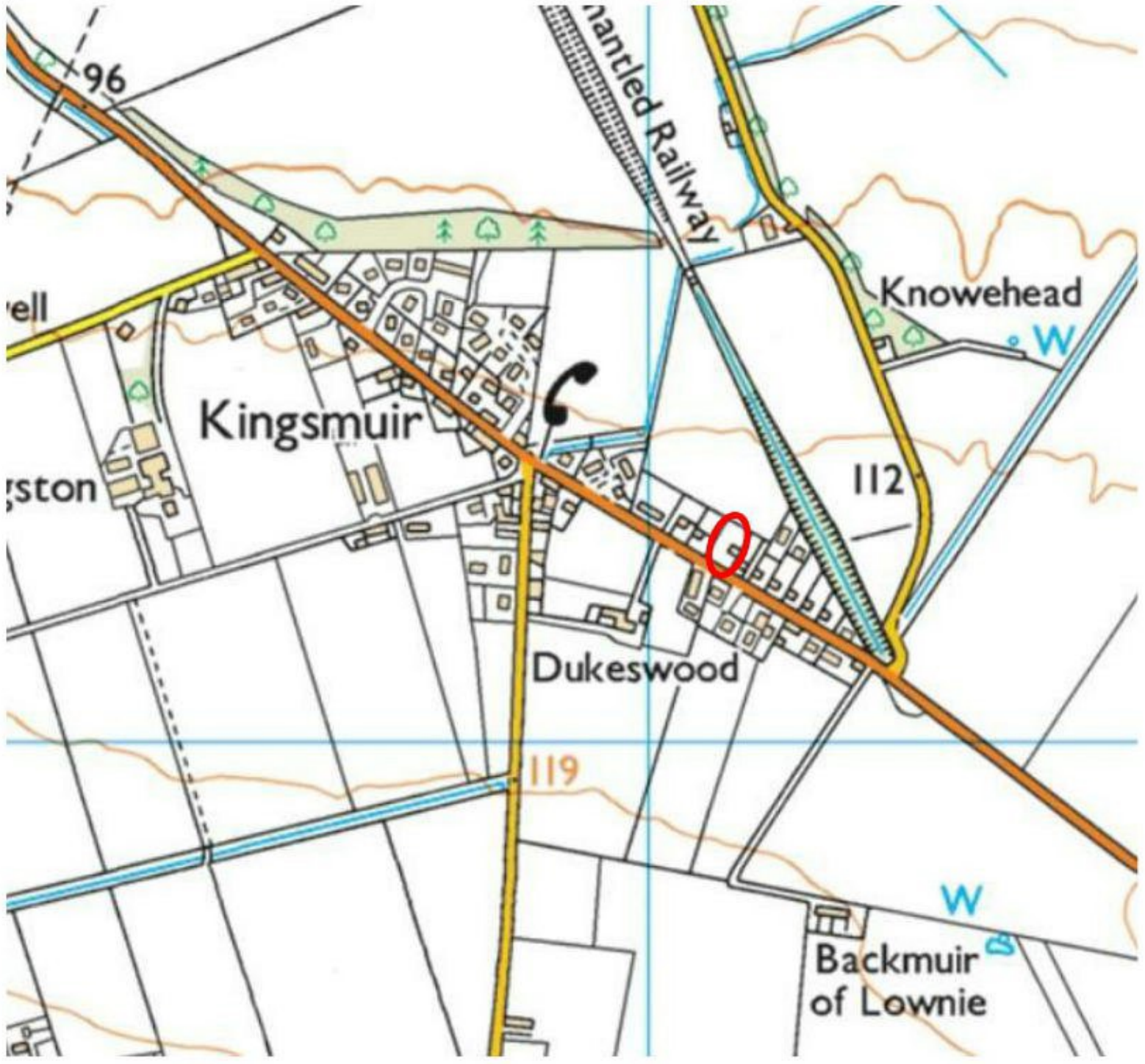
Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines. English Nature, London

Russ, J. (2012) British Bat Calls: A Guide to Species Identification. Pelagic Press, Exeter

