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**Overdale,
Preliminary Ecological Assessment
Proposed Building Demolition & Reconstruction
3rd April 2024**



Report by: Ben Box

Client: NJ Planning

Planning

Authority: Wrexham County Borough Council

Grid

Reference: SJ 36110 55475

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Fig.1: The location of the surveyed building

Overdale, Proposed Building Demolition & Reconstruction Preliminary Ecological Assessment

3rd April 2024

1. Summary

A Preliminary Ecological Assessment (PEA) was carried out by Cambrian Ecology on 13th March 2024 of Overdale, Marford. It is proposed to demolish the property and construct a new dwelling expanding slightly from the existing footprint.

A desk-based study was initially carried out including a data search through the Local Records Centre (LRC) 'Cofnod'. The site surveys involved methodically searching for signs of bats and other protected species associated with the building, as well as assessing the potential of the building to support protected species at other times of the year. Any bio-security issues such as the presence of any 'Invasive Non-Native Species' (INNS) in the immediate vicinity were also recorded.

No bat 'Potential Roosting Features' (PRFs) were recorded on the building exterior and there was no potential bat access to the building interior including the roof void which was highly illuminated due to the presence of skylights. In consideration of these factors, the building to be impacted by the proposed works was assessed as having no roosting potential (J, Collins, 2023). No further bat emergence survey work will be required prior to the submission of a planning application for demolition works. However, guidance is also given in Section 7.2 to ensure there is no negative impact on bat movements as a result of any inappropriate exterior illumination, this is due to the likely presence of bats in the surrounding landscape and excellent habitat connectivity for this taxon.

There is some minor potential for badgers; (*Meles meles*), hares; (*Lepus europaeus*), hedgehogs; (*Erinaceus europaeus*), polecats; (*Mustela putorius*) and herpetofauna (reptiles and amphibians) species including great crested newts; (*Triturus cristatus*) to be accessing the site on occasion. The works will result in no significant loss of habitat for any of these taxa. Some 'Reasonable Avoidance Measures' (RAMs) are given in Sections 7.1 and 7.3 to ensure no negative impact on these taxa during the demolition and construction phases.

The only habitats to be impacted are small areas of amenity grassland and ornamental planting in the form of a domestic garden. There will be no significant ecological impact as a result of habitat loss during the course of the works. Two INNS in the form of cherry laurel; (*Prunus laurocerasus*) and cotoneaster; (*Cotoneaster horizontalis*) are present on the site, these plants will not be disturbed during the course of the works and are an integral part of landscaping, forming a tall hedge between Overdale and the neighbouring property. The survey site is also proximal to a number of protected sites, none of which will be negatively impacted in any way by the proposed works.

Under Chapter 6 of Planning Policy Wales 11, Planning Authorities must seek to maintain and enhance biodiversity in the exercise of their functions. It is also a priority for developments in Wales

to also consider ecosystem resilience and green infrastructure in the development of enhancement schemes. In this case, guidance for biodiversity enhancement will be achieved through the provision of bee bricks and a bat tube in the fabric of the new building (see section 8).

Key Messages:

- 1. The impacted building is assessed as having no potential to support roosting bats, further bat emergence survey work will therefore not be required.**
- 2. Recommendations are provided for any new exterior lighting to prevent habitat fragmentation for commuting bats, see Section 7.2.**
- 3. Some basic RAMs are recommended to ensure no negative impacts on badgers, hares, hedgehogs, herpetofauna, or polecats during the works, see Sections 7.1 and 7.3.**
- 4. There will be no negative ecological impact regarding habitat loss or biosecurity risks as the INNS recorded on the site will not be impacted by the works and habitats impacted are of no significant ecological value.**
- 5. Biodiversity enhancements will be achieved through the provision of bee bricks and a bat tube in the fabric of the new building (see section 8).**

2. Introduction

Cambrian Ecology Ltd was commissioned by NJ Planning to carry out a PEA of Overdale, Marford.

It is proposed to demolish the property and construct a new dwelling expanding slightly from the existing footprint.

An ecological survey is required by Wrexham County Borough Council, (WCBC) as an integral part of the necessary planning application for the works.

Overdale is located in a sub-urban, residential location within Marford, just north of the town of Wrexham at Grid Reference: SJ 36110 55475.

