



STEPHEN CUTMORE BSc(Hons), MICFor, MArborA
Arboricultural & Ecological Services
SURVEYS, INSPECTIONS, REPORTS



**BUILDING AT BRONYDD
QUARRY ROAD
GLYN CEIRIOG
LLANGOLLEN
LL20 7DA**

BUILDING DEVELOPMENT

Bat Monitoring Surveys



Building at Bronydd, Glyn Ceiriog.

Client	Tim Latham
Planning Authority	Wrexham County Borough Council
Grid Reference	SJ1999437910
Dates of Surveys	5 May, 14 June, 1 July, 8 September 2021
Reference	092021/PSS/TL



PRO3755



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1.0 SUMMARY

The proposed work is to demolish the derelict detached building and erect a replacement dwelling on virtually the same footprint. The planning process requires that ecological surveys be carried out to highlight any potential conflict regarding the protected species (bats and birds), and the proposed development work. The results of the surveys will guide what mitigation/compensation measures are required.

An initial scoping survey and emergence surveys of the building was carried out in 2020 by licensed bat worker, Stephen Cutmore. During the scoping survey evidence of recent bat activity was observed, in the form of bat droppings on the floor of a bathroom, discarded butterfly wings on the floor of a bedroom and droppings on the floor of the larger loft void. Two Lesser Horseshoe bats were encountered roosting in the larger loft void.

During the 2020 emergence surveys, 1 x Soprano Pipistrelle bat was observed emerging from the roof and 2 x Lesser Horseshoe bats emerged from a hole in the roof and flew into the woodland adjacent to the West elevation.

Following consultation with Natural Resources Wales, further monitoring was carried out in 2021 of the building.

Further emergence surveys were carried out on 14 June and 1 July 2021, by Stephen Cutmore and three assistant surveyors. 1 x Soprano Pipistrelle bat was observed emerging from beneath a slate just below the chimney stack and 2 x Lesser Horseshoe bats emerged from the open ground floor window towards the Northwest corner of the West elevation. Common Pipistrelle and Noctule bats were also observed foraging in the vicinity.

During the two visual surveys of 2021, no bats were encountered in the loft voids. During the first survey on 1 July 2021, 2 x Lesser Horseshoe bats were encountered in the first floor rooms and on the second survey on 8 September 2021, 2 x Lesser Horseshoe bats were encountered in the ground floor rooms.

There is no evidence that the building is being used as a maternity roost by the Lesser Horseshoe bats (or any other bat species). Only 2 x Lesser Horseshoe bats were encountered during the further monitoring surveys of 2021, with the conclusion that they are using the building as a small day-roost and possibly as a small transition roost before moving to a hibernacula site.

The conclusion is that the derelict building at Bronydd, Quarry Road, Glyn Ceiriog, Llangollen, LL20 7DA, is a confirmed roost being used as a small day-roosts for 1 x Soprano Pipistrelle bat and 2 x Lesser Horseshoe bats.

A dedicated bat loft will be provided (5m length x 3m width x 2.6m floor to ridge height) in an outbuilding/storage shed/car port structure to be erected between the existing Engine Room building and the mines to the North of the existing derelict building, where it will benefit from solar radiation throughout the day. A bat box will be provided as compensation for the crevice-dwelling bat.

It is essential that appropriate compensation and mitigation measures are implemented and that Reasonable Avoidance Measures in the form of timing of operations and provision of bat-friendly features as wildlife enhancements in the proposed development are followed, in order to minimise the impact on locally recorded bats.

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2.0 INTRODUCTION

2.1 Brief

Stephen Cutmore, a licensed bat worker (NRW[S087991/1], NE[2015-16936-CLS-CLS]), was commissioned by Tim Latham, to carry out further bat monitoring surveys of the derelict detached building at Bronydd, Quarry Road, Glyn Ceiriog, Llangollen, LL20 7DA.

The definition of the assignment was to:

1. Carry out further bat monitoring surveys of the buildings to determine if bats are roosting in the building, if so what numbers and species of bat are present and what type of roost is the building being used as.
2. Provide a report with mitigation measures.

2.2 Purpose of this report

The purpose of this report is to advise you of the results of the part 1 of the assignment. These results are set forth in the *Conclusions* section, following. This report describes the field conditions as found and interpreted.

2.3 Scope of report

Date of consultation.

The latest 2021 field surveys were made on 5 May, 14 June, 1 July and 8 September 2021, and observations and conclusions are as of those dates.

Limit of scope.

This is solely a protected species survey results report and cannot comment on topics outside this discipline. If additional advice is required, it is strongly recommended that other professionals are consulted.

Unless stated otherwise:

- 1) information contained in this report covers only those buildings that were examined:
- 2) the emergence survey is limited to visual examination of the buildings, whilst utilising digital bat recorders to record bat calls to help identify bat species.
- 3) there is no warranty or guarantee, expressed or implied, that bats may not utilise the buildings after the survey has been completed, that are not discovered utilising the buildings during the inspection. Bats are highly mobile and some species frequently move roosts. It may be possible that bats could move into a building after a survey has taken place. An assessment of the suitability of the building to support roosting bats has therefore been carried out, to establish the likelihood of this occurring.
- 4) this report has been prepared for the sole use and benefit of the client. Any liability of Stephen Cutmore Arboricultural & Ecological Services shall not be extended to any third party.



2.0 INTRODUCTION (continued)

2.4 Relevant background information

The proposed work is to demolish the derelict detached building and erect a replacement dwelling on virtually the same footprint. The planning process requires that ecological surveys be carried out to highlight any potential conflict regarding the protected species (bats and birds), and the proposed development work. The results of the surveys will guide what mitigation/compensation measures are required.

After consultation with the planners and Natural Resources Wales, a further period of monitoring was carried out in 2021.

2.5 Qualifications

Stephen Cutmore has over twenty years' experience as an arboricultural and ecological consultant. Stephen holds a BSc (Hons) in Arboriculture & Urban Forestry and is a Chartered Arboriculturist. Stephen is a member of the Bat Conservation Trust (102994) and a member of Clwyd Bat Group. Stephen has been a Licenced Bat Worker since May 2007 and a Licenced Amphibian Worker since March 2011 and currently holds bat licences with NRW and NE (NRW[S087991/1], NE[2015-16936-CLS-CLS]) and GCN licences with NRW and NE (NRW[S088921-1], NE[2016-19908-CLS-CLS]).

2.6 Copyright

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3.0 DATA COLLECTION

3.1 Site Description

The building at Bronydd, Quarry Road, Glyn Ceiriog, Llangollen, LL20 7DA, is located at Grid Reference SJ1999437910. The building is on the disused Chwarel Wynne Slate Mine and Museum site, located within woodland approx. 200m to the West of the village of Glyn Ceiriog.

Nant Lfar stream is approx. 150m to the South and the River Ceiriog is some 300m to the Southeast. The surrounding landscape has pasture fields, trees and hedgerows. There are several other woodlands in the vicinity, including Ceiriog Forest to the Northwest. All these landscape features provide good habitat for foraging bats.

The Cofnod (Local Ecological Records Centre) website was accessed (www.cofnod.org.uk) and a Cofnod Data Request [E08228] was made for a data search for bats and roof-nesting birds within a 500m radius of the site. Due to the sensitivity of the data, specific records for protected species cannot be disclosed, but there are records of Common Pipistrelle, Lesser Horseshoe, Noctule, Soprano Pipistrelle, unknown bat and Whiskered/Brandt's bats within 500m radius of the site. Records of bird species include Blue Tit, Great Tit, House Sparrow and Wren. Designated site within 500m radius include the River Dee (SSSI), River Dee and Bala Lake (SAC), Cefn Uchaf (Wildlife Site), Coed Hafod-gynfawr (Wildlife Site), Coed Nant Lfar (Wildlife Site), Coed Pistyll-y-garth (Wildlife Site), Glyn Ceiriog Slate Mine (Wildlife Site) Nant Lfar (RIGS) and several Ancient Semi Natural Woodland sites.