9 APPENDIX I – LOCATION MAP

Nation Grid Reference (NGR): NO480492

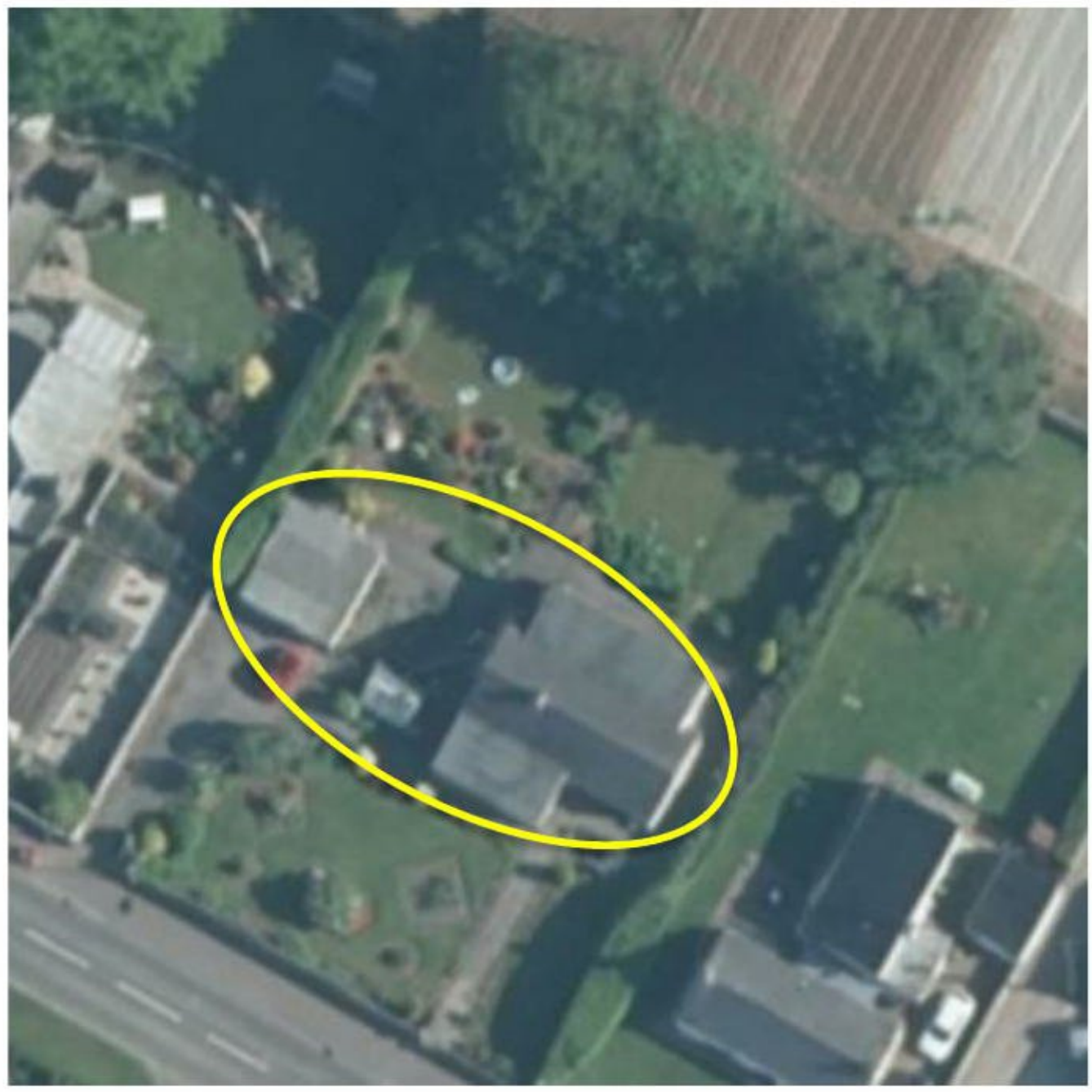
Site location marked in red.



(Ordnance Survey cartography reproduced under license number 100048711)

10 APPENDIX II – SATELITE VIEW OF THE SITE

The subject buildings are highlighted in yellow.



11 APPENDIX III – SATELITE VIEW OF THE SURROUNDING HABITAT

The subject buildings are highlighted in yellow.