3. Methodologies

3.1 Preliminary Roost Assessment

The survey was carried out on 13th March 2024 by ecologist Ben Box (Bat Licence No.: S092195-3). Ben is a qualifying member of Chartered Institute of Ecology and Environmental Management (CIEEM) and has been working with Cambrian Ecology since 2022. He is an accredited agent on the bat licence of Chris Hall (S092195-1). Chris has been working as an independent ecologist for 16 years and has held a bat license from CCW/NRW for 28 years. He is an associate member of CIEEM.

Survey Objectives:

- Identify any signs of the presence of bats or any other protected species associated with the building.
- Assess the potential of the building to support bats or any other protected species.

- Make recommendations for mitigation/compensation or any further survey work required in order to comply with current legislation.
- Identify any other protected species issues that may arise as a result of the proposed development.
- Identify any bio-security issues that may arise as a result of the proposed development.

All crevices and other likely roosting areas were methodically searched for signs of bat occupation, such as droppings, feeding remains and marks on timbers from oils in the animal's fur. This included both the interior and exterior of the building, which was also assessed on its potential to support roosting bats.

3.2 Other Ecological Issues

In accordance with the guidelines from CIEEM, the presence of any other protected species was also recorded along with any potential bio-security issues such as the presence of INNS.

3.3 Desk Based Study

The desktop study aims to collate existing information about priority species, habitats, and designated sites within a radius of the survey area. This information has relevance to the likelihood of priority species being present within the survey area, as well as giving context to any species and habitat records from the actual site.

A biological records search was carried out with Cofnod for all priority species, habitats and designated sites as recommended in the guidance from CIEEM. This enables the proposed development to be assessed in a wider context and a potential wider 'zone of influence' of the development to be taken into account. The search parameters were 2km from the survey site area for all protected sites and species and 10km for any protected sites with specific relevance to bat species.

4. **Results**

4.1 Desk-Based Study

4.1.1 Protected Species

The Cofnod search revealed 73 bat records within the 2km search area (see Table 1). Records of other protected species considered relevant to this report, are also included in Table 1 below.

Table 1: A summary of relevant protected species records returned in the data search.

Common Name	Zoological Name	No of Records
Adder	<i>Vipera berus</i>	4
Badger	<i>Meles meles</i>	42
Bat (species unknown)	<i>Chiroptera spp</i>	12

Brown long-eared bat	<i>Plecotus auritus</i>	9
Common frog	<i>Rana temporaria</i>	11
Common lizard	<i>Zootoca vivipara</i>	1
Common pipistrelle bat	<i>Pipistrellus pipistrellus</i>	19
Common toad	<i>Bufo bufo</i>	5
Daubenton's bat	<i>Myotis daubentonii</i>	2
Grass snake	<i>Natrix helvetica</i>	8
Great crested newt	<i>Triturus cristatus</i>	23
Hare	<i>Lepus europaeus</i>	7
Hedgehog	<i>Erinaceus europaeus</i>	27
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	1
Lissotriton newt (species unknown)	<i>Lissotriton spp</i>	6
Myotis bat (species unknown)	<i>Myotis spp</i>	4
Natterer's bat	<i>Myotis nattereri</i>	1
Noctule bat	<i>Nyctalus noctula</i>	6
Palmate newt	<i>Lissotriton helveticus</i>	4
Pipistrelle bat (species unknown)	<i>Pipistrellus spp</i>	7
Polecat	<i>Mustela putorius</i>	4
Slow worm	<i>Anguis fragilis</i>	11
Smooth newt	<i>Lissotriton vulgaris</i>	10
Soprano pipistrelle	<i>P. pygmaeus</i>	12

4.1.2 Protected Sites

The survey site sits with 2km of three relevant statutory protected sites (see figure 2), the details of which are given below-

- The Vicarage Moss Site of Special Scientific Interest (SSSI), ~1.2km away, is designated for its geomorphological and botanical interest including mire habitats. This site is also designated as a Ramsar site.
- The Marford Quarry SSSI, ~0.3km away, is designated for its entomological features, with a large diversity of lepidopteran species. This site is also a North Wales Wildlife Trust (NWWT) reserve.

The site also sits within 2km of five relevant non-statutory protected sites in the form of four Wrexham Wildlife Sites (see figure 2) and the aforementioned NWWT reserve. The closest of the wildlife sites is the Hoseley Wood site, ~260m from the survey site which is designated for its marsh/marshy grassland, semi-improved grassland, broadleaved woodland and standing water habitats. The survey site also sits with a Welsh B-Lines area (see figure 3), non-statutory linear areas

which has been assessed of specific importance for pollinator connectivity. The survey site does not sit within 10km of any protected sites of specific relevance to bats.