Sites of nature conservation interest within 10km radius of the site are:

Berwyn [SPA, SSSI], Berwyn and South Clwyd Mountains [SAC], Caeau Pen y Coed [SSSI], Chirk Castle and Parkland [SSSI], Chwarel Pant Glas [SSSI], Clogau Quarry [SSSI], Clwydian Range & Dee Valley [AONB], Cynwyd Forest Quarry [SSSI], Dinas Bran [SSSI], Nant y Belan and Prynela Woods [SSSI], Pandry Quarries [SSSI], Penarth Quarry [SSSI], Pontcysyllte Aqueduct and Canal [WHS], River Dee [SSSI], River Dee and Bala Lake (Wales) [SAC].

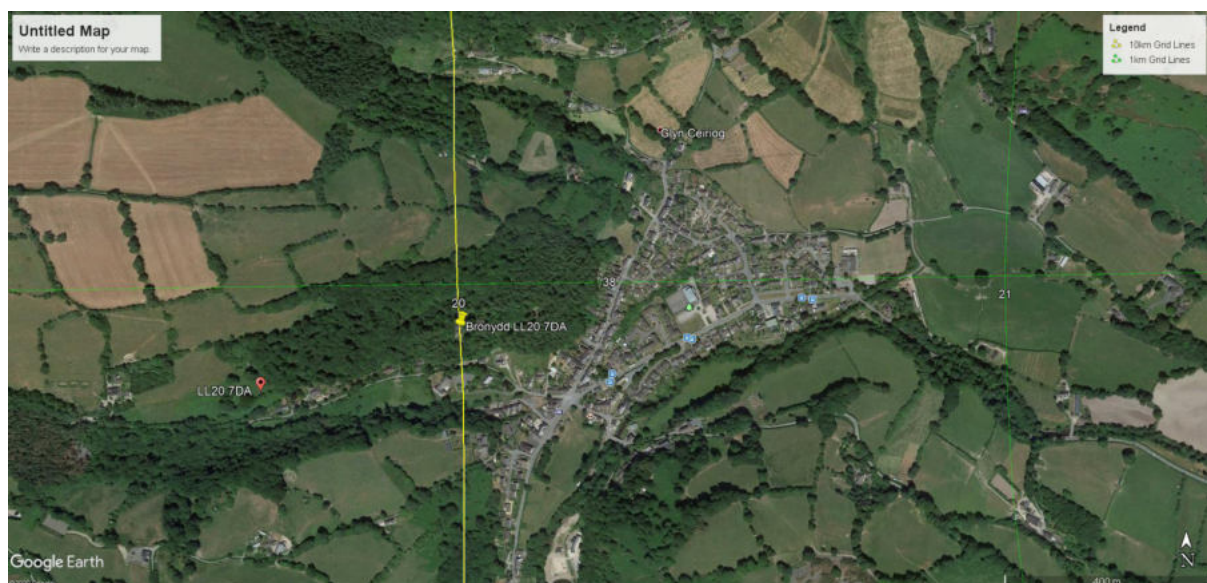


Figure 1: Aerial photograph of Bronydd, Glyn Ceiriog, showing good connectivity in the surrounding landscape.

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3.0 DATA COLLECTION (continued)

3.2 Methodology

3.2.1 Scoping survey

An initial day-time building survey of the derelict building was carried out on 22 July 2020, by licensed bat worker, Stephen Cutmore. The structure of the building was visually examined, utilising a high powered torch and an endoscope [Ridgid Micro CA-350]. The walls (both internal and external), floor, and all accessible roof spaces, crevices and other potential roosting areas were methodically closely visually examined for signs of bat occupation, in the form of droppings, feeding remains, staining around crevices, as well for the animals themselves. The building was also assessed for potential habitat for roosting bats. A further visual survey of these barns was carried out on 26 June 2020.

3.2.2 Emergence surveys

The initial emergence surveys of the building carried out on 23 July and 6 August 2020, by Stephen Cutmore and three assistant surveyors. The surveyors took up strategic positions around the building, which was visually monitored to check for any emerging bats. Electronic bat detectors (Anabat Walkabout), were used to record and analyse the frequencies of bat echo-location calls. The observed flight pattern of the observed bats and the frequency of the echolocation calls enabled the species of bat to be identified.

As part of the further monitoring scheme, further emergence surveys of the building was carried out on 14 June and 1 July 2021, by Stephen Cutmore and three assistant surveyors.

3.2.3 Further monitoring surveys

Following consultation with Natural Resources Wales, a second series of monitoring surveys were carried out in 2021. Temperature data loggers were installed in the bathroom/toilet near the Northeast corner of the first floor and in the large loft void from 5 May 2021 until 17 June 2021 [42 days]. Due to the wettest May ever recorded in Wales, emergence surveys at the beginning of the season were not able to be carried out. Emergence surveys of the building were carried out on 14 June and 1 July 2021. Visual surveys of the building were carried out on 1 July and 8 September 2021.



3.0 DATA COLLECTION (continued)

3.3 Results

3.3.1 Bat scoping survey (July 2020)

Description

The detached two-storey building has rendered brick walls supporting a traditional timber pitched roof, covered with natural slates. The dwelling has been empty for many years and due to a lack of maintenance is falling into a derelict condition. A gap of 15cm or more was observed between the supporting walls on the first level floor, near the top of the stairs, where the house is beginning to shear apart. Looking down through the gap, the ground floor can be clearly seen, where the walls have sheared from top to bottom. Whilst I am not qualified as a builder or a structural engineer, it is obvious that the building is unstable and that repairing such significant structural faults would not be economically viable, even if it was possible.

Ground floor living areas

There is a high level of natural light penetrating into the rooms through the windows. No bats were encountered.

Upper rooms

Bat droppings (<40) were observed scattered on the floor of a bathroom/toilet, near an open loft hatch in the Northeast section of the upper floor level. Discarded butterfly wings were observed on the floor of a bedroom to the Southwest of the building, with a few crumbling old bat droppings.

Small loft void

The loft void access is via a bedroom in the Southeast of the building. The void is quite dark. Traditional 1F bitumastic felt is present beneath the slates. Fibreglass insulation roll is present between the trusses on the loft floor. Many of the timbers were covered in old cobwebs, indicating no recent bat activity. No bats were encountered. No evidence of recent bat activity was observed, in the form of bat droppings.

Larger loft void

The loft void access is just outside the bathroom/toilet in the Northeast of the building. Traditional 1F bitumastic felt is present beneath the slates. Fibreglass insulation roll is present between the trusses on the loft floor. Numerous fresh bat droppings (>100s) were observed on the loft void. 2 x Lesser Horseshoe bats were observed roosting, hanging onto the felt. Missing slates and torn felt have created a hole low down on the South pitch of the roof section, towards the Northwest (beyond the Chimney stack), which provides an open 'fly-in' access.

External walls and roof

No evidence of recent bat activity was observed, in the form of bat droppings on the walls, window sills etc. The roof has a few holes where slates have slipped or are missing and gaps were observed beneath slates and ridge tiles, between the eaves and the walls and beneath the lead flashing around the base of the chimney.



3.0 DATA COLLECTION (continued)

3.3 Results

3.3.1 Bat scoping survey (July 2020)

Potential for bats

Due to the deteriorating condition, the building was assessed as having a moderate potential for bats. The surrounding habitat was assessed as having a high potential for bats. Further emergence surveys will be required (May-September), to determine if bats are using the building and if so, what species and number, what type of roost is present and where the roost access point(s) are located. The results of these further surveys will guide what mitigation/compensation measures are required.