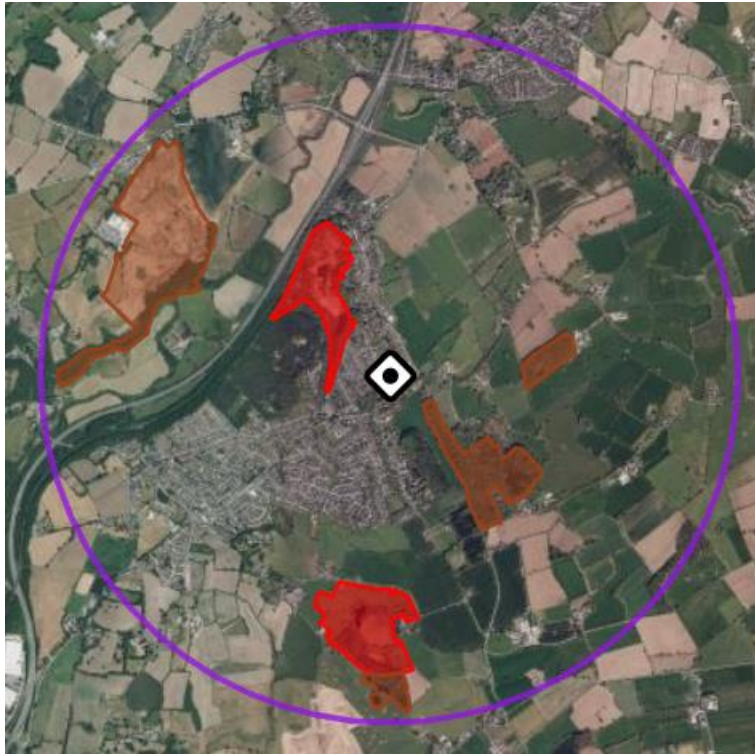


Fig.2: The location of the survey site in relation to the proximal SSSIs (red) and Wildlife Sites (brown)

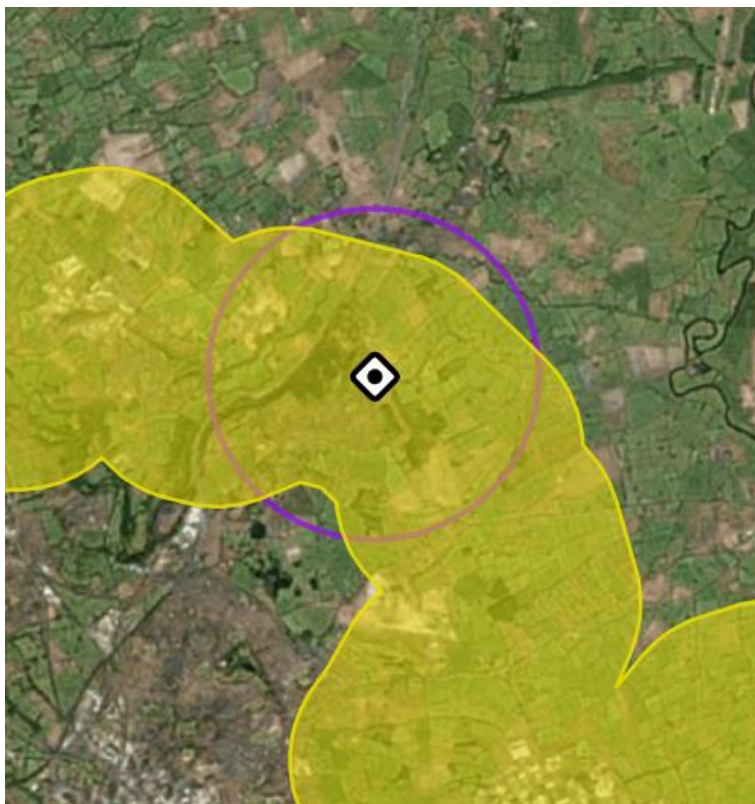


Fig.3: The location of the survey site within the Welsh B-Lines area (yellow).

4.2 Site Description

4.2.1 Building

The surveyed building is a brick-and-mortar house with a tiled roof. A flat roofed uPVC and glass conservatory is present on one elevation and plastic soffit boxes are present throughout. There is a large roof void which is well lit due to the presence of large skylights, the roof void is festooned with a dense 3D matrix of cobwebs and the roof is lined with F1 felt.

The exterior pointing is in excellent condition with no cracks or crevices present, the soffit is well sealed throughout and the roof is in very good condition, where tile edges are exposed, they are well-sealed with mortar. There is no potential bat access to the building interior including the roof void.

4.2.2 Surrounding Habitat

The immediate and wider surrounding habitat is dominated by grazed and arable fields with some urban habitats associated with the town of Wrexham also present. There are also some moderate sized areas of mature woodland present. Connectivity to the site is very good with treelines immediately adjacent to the house connecting it to a network of connective features present in the wider landscape (see figures 4 and 5). Artificial external lighting is minimal, thus further improving habitat connectivity for bat species.



Fig.4: The surveyed site (red) and immediate habitat



Fig.5: Habitats surrounding the survey site (red)

4.3 Preliminary Roost Assessment (PRA)

The PRA recorded no PRFs on the building exterior and no potential bat access points to the building interior. No mature trees with the potential to support bat PRFs are to be impacted by the proposed works.

In consideration of the factors described above the building has been assessed as offering no roosting potential for bat species, in accordance with current guidance (J, Collins, 2023).

4.4 Protected Species

No evidence of any protected species was recorded, and the works will be restricted to the footprint of the existing house and some small areas of compressed gravel hardstanding.

There is a potential that badgers, hares, hedgehogs, herpetofauna and polecats could occasionally access the development site while foraging or commuting but the habitat to be impacted offers no significant value to any of these taxa.

While records of otters; (*Lutra lutra*) and water vole; (*Arvicola amphibius*) were returned in the data search, due to a lack of any potential commuting route between suitable aquatic habitats and a lack of suitable habitat at the site, it is not considered feasible that these species will be present on the site at any time.

4.5 Habitat

The only habitats to be impacted by the proposed works are the footprint of the existing building and small areas of amenity grassland and ornamental planting in the form of a domestic garden. These habitats are of no significant ecological value.

Two INNS was recorded during the survey in the form of several stands of cherry laurel and cotoneaster present within a large hedgerow. These plants will not be disturbed by the proposed works and their eradication from the site is not feasible due to them being integral to landscaping on the site, offering a boundary between and Overdale and the neighbouring property.

5 Survey Limitations

Bats are highly mobile animals, and some species move roosts on a regular basis. It is often possible to find signs of bat occupation outside of the time that they are resident, in the form of droppings and feeding remains, however, these dissipate over a period ranging from a few days to several months. Many species are crevice-dwelling and signs may be impossible to find. An accurate assessment of the potential of a building to support bats is therefore important to establish the need for further survey work.

Although this survey was conducted outside of the recognised botanical survey period, due to the artificial nature of the habitats present, it is considered that the timing has not had any undue influence on the survey results.

6 Ecological Impacts

6.1 Badgers, Hares, Hedgehogs and Polecats

There is a risk of entrapment for the above taxa in open excavations during the groundworks and early construction phase of the development. Although the proposed works will not result in any significant loss of habitat for any of these taxa, there is a potential for them to cross the site during nocturnal commuting to foraging areas or daytime movements. The entrapment of individual animals could result in death or injury, thus having a negative impact on the species affected at a local level.

6.2 Bats

The building was assessed as having no roosting potential and so there will be no negative impact on bats as a result of roost loss.

There is however the potential for an impact on bat species through habitat fragmentation. There will be no removal of vegetation which could result in physical fragmentation, but artificial lighting can have a similar negative impact on bat movements to physical fragmentation and can cause a 'light barrier' effect in some species, in particular, *Rhinolophus*, *Plecotus* and *Myotis* species, all of which are known to be present in the area from the results of the data search. Even species such as *Pipistrellus* can be discouraged from flying across brightly lit spaces and any illumination of roost entrances could result in the abandonment or failure of uptake of a roost.

6.3 Herpetofauna

While it is considered unlikely that this taxon will be accessing the site at any time due to the presence of short-cut grass across most of the site, their presence cannot be entirely ruled out. This taxon faces the same risk of entrapment described in section 6.1 above.

Additionally, a common risk for herpetofauna on construction sites comes from inappropriately stored building materials. Amphibians in particular will often seek shelter beneath or within stacks of timber, brick or other building materials, such individuals are then at risk of death or injury which would result in a minor negative impact on this species at a local level.

6.4 Habitat

The proposed works will only result in the loss of small areas of amenity grassland and ornamental planting in the form of a domestic garden. These habitats offer no significant ecological value and so there will be no negative ecological impact on habitat as a result of the proposed works. The INNS present on the site will not be directly impacted by the proposed works.