3.3.2 Emergence surveys

2020 emergence surveys

During the 2020 emergence surveys, 1 x Soprano Pipistrelle bat was observed emerging beneath a slate just below the chimney stack and 2 x Lesser Horseshoe bats emerged from a hole in the roof and flew into the woodland adjacent to the West elevation.

1st survey evening emergence 14 June 2021

The emergence survey started at 21.25hrs, with sunset time of 21.39hrs. The starting air temperature was recorded as 15°C. The weather was dry, with 10% high broken clouds. There was a gentle breeze.

The survey was stopped at 22.55hrs, with a finishing temperature of 13°C.

The first bat was detected at 21.33hrs and observed flying high over the site. Echolocation calls recorded [18kHz] identified it as a Noctule (*Nyctalus noctula*). This bat was observed making a number of foraging/commuting passes over the site during the survey.

At 21.37hrs a bat was observed emerging from beneath a slate near the base of the chimney. Echolocation calls recorded [55kHz] identified it as a Soprano Pipistrelle (*Pipistrellus pygmaeus*).

At 21.42hrs a bat was observed flying around inside the ground floor room at the Northwest of the building, with the open window on the West elevation. Echolocation calls recorded [110kHz] identified it as a Lesser Horseshoe (*Rhinolophus hipposideros*) which was light-sampling. At 21.44hrs 2 x Lesser Horseshoe bats emerged from the open window and flew back and forward along the West elevation, around the tree/shrub vegetation before flying back in through the open window. These bats continued flying out, flying around and flying back in until one bat emerged and flew off into the woodland to the West at 22.34hrs, with the second bat emerging at 22.40hrs.

At 22.09hrs a bat was observed flying into the garden area to the East of the building. Echolocation calls recorded [45kHz] identified it as a Common Pipistrelle (*Pipistrellus pipistrellus*).

The Pipistrelle species were observed making constant foraging/commuting passes around the building and garden areas throughout the remainder of the survey.



3.0 DATA COLLECTION (continued)

3.3 Results

3.3.2 Emergence surveys

2nd survey evening emergence 1 July 2021

The emergence survey started at 21.25hrs, with sunset time of 21.41hrs. The starting air temperature was recorded as 16°C. The weather was dry, overcast with 70% cloud cover. There was a gentle breeze.

The survey was stopped at 22.55hrs, with a finishing temperature of 15°C.

The first bat detected at 21.43hrs was a Noctule [18kHz] observed flying high over the site.

At 21.45hrs a Soprano Pipistrelle [55kHz] was observed emerging from beneath a slate near the base of the chimney.

At 22.08hrs a Common Pipistrelle [45kHz] was observed flying into the garden area to the East of the building from the South.

At 22.00hrs a Lesser Horseshoe [110kHz] was observed light-sampling inside the ground floor room at the Northwest of the building, with the open window on the West elevation. The first Lesser Horseshoe bat emerged from the open window at 22.27hrs and a second emerged at 22.38hrs. These bats were observed foraging along the top of the bank above the woodland to the South and around the yard area to the North of the building during the remainder of the survey.

The Pipistrelle species were observed making constant foraging/commuting passes around the building and garden areas throughout the remainder of the survey.



3.0 DATA COLLECTION (continued)

3.3 Results

3.3.3 Temperature Data Loggers

Temperature data loggers were installed in the derelict building from 5 May 2021 until 17 June 2021 [42 days]. The data loggers were programmed to record the temperature at 30 minute intervals. Logger #5 was located in the bathroom/toilet near the Northeast corner of the first floor. Logger #6 was located in the large loft void [see site maps for locations]. Due to an error in programming Logger #5, the temperature was recorded at 15 minute intervals, not 30 minutes, so due to the capacity of the memory, the data was only logged until 26 May [21 days]. No bats were encountered in the large loft void when the Loggers were installed.

Data Logger Number	Max. temperature °C	Min. temperature °C	Mean Avg. temperature °C
#5	17	6	9.6
#6	36	3.5	16.5

The results show that Logger #5 in the bathroom/toilet in the Northeast of the first floor had a mean average temperature of 9.6°C. If the interval setting had been made correctly, the Logger #5 would have continued collecting data into June, which would likely have resulted in a higher mean average temperature. Logger #6 in the large loft void had a mean average temperature of 16.5°C. The data shows the loft void was obviously hotter than the bathroom/toilet. The graphs of the results are included in *Appendix 6: Temperature Data Loggers*.

3.3.4 Further visual surveys

1 July 2021

A visual survey of the building was carried out by Stephen Cutmore, on 1 July. No bats were encountered in the large loft void. No bats were encountered in the small loft void. 1 x Lesser Horseshoe bat was observed hanging from a ceiling tile above the sink in the bedroom in the Southeast of the first floor. The bat was hanging in the open in bright conditions, due to the light penetrating through the adjacent window. 1 x Lesser Horseshoe bat was encountered flying along the landing corridor leading to the bathroom/toilet in the Northeast of the first floor. No bats were observed in any of the other first floor rooms or in any of the ground floor rooms.

8 September 2021

A visual survey of the building was carried out by Stephen Cutmore, late in the season on 8 September 2021. No bats were encountered in the large loft void. No bats were encountered in the small loft void. No bats were observed in any of the first floor rooms. Piles of fresh droppings were observed in the sink of the bedroom in the Southeast of the first floor. Piles of fresh droppings were observed on the landing towards the South of the first floor. 1 x Lesser Horseshoe bat was observed hanging from the ceiling, near the electric box at the end of the ground floor hallway, towards the Northwest of the building. 1 x Lesser Horseshoe bat was encountered flying out of the ground floor room in the Northeast corner of the building. No bats were observed in any of the other ground floor rooms.



4.0 SITE EVALUATION

Bat droppings and feeding remains were observed in some of the first floor rooms and 2 x Lesser Horseshoe bats were observed roosting in the large loft void during the scoping surveys. A few gaps were observed under slates and ridge tiles of the roofs and between the stone walls and the eaves. A hole was observed in the roof near the Northwest of the building. Due to the deteriorating conditions, the derelict building was assessed as having a moderate potential for bats.

The building is on the disused Chwarel Wynne Slate Mine and Museum site, located within woodland approx. 200m to the West of the village of Glyn Ceiriog.

Nant Lafar stream is approx. 150m to the South and the River Ceiriog is some 300m to the Southeast. The surrounding landscape has pasture fields, trees and hedgerows. There are several other woodlands in the vicinity, including Ceiriog Forest to the Northwest. All these landscape features provide good habitat for foraging bats.

During both the 2020 and 2021 emergence surveys, 1 x Soprano Pipistrelle and 2 x Lesser Horseshoe bats were observed emerging from the building.

During the two visual surveys of 2021, no bats were encountered in the loft voids. During the first survey on 1 July 2021, 2 x Lesser Horseshoe bats were encountered in the first floor rooms and on the second survey on 8 September 2021, 2 x Lesser Horseshoe bats were encountered in the ground floor rooms.

The building is therefore a confirmed roost, being used as small day-roosts by 1 x Soprano Pipistrelle and 2 x Lesser Horseshoe bats.

Common Pipistrelle and Noctule bats were also observed foraging in the vicinity.



5.0 IMPACT ASSESSMENT

5.1 Short-term impact

Disturbance through increased human presence, noise and changes in site layout may have a detrimental effect on bats. Bats could be killed or abandon roost if works start when present between spring and summer. If works started in winter and not completed by spring, bats would have no roost to return to. Timing of operation will minimise disturbance.

5.2 Long-term impact – roost losses

Small day-roost roosts for 1 x Soprano Pipistrelle bat and 2 x Lesser Horseshoe bats would be destroyed during the proposed development, which could have a low impact on the locally recorded population.