6.5 Protected /Designated Sites

Due to the relatively small scale of the proposed works and the lack of any potential pathways of influence, it is not anticipated that there will be any negative ecological impacts on any of the proximal protected sites present.

7 **Mitigation & Recommendations**

7.1 Badgers, Hares, Hedgehogs and Polecats

Development sites can be hazardous places for a range of protected species with the potential for animals to become trapped in open excavations for footings etc. Exposed pipe systems such as storm drains, sewage pipes etc can also potentially lead to the entrapment of animals. The simple precautionary measures below have therefore been recommended:

- Escape ramps must be fitted to any excavations left open overnight to allow animals to escape.
- These excavations must be checked for the presence of animals prior to work commencing each morning.
- Any exposed pipe systems must be capped at the end of each working day and never left open overnight.
- Site hygiene with regards to food waste must be enforced to reduce the chances of animal being tempted to stray onto the construction site overnight.

The proposed works will not result in a significant loss of habitat for any of these taxa and the habitat to be impacted has no potential to offer significant shelter for concealment of these taxa.

7.2 Bats

The recommendations given below will ensure no negative impact on bats from habitat fragmentation as a result of inappropriate exterior illumination. No significant vegetation removal is anticipated during the proposed works.

- There must be no exterior lighting directed towards any trees, hedgerows, or other significant vegetation on any of the site's boundaries or towards the bat tube to be included as part of the biodiversity enhancement scheme (see section 8).
- The overall aim of the lighting plan must be to ensure that there is no illumination in excess of 0.5 Lux within 1m of any of these features.
- All exterior lighting will be 'low level' and will be movement activated.
- The illumination used will be 'Light Emitting Diodes' (LEDs).
- The illumination will be directional and downward facing to avoid illumination of the wider area. This is easily achieved when using LEDs.
- There must be no upward facing illumination in any direction.
- All luminaires will lack any UV component.
- Luminaires with a 'warm white' spectrum should be used, (ideally <2700 Kelvin) to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the light component most disturbing to bats.
- The location of exterior lights (if any) must be clearly shown on the architect's drawings submitted with the planning application.

7.3 Herpetofauna

To avoid the death or injury of individual herpetofauna species as a result of them seeking refuge within stacks of building materials, any such materials must be stored on pallets. Additionally, any demolition materials must not be stored in piles outside and instead must be stored in skips or other such containers.

7.4 Protected Sites & Habitats

Due to a lack of potential negative impacts, no mitigation measures regarding protected sites or habitats will be required.

8 **Biodiversity Enhancements & Green Infrastructure Statement**

8.1 Biodiversity Enhancement

Under Chapter 6 of Planning Policy Wales 11, planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions.

The location of all biodiversity enhancements must be clearly shown on final plans for the development.

In this case biodiversity enhancements will be achieved through the provision of bee bricks and a bat tube on the site.

Bee Bricks-

A total of five bee bricks should be included in the fabric of the works (see figure 6). These features should be installed as high up as possible (at least 1m above ground level) on south/east elevations.

These products only attract solitary bees and do not therefore cause any problems to the householder. Solitary bees have no queen or honey to protect and as a result are non-aggressive and won't sting.



Fig.6: Examples of bee bricks.

Bat Tube-

A single bat tube should be installed as high as possible on a northern or western elevation, these elevations have been selected due to their optimal connectivity to the proximal treeline/hedgerow. This feature should not be installed directly above, below, or next to any windows in order to avoid light spill from the house illuminating the boxes entrance. A 'woodcrete' or 'woodstone' product such as the 1FR Schwegler Bat Tube should be used due to these materials' favourable longevity and insulative properties (see figure 7). Products like this can also be rendered over making them discrete and preventing interference from future residents.



Fig.7: Example of an appropriate bat tube product

8.2 Green Infrastructure Statement

Details regarding how each biodiversity enhancement measure improves ecosystem resilience and green infrastructure are given below-

- Bee bricks- these features will improve connectivity within this Welsh B-Lines area by offering nesting sites which will act as ‘stepping-stones’ for solitary bee species, allowing radiation into wider habitats. Many solitary bee species has shown a significant decline over recent years.
- Bat Boxes- as with the bee bricks, these features will act as ‘stepping stones’ for bat species present in the area by offering new satellite roosts and allowing radiation into the wider landscape. This will potentially bolster bat populations within the surrounding area.

The table below shows how the ‘Stepwise’ approach has been implemented in order to achieve the goals of chapter 6 of the planning policy Wales (Updated 2023).

Table 2- How the stepwise approach will be implemented on this development.

Stepwise Step-	How the step has been implemented
1 - Avoid	Any negative impact on bats will be avoided as no PRFs are to be impacted and the sensitive lighting scheme will ensure no impact on bat connectivity. Any negative impact on all protected sites will be avoided due to the small scale of the works and the lack of any potential pathways of influence.
2 – Minimise	Any negative impact on habitats will be minimised as the only habitats to be lost are small areas of hardstanding and amenity grassland of no significant ecological value.
3 – Mitigate	Any negative impact on ground fauna such as hedgehogs and herpetofauna will be mitigated for via the excavation and material storage RAMs provided.
4 – Onsite	N/A

compensate	
5 – Offsite compensate	N/A

9 Legal Implications

9.1 Badgers

Badgers and their setts are protected by the Protection of Badgers Act 1992. Under this Act it is an offence to damage, destroy or obstruct access to a badger sett, and to disturb a badger whilst it is occupying a sett.

Undertaking an activity within 30 metres of a badger sett, which could result in damage to the sett, obstructing access to it or disturbance of any occupying badgers, may constitute an offence. This distance may be extended to 100 metres if the activity involves blasting or pile-driving.

NRW, the statutory conservation authority, are empowered under the 1992 Act to issue a licence permitting potentially damaging or disturbing activities to be undertaken within 30 metres or 100 metres of a badger depending on the nature of the activity undertaken as part of a local authority consented development.

9.2 Hedgehogs, Hares and Polecats

These species are priority species and are included in Section 7 of the Environment (Wales) Act (2016) as a species of importance to the maintenance and enhancement of Biodiversity in Wales.

9.3 Herpetofauna

All native reptiles, with the exception of smooth snakes (*Coronella austriaca*) are priority species across North Wales, including CCBC and are included in Section 7 of the Environment Wales Act (2021) as a species of importance to the maintenance and enhancement of Biodiversity in Wales.

All British herpetofauna receive limited legal protection under Schedule 5 of the Wildlife & Countryside Act which protects the animals and their spawn from sale. Great crested newts are given full protection under the ‘Conservation (Natural Habitats, &C) Regulations 1994 (the Habitats Regulations) as amended in 2017.

10 References

Bat Conservation Trust (2018) Bats and artificial lighting in the UK.

Collins, J. (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition)
The Bat Conservation Trust, London

Planning Policy Wales v12 (2023)

11 Appendices

11.1 Site Photographs



Overview of site.



Habitat to be impacted.



Pointing and soffit.



Sealed soffit.



Sealed soffit.



Conservatory.



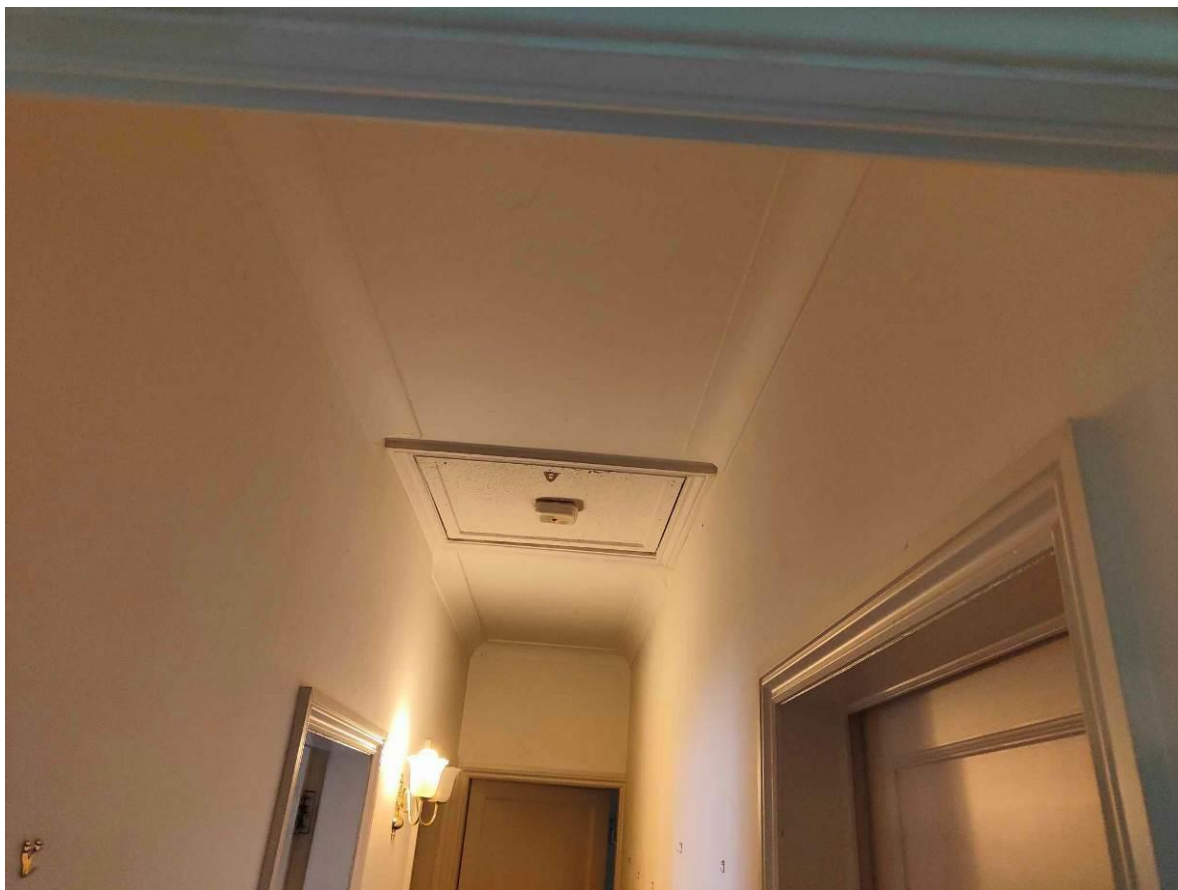
Roof of building in good condition.