A dedicated bat loft will be provided in an outbuilding/storage shed, to be located between the building and the caves located to the North, as compensation, to provide an alternative roost, close to the existing roost, in the same orientation and with access to existing flightlines. An additional long-term roost will also be provided as wildlife enhancement, in a large loft void in the proposed replacement dwelling to be erected on virtually the same footprint as the existing building.

5.3 Long-term impact – fragmentation and isolation

Any loss of linear features (hedges, treelines), which provide important flightlines would be negative. A small number of small trees and shrub vegetation adjacent to the West elevation are likely to require removing to facilitate the proposed development. There will be minimal loss of vegetation and there is no predicted impact from fragmentation and isolation. A post-construction landscape scheme will include new tree/shrub/hedge planting, which will provide additional foraging habitat and help improve biodiversity on the site for bats and other wildlife.

5.4 Post-development interference impacts

Any bright, artificial lighting on roost entrances and flightlines would be negative. Any lighting should be low level, with illumination directed downwards to minimise impact (see 7.6 Lighting).

5.5 Predicted scale of impact

The impact on individual bats of all species concerned would be high and the impact on the favourable conservation status of locally recorded bats would be low. It is essential that appropriate compensation and mitigation measures are implemented and that Reasonable Avoidance Measures are followed, in order to minimise the impact on locally recorded bats.



6.0 CONCLUSIONS

6.1 Bats

During the 2020 emergence surveys 1 x Soprano Pipistrelle bat and 2 x Lesser Horseshoe bats were observed emerging from the building.

At the time the previous report was written [dated 25 August 2020], the record of approx. 100 x Lesser Horseshoe bats using the nearby mines located to the North of the building as a hibernacula site had not been submitted to Cofnod, so it did not appear on the Data Search. It was only during the consultation with NRW and the planners in March 2021, that the author became aware of this fact and it was several weeks later that the local Clwyd Bat Group submitted the record to Cofnod, who then updated their database.

During the 2021 further monitoring surveys, 1 x Soprano Pipistrelle bat was observed emerging from beneath a slate near the base of the chimney and 2 x Lesser Horseshoe bats were observed emerging from the ground floor room at the Northwest of the building, with the open window on the West elevation. Common Pipistrelle and Noctule bats were also observed foraging in the vicinity.

When the Data Loggers were installed on 5 May 2021, no bats were encountered in the large loft void. During the two visual surveys carried out on 1 July and 8 September 2021, no bats were encountered in either the large loft void, nor in the small loft void. During the first survey, 1 x Lesser Horseshoe bat was observed hanging from a ceiling tile above the sink in the bedroom in the Southeast of the first floor. The bat was hanging in the open in bright conditions, due to the light penetrating through the adjacent window. 1 x Lesser Horseshoe bat was encountered flying along the landing corridor leading to the bathroom/toilet in the Northeast of the first floor. No bats were observed in any of the other first floor rooms or in any of the ground floor rooms.

During the second survey, no bats were observed in any of the first floor rooms. Piles of fresh droppings were observed in the sink of the bedroom in the Southeast of the first floor. Piles of fresh droppings were observed on the landing towards the South of the first floor. 1 x Lesser Horseshoe bat was observed hanging from the ceiling, near the electric box at the end of the ground floor hallway, towards the Northwest of the building. 1 x Lesser Horseshoe bat was encountered flying out of the ground floor room in the Northeast corner of the building. No bats were observed in any of the other ground floor rooms.

There is no evidence that the building is being used as a maternity roost by the Lesser Horseshoe bats (or any other bat species).

The evidence indicates that during the hot temperatures experienced in June/July 2021, the 2 x Lesser Horseshoe bats moved out of the large loft void to the cooler conditions on the first floor, roosting in the bedroom at the Southeast corner and the landing near the South of the building. Late in the season, the 2 x Lesser Horseshoe bats had moved to roost in the ground floor rooms.

Only 2 x Lesser Horseshoe bats were encountered during the further monitoring surveys of 2021, with the conclusion that they are using the building as a small day-roost and possibly as a small transition roost before moving to a hibernacula site.



6.0 CONCLUSIONS (continued)

6.1 Bats

There is a potential that more Lesser Horseshoe bats could move in to use the building during September/October as a transition roost, before hibernating in the nearby mines to the North. However, there is no evidence in the form of large piles of droppings in the building, to indicate that a larger number of Lesser Horseshoe bats have previously used the building as a transition roost.

The conclusion is that the derelict detached building at Bronydd, Quarry Road, Glyn Ceiriog, Llangollen, LL20 7DA is a confirmed roost being used as small day-roosts by 1 x Soprano Pipistrelle and 2 x Lesser Horseshoe bats. The building may also be used as a small transition roost by the 2 x Lesser Horseshoe bats.

As the building is a confirmed roost, a Derogation licence will be required from Natural Resources Wales for this proposed development scheme, to avoid an offence being committed. The proposed development will cause disturbance to bats and result in the destruction of small day-roosts.

The impact on individual bats of all species concerned would be high and the impact on the favourable conservation status of locally recorded bats would be low. It is essential that appropriate compensation and mitigation measures are implemented to provide alternative roosts before any proposed works commence. Reasonable Avoidance Measures in the form of timing of operations and provision of bat-friendly features in the proposed development must be implemented and followed, in order to minimise the impact on locally recorded bats.

Due to the significant defects present, the building is structurally unstable and it would not be economically viable to repair and renovate the building, even if that were practically possible. There is no option but to demolish the existing building and erect a replacement building on the same footprint.

If nothing was done, the derelict building would continue to decline in condition and likely start to collapse, which would pose a significant safety risk to the landowner and his family and visitors to the site. This would lead to the loss of current small day-roosts (and possible small transition roost), so doing nothing is not a viable option.

Providing an alternative roost as appropriate and suitable compensation for the 2 x Lesser Horseshoe bats and 1 x Soprano Pipistrelle bat, in a dedicated bat loft in an outbuilding/storage shed/car port structure, is therefore considered the best available option.

As wildlife enhancement and as part of a bat conservation plan, dedicated bat roosts could be provided in the loft void sections of the proposed replacement dwelling. This, together with the loft void in the outbuilding/storage shed/car port structure, would provide multi-void spaces with multiple roosting opportunities with differing mean average temperatures, which would provide a range of suitable hot and cooler conditions for the Lesser Horseshoe bats and provide long-term security for the bats. Providing other bat-friendly features in the proposed development would provide roosting opportunities for other bat species recorded in the vicinity. This could have a positive impact on the favourable conservation status of locally recorded bats



7.0 MITIGATION AND RECOMMENDATIONS

7.1 COMPENSATION

The proposed development work to demolish the derelict building will result in the destruction of confirmed small day-roosts being used by 1 x Soprano Pipistrelle and 2 x Lesser Horseshoe bats. Mitigation in the form of compensation is required, to provide an alternative 'like-for-like' bat roost on the site. The replacement roost should 1) match the existing roost in terms of size, height and aspect; 2) have a thermal regime suitable for the target species; 3) be situated as close as possible to the roost being lost and; 4) have an entrance close to the existing flight lines and appropriate habitat, to maximise chances of the bats finding and adopting it.

Lesser Horseshoe bats, being roof void dwelling species, require timber joists or beams and roofing felt on which to roost, but the loft void should not be trussed, in order to allow unobstructed flight. A dedicated bat loft must be provided as mitigation in the proposed development, to compensate for the small day-roost to be lost.

A dedicated bat loft will be provided (5m length x 3m width x 2.6m floor to ridge height) in an outbuilding/storage shed/car port structure to be erected between the existing Engine Room building and the mines to the North of the existing derelict building. This location has direct sun throughout the day, so would benefit from solar radiation on the South pitch of the roof.

1F bitumastic felt will be used beneath the natural slates on the pitched roof. A 'fly-in' access will be provided for the Lesser Horseshoe bats, in the form of a small lead covered or slated open dormer in the South pitch of the bat loft roof (external entrance 300mm wide x 200mm high and the dormer cover 300mm deep), with the entrance sloping upwards with a smooth metal sheet lining on all interior sides to prevent predator entry. The dormer should be set low on the roof so the interior entrance of the tunnel is no more than 500mm above the level of the bat loft floor. Alternatively a 'letterbox' opening (300mm x 200mm) will be provided in the West gable-end wall, no more than 500mm above the level of the bat loft floor.

Compensation in the form of an alternative bat roost must be provided for crevice-dwelling bats before any proposed work commences. This could be in the form of bat boxes [suggest either a Schwegler (1FQ) wall-mounted bat box (75) or a Schwegler 1WQ summer & winter bat roost] [available from www.wildcareshop.com], fixed to the South elevation or West gable-end of the Engine Room building, adjacent to the Northeast of the derelict building, high enough (>2-3m) to avoid predation by cats. Alternatively a bat box could be installed in a suitable mature tree. Given the on-going problem of obtaining Schwegler products, a similar style woodcrete bat box by a different manufacturer would be a satisfactory alternative. It is recommended that additional bat access for crevice-dwelling species are provided in the proposed outbuilding/storage shed/car port structure, in the form bat slates, gaps under slates/ridge tiles/eaves etc.



7.0 MITIGATION AND RECOMMENDATIONS

7.2 REASONABLE AVOIDANCE MEASURES

General recommendations

Timing of the development works is crucial. The optimum time for work involving a summer roost (where bats are present but without dependable young) is 1st September – 1st May. It is recommended that any works that could disturb bats is carried out under supervision by a Licenced Bat Worker.

The amendments to the European Habitat Regulations came into force in August 2007, which means that the ‘incidental result defence’, which previously covered acts that were the incidental result of an otherwise lawful operation, such as a planning permission, has now been removed. Therefore, if any bats are encountered, work should stop immediately and not resume until advised by an ecologist. If any bats are discovered, Natural Resources Wales must be notified as to what bat species and numbers were encountered and what action has been taken.

7.3 BAT ROOSTING OPPORTUNITIES

It is recommended that bat friendly features be incorporated into the proposed development, in order to keep in line with the Local Biodiversity Action Plans. To provide suitable conditions for bats, the use of warm roofs should be avoided. Traditional cold roofs with air circulation should be used. Whichever roof construction is to be used (closed eaves with a fascia; eaves with a soffit; barge board with or without soffit; closed verge pointed with undercloak), gaps (10-20mm) should be left by the fascia/soffit/undercloak for bats to gain access to the inner gable walls.

To provide suitable roosting opportunities for bats, traditional hessian backed 1F bitumastic underfelt **must** be used. Results of recent research commissioned by The Bat Conservation Trust (http://www.bats.org.uk/pages/breathable_roof_membranes.html) has concluded that Breathable Roofing Membrane (BRM) poses a serious threat to bats, due to loose spun-bond filaments becoming entangled around bats feet and wings, resulting in bats becoming immobilised and eventually dying. The functionality and longevity of BRM can also be affected in those parts altered by the presence of bats.

Another method that could be designed into the roof construction of the dedicated bat loft is the use of ‘Slate-line’ bat tiles installed on the North and South-facing roof pitch sections, to allow bats access to the space between the slates and roofing felt (available from Summit Slate Supplies, Welshpool <http://www.summitslate.co.uk/>). For bat species that use the inside of the loft void (e.g. Brown Long-eared bats), a small 3-sided hole (top and 2 sides)[75mm x 30mm] should be cut into the underfelt near the top of the bat slate, immediately adjacent to a rafter or wall, so that the bats can climb back out. Alternatively approximately three ridge tiles should have 20mm x 100mm gaps cut in one of the lower edges, to allow access for bats (see *Appendix 5 – Mitigation Details*).



7.0 MITIGATION AND RECOMMENDATIONS (continued)

7.3 BAT ROOSTING OPPORTUNITIES

Another alternative is to install a Schwegler (1FQ) wall-mounted bat box (75) or a Schwegler 1WQ summer & winter bat roost [available from www.wildcareshop.com], which should be fixed to the West gable-end or South elevation wall, high enough (>2-3m) to avoid predation by cats.

Two simple crevice boxes could be constructed from untreated rough sawn boards (1.5m long x 15cm deep, with a gap of 22mm between the boards as the roosting space) and hung from the underside of the roof in the dedicated bat loft, as near to the apex/ridge board of the bat loft as possible. The 22mm battens should be fixed between the boards at either end and along the top edge, to leave the underside open for bat access.

Any bat-friendly features to be incorporated in the new development should be detailed on the development plans/drawings.

7.4 ROOF INSULATION

Any new insulation to be installed in the roof of buildings to incorporate bat-friendly features, (e.g. Kingspan sheets), should be fixed to a counter batten, attached to the underside of the rafters. Care must be taken to ensure that a 50mm airspace between the insulation and the slates/tiles is maintained for bat access.

7.5 TIMBER TREATMENT

Any timber treatment to protect against insects, fungal growth or weathering in areas with potential to be accessed by bats, should only be carried out utilising chemicals from the Natural Resources Wales approved list. A list of Approved Products is available at <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>, which provides links to Timber Treatment Table 1. If the product is not listed, check the active ingredients listed in Timber Treatment Tables 2-7.

You can't use chemical products in or near a known bat roost if there are bats present. The best time to apply treatments is usually between autumn and spring.

Pre-treated timber products

Pre-treated timber products are not included in the tables mentioned above. You can use timber that's been pre-treated off-site, because the chemicals are injected deep into the timber leaving lower concentrations on the surface which isn't harmful to bats. However you shouldn't apply products used to pre-treat timber on-site, because the active ingredients will be more concentrated on the timber surface and may be harmful to bats.

Stains and preservatives

Decorative wood finishes, like stains or wood preservative, can be used around bat roosts as long as you only use them on external timber.



7.0 MITIGATION AND RECOMMENDATIONS (continued)

7.6 LIGHTING

Bats can be disturbed by bright, artificial lighting at night (ALAN). Where lighting is essential in the vicinity of the proposed new development, subdued low level lighting should be used and the illumination should be directed downwards (upward light ratio 0%). LED luminaires should be used where possible, with a warm white spectrum (<2700Kelvin) to minimise blue light component. Luminaires should have peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats. The use of motion sensor-triggered security lighting with short (1 min) timers, is preferable to permanent lighting. If roosting opportunities are to be incorporated into the new development, it is essential that roost access points and flightlines used for foraging/commuting (e.g. hedgerows, lines of trees) are not illuminated. The use of soft landscaping and fencing [supported by concrete posts to ensure long-term contribution] can be used to help screen light spill. The latest Guide Note 08/18 can be downloaded at www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/

The existing external security light fixed to the West elevation wall of the smaller barn #2 should have the timer (if it has one) adjusted to a short (1 min) period, otherwise replace the security light with a suitable new motion sensor triggered light that conforms to the above recommendations.

7.7 BIRD NESTING OPPORTUNITIES

Consideration should be given to providing some simple measures that would have a positive conservation benefit on local bird populations. These may be in the form of eaves built to be suitable for house martins. Suitable crevices left unsealed in exterior stonework or brickwork provides potential for nesting house sparrows. Provision for Barn Swallows could be made in an outbuilding with an open access (stable door/window), by installing starter platforms in the form of 90mm x 90mm wooden battens fixed 450mm down from the roof apex. Bird boxes could be installed in trees to benefit local bird populations. Planting native species hedgerows and areas of shrubs and trees in the vicinity of the proposed development would provide suitable habitat and food sources for birds.

7.8 MANAGEMENT AND MAINTENANCE

The present owner Tim Latham will be responsible for implementing the mitigation works and will remain responsible for the property and ongoing land management and maintenance. If ownership changes (e.g. new owners purchase the dwelling), it is likely that a clause will be incorporated into the contract, to ensure habitat management and maintenance is continued for perpetuity. As a development licence will be required from NRW, an ecological audit and monitoring programme will be detailed in the licence application.



8.0 WILDLIFE AND THE LAW

8.1 EUROPEAN PROTECTED SPECIES

The Bern Convention (The convention on the conservation of European Wildlife and Natural Habitats) was adopted in 1979 and came into force in 1982. To implement this agreement, the European Community adopted the EC Habitats Directive.

The EC Habitats Directive has been transposed into UK legislation by the Wildlife and Countryside Act, 1981 (as amended) and the Conservation of Habitats and Species Regulations, 2010. The Countryside and Rights of Way Act (CroW), 2000 strengthened the existing wildlife legislation in the UK.

The UK has also signed the Bonn Convention (The Convention on the Conservation of Migratory Species of Wild Animals) and is therefore party to various agreements.

8.1.1 Bats

All 17 bat species found in the UK and their roosts are protected in the UK under Schedules 5 and 6 of the Wildlife & Countryside Act 1981 (as amended) and are therefore afforded protection under Section 9 of this Act. The Countryside Rights of Way Act (CroW) 2000 strengthened the existing wildlife legislation in the UK.

In addition, five British bat species are also listed on Annex II [and all bats are listed on Annex IV] of the EC Habitats Directive, which is transposed into national law by means of The Conservation of Habitats and Species Regulations (2017).

These are:

- Greater horseshoe bat (*Rhinolophus ferrumequinum*);
- Lesser horseshoe bat (*Rhinolophus hipposideros*);
- Bechstein's bat (*Myotis bechsteinii*);
- Barbastelle (*Barbastella barbastellus*) and
- Greater mouse-eared bat (*Myotis myotis*).

Bats are listed under Appendix III of the Bern Convention. Bats and their habitats are also listed under Appendix II of the Bonn Convention and therefore the UK has an obligation to protect their habitat, including links to important feeding areas. The UK had designated maternity and hibernacula areas as Special Areas of Conservation (SACs) under the Habitats Directive. Implementation of the UK Biodiversity Action Plan also includes action for a number bat species and the habitats which support them.



8.0 WILDLIFE AND THE LAW (continued)

8.1 EUROPEAN PROTECTED SPECIES

8.1.2 Legislation relating to European Protected Species

In relation to a development a person commits an offence if they –

- Deliberately captures, injures or kills a European Protected Species
- Deliberately or recklessly disturbs wild animals of any such species in such a way as to be likely significant to affect:
 - (i) the ability of any significant group of animals to survive, breed, or rear or nurture their young; or
 - (ii) the local distribution or abundance of that species;
- Damages or destroys a breeding site or resting place (even if unintentional or when the animal is not present)
- Intentionally or recklessly obstructs access to a structure or place used for protection or shelter
- This legislation applies, regardless of the life stage (including eggs).

A European Protected Species Licence is required to carry out any activity that would otherwise involve committing an offence.

To avoid disturbance during habitat management, a written strategy is required following guidance provided by Natural Resources Wales. If the guidance is followed and major disturbance can be avoided, then a licence is not required.

8.1.3 European Protected Species Licences

At the present time, Natural Resources Wales requires the following three ‘tests’ to be met, in order that a licence may be granted.

Test 1. Regulation 53 (2) (e) states that licences granted to ‘preserve 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 53 (9) (a) states that a licence may not be granted unless the licensing authority is satisfied ‘that there is no reasonable alternative’.

Test 3. Regulation 53 (9) (b) states that a licence cannot be issued unless the licensing authority is satisfied that the action proposed ‘will not be detrimental to the maintenance of the species concerned at a favourable conservation status in its natural range’.

8.1.4 Recent changes in Licences

Following a recent intervention from the European Court, there have been significant changes in the interpretation of the way licences are issued. In considering a licence request, Natural Resources Wales will seek information relating to the size and importance of the population/colony and will require evidence to demonstrate that the species will be maintained ‘at a favourable conservation status in their natural range’. In effect, this means that to obtain a licence, Natural Resources Wales must be satisfied that the applicant will implement mitigation to safeguard (and ideally enhance) the population concerned. Natural Resources Wales will need to see evidence that the development work which will disturb/destroy a roost site will be undertaken using current best practice, also that the bats can be provided with an alternative roost site on or in the immediate area.

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8.0 WILDLIFE AND THE LAW (continued)

8.1 EUROPEAN PROTECTED SPECIES

8.1.5 Important EPSL Information

Please note that a European Protected Species Licence can only be obtained once planning permission has been granted. When assessing planning applications where a European Protected Species could be affected by proposed works, the local Planning Authority must take into account the potential impacts on the species concerned. In practice this could make further survey work (such as emergence surveys in the case of bats) essential prior to planning permission being granted. Alternatively the LPA may grant planning permission whilst imposing planning conditions to undertake further survey work. The local Planning Authority must also have regard for the three 'tests' as outlined above – Regulations 53 (2) (e), 53 (9) (a) and 53 (9) (b). Once planning permission has been granted a European Protected Species Licence application can be submitted to Natural Resources Wales. The application requires detailed Method Statements to be produced by a qualified bat ecologist to demonstrate how Regulation 53 (9) (b) can be satisfied. The applicant will also need to complete a Reasoned Statement form demonstrating (with evidence) that Regulations 53 (2) (e) and 53 (9) (a) are satisfied. This involves producing evidence to show that no reasonable alternative to the proposed action is available and that the action must take place to either 'preserve 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.

8.2 OTHER PROTECTED SPECIES - NESTING BIRDS

All wild birds are protected under Part 1 of the Wildlife and Countryside Act, 1981 (as amended). Therefore in the UK it is an offence to:

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

To avoid committing an offence no works should be carried out on a structure/feature that is being used by nesting birds. Nesting is deemed to be over when the young have fully fledged. Certain species which are listed in Schedule 1 of the Wildlife and Countryside Act receive special protection. In these cases any form of intentional or reckless disturbance when they are nesting or rearing dependent young, constitutes an offence. Any disturbance of nesting birds between 1st March-30th September could constitute a criminal offence.



8.0 WILDLIFE AND THE LAW (continued)

8.3 ENVIRONMENT (WALES) ACT 2016

This Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

The Environment (Wales) Act introduces a new, enhanced Biodiversity and Resilience of Ecosystem Duty on public bodies to ensure that biodiversity is an integral part of decision making. The Duty will replace the existing Natural Environment and Rural Communities (NERC) Act 2006 Duty. Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience. Section 6 of the Act places a duty on public authorities to seek to maintain and enhance biological diversity (referred to as biodiversity). All public bodies, statutory undertakers, Ministers of the Crown and other public office holders are required to apply the duty when they are carrying on any functions in Wales, or in relation to Wales. Section 7 of the Act is similar to the duty in *section 42 of the NERC Act 2006* which it replaces. It places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales.

8.4 PLANNING POLICY WALES FRAMEWORK

Planning Policy Wales (Edition 11, Feb 2021) sets out the Welsh Government's planning policies and how these are expected to be applied. The planning system manages the development and use of land in the public interest, contributing to improving the economic, social, environmental and cultural well-being of Wales, as required by the Well-being of Future Generations (Wales) Act 2015. It should reconcile the needs of development and conservation, securing economy, efficiency and amenity in the use of land, and protecting natural resources and the historic environment. A well-functioning planning system is fundamental for sustainable development.

8.5 KEY PRINCIPLES OF PPW (2021)

Chapter 6 'Distinct and Natural Places' provides policies for protection of biodiversity and geological conservation.

Para.6.4.3 Development proposals must consider the needs to:

- support the conservation of biodiversity, in particular the conservation of wildlife and habitats;
- ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;
- ensure statutorily and non-statutorily designated sites are properly protected and managed;
- safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and
- secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.



8.0 WILDLIFE AND THE LAW (continued)

8.5 KEY PRINCIPLES OF PPW (2021)

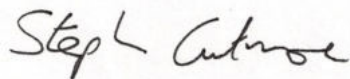
Para 6.4.22 states:

- The presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat.
- Local planning authorities should advise anyone submitting a planning application that they must conform with any statutory species protection provisions affecting the site concerned, and should consult Natural Resources Wales before granting permission.
- An ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the planning decision.

Para 6.4.23 states:

- Developments are always subject to the legislation covering European protected species regardless of whether or not they are within a designated site.
- New developments for which development works would contravene the protection afforded to European protected species require derogations from the provisions of the Habitats Directive.
- A derogation may only be authorised if there is no satisfactory alternative and if the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.
- The development works to be authorised must be for the purposes of preserving 'public health or safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment'.
- Derogations are granted by a licence issued by Natural Resources Wales. Local planning authorities are under a duty to have regard to the requirements of the Habitats Directive in exercising their functions.
- To avoid developments with planning permission subsequently not being granted derogations in relation to European protected species, planning authorities should take the above three requirements for derogation into account when considering development proposals where a European protected species is present.

Report written and compiled by



Stephen Cutmore BSc (Hons), MICFor

Licensed Bat Worker (NRW[S087991/1], NE[2015-16936-CLS-CLS])

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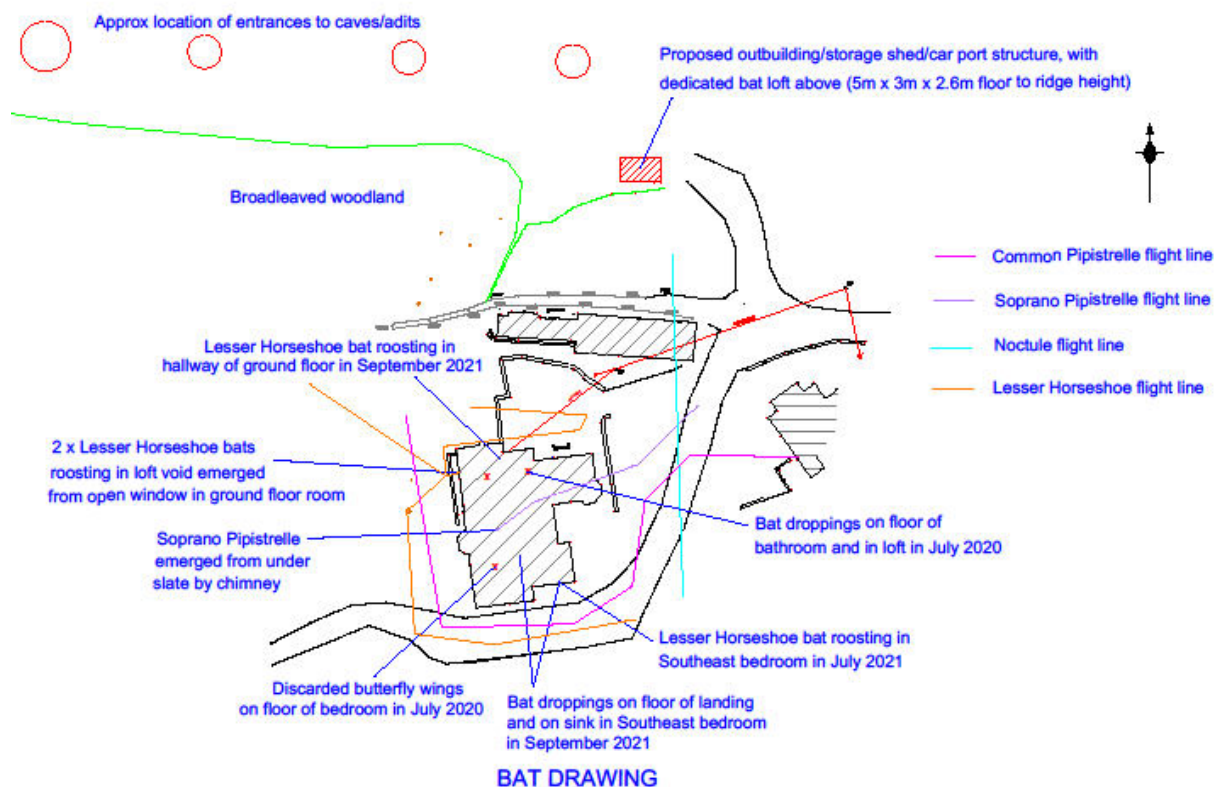
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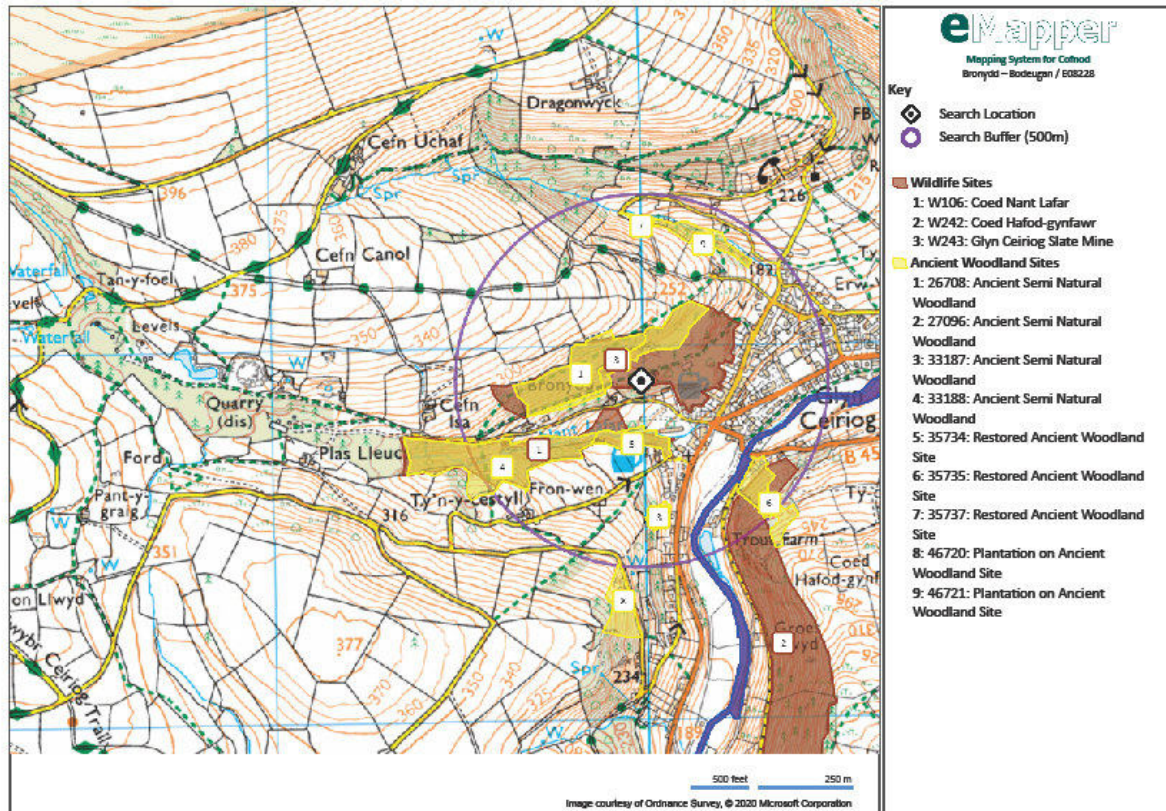


APPENDIX 1 – Site plan

To see detail more clearly please see accompanying pdf file 'Bronydd Glyn Ceiriog 2021 Bat Drawing'.



APPENDIX 1 – Site plan



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APPENDIX 2 – Photographs



Photo 1: Soprano Pipistrelle (red arrow) bat roost access point.



Photo 2: LHS bats emerged from the open window in ground floor room near Northwest corner of the building.



Photo 3: Lesser Horseshoe bat roosting above sink in Southeast bedroom on first floor.

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APPENDIX 2 – Photographs



Photo 4: Lesser Horseshoe bat droppings on shelf above sink in bedroom.



Photo 5: Bat droppings on landing of first floor near South elevation.



Photo 6: Closer detail of LHS bat droppings on landing of first floor.

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APPENDIX 2 – Photographs



Photo 7: The doorframe originally was flush with the wall, but the supporting wall has sheared and movement has created a huge gap in first floor of building.



Photo 8: Shear cracks in supporting wall on first floor of building.



Photo 9 Shear cracks in supporting wall on first floor of building.

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APPENDIX 3 – Grading system for bat habitats

It should be noted that low suitability roosting habitats may be present in commuting/foraging habitats that are of high suitability and vice versa. Roosting habitats and commuting/foraging habitats should be assessed separately and independently.

Table 1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging 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 and/or 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). A tree of sufficient size and age to contain PFRs but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (but not in a parkland situation) or a patch of scrub.
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 and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost types only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees or scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
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 and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.



APPENDIX 4 – Bat sonographs

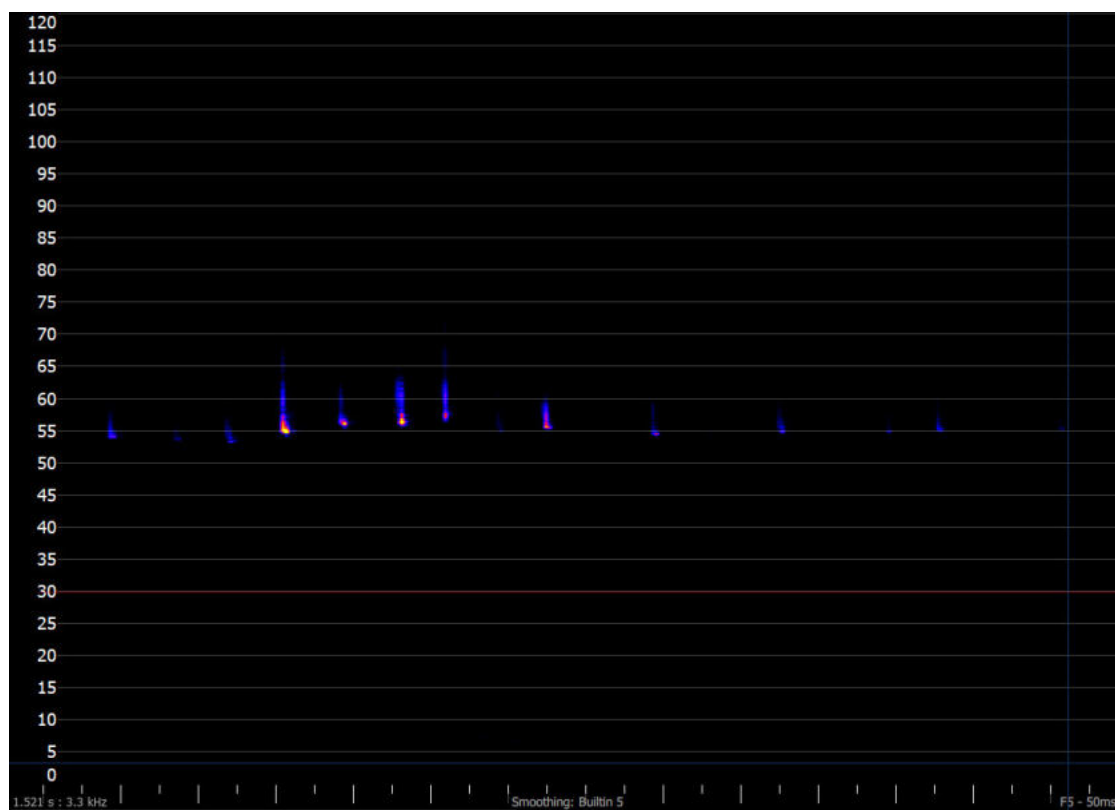


Figure 2: Soprano Pipistrelle [55kHz] emerging from roof of building.

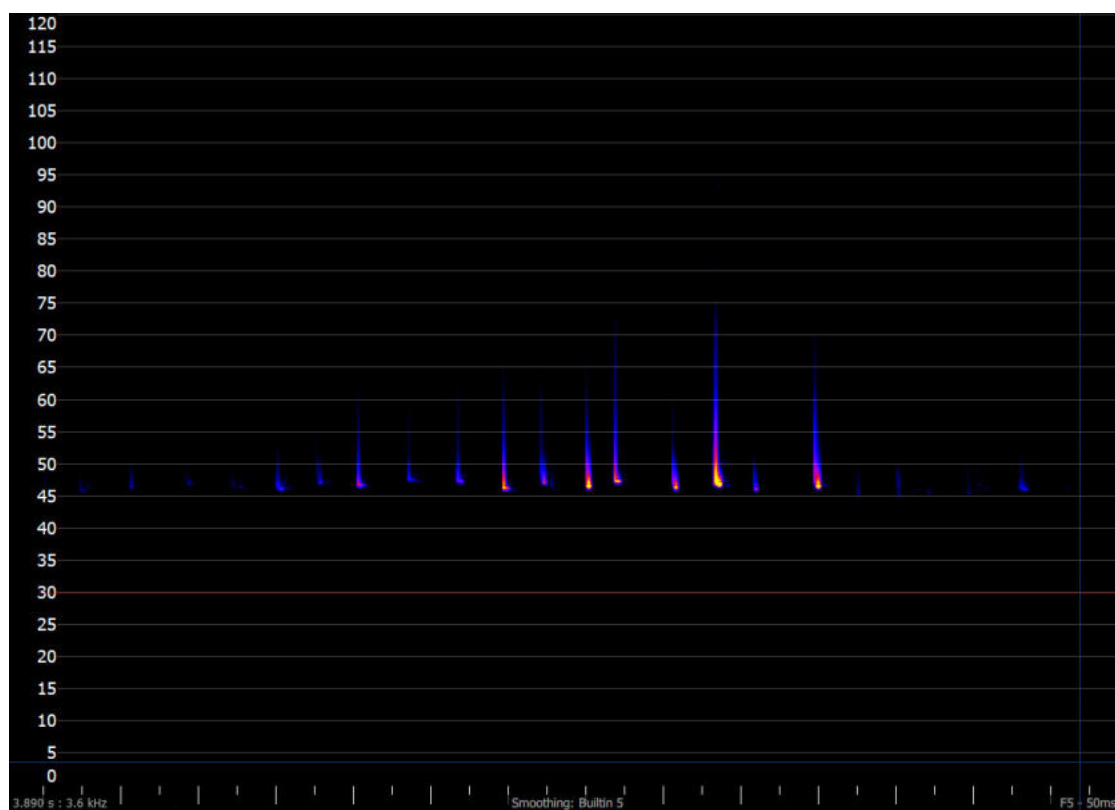


Figure 3: Common Pipistrelle bat foraging around garden areas.

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APPENDIX 4 – Bat sonographs