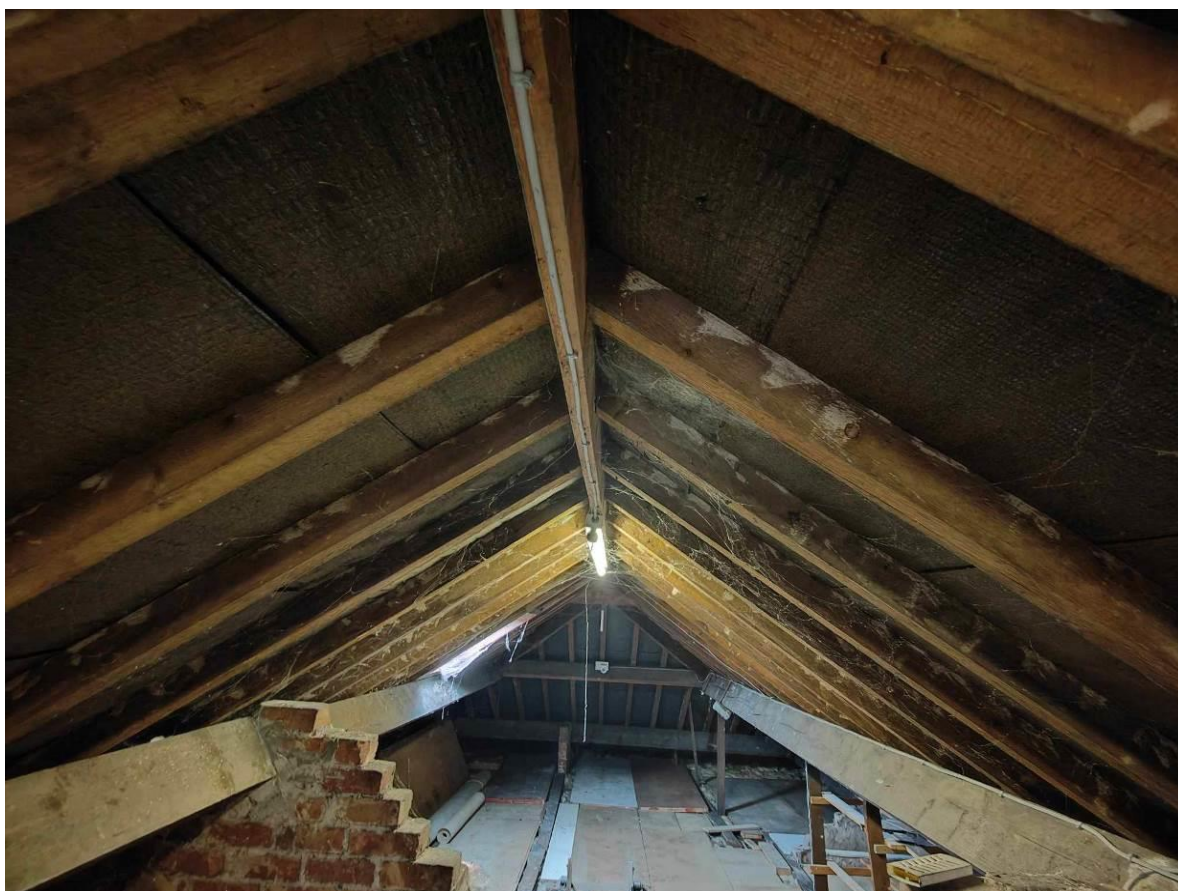
Roof of property.



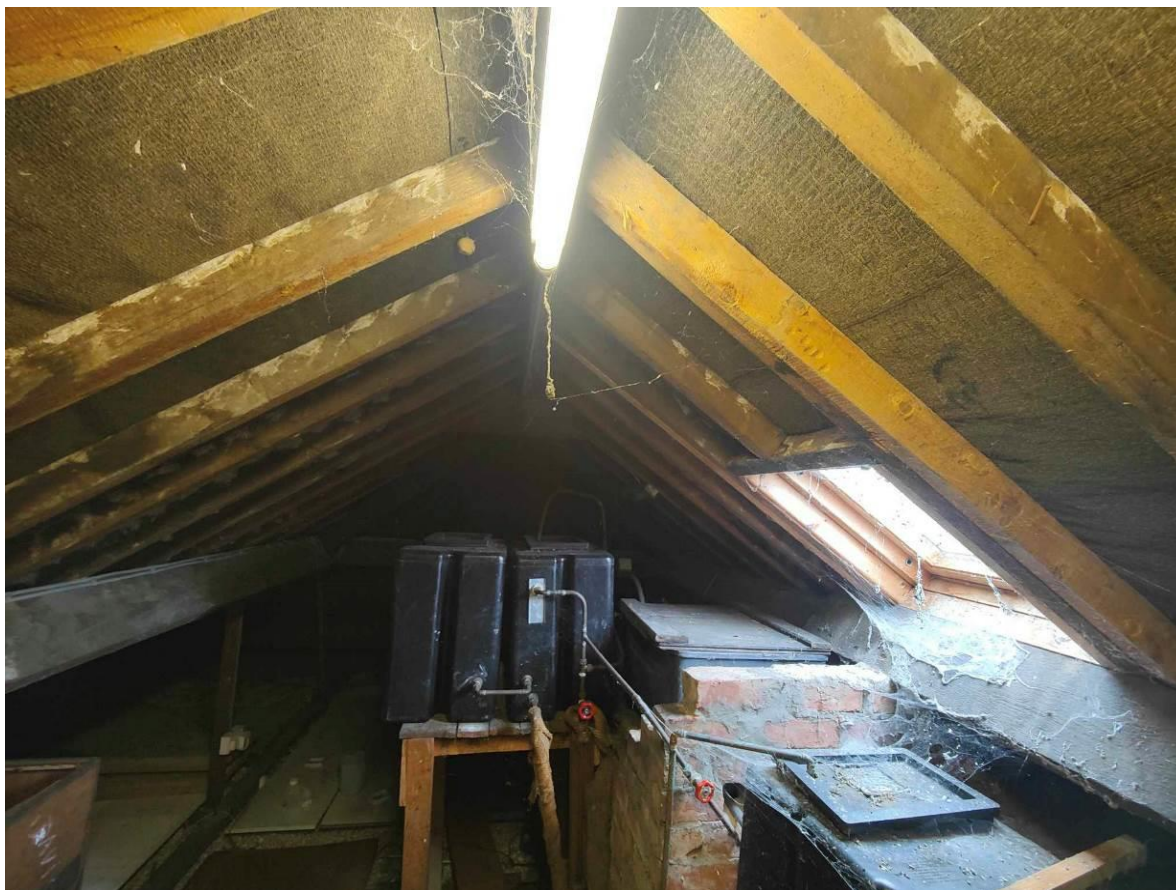
Sealed slate edges.



Building interior, lived in until very recently.



Well-lit roof void with skylights, cobwebs and felt roof lining.



Well-lit roof void with skylights, cobwebs and felt roof lining.

11.2 Review Table

Name	Task	Date
Ben Box	Author	03.04.2024
Chris Hall	Review	03.04.2024
Heaven Kyriacou	Final Proofread	05.04.2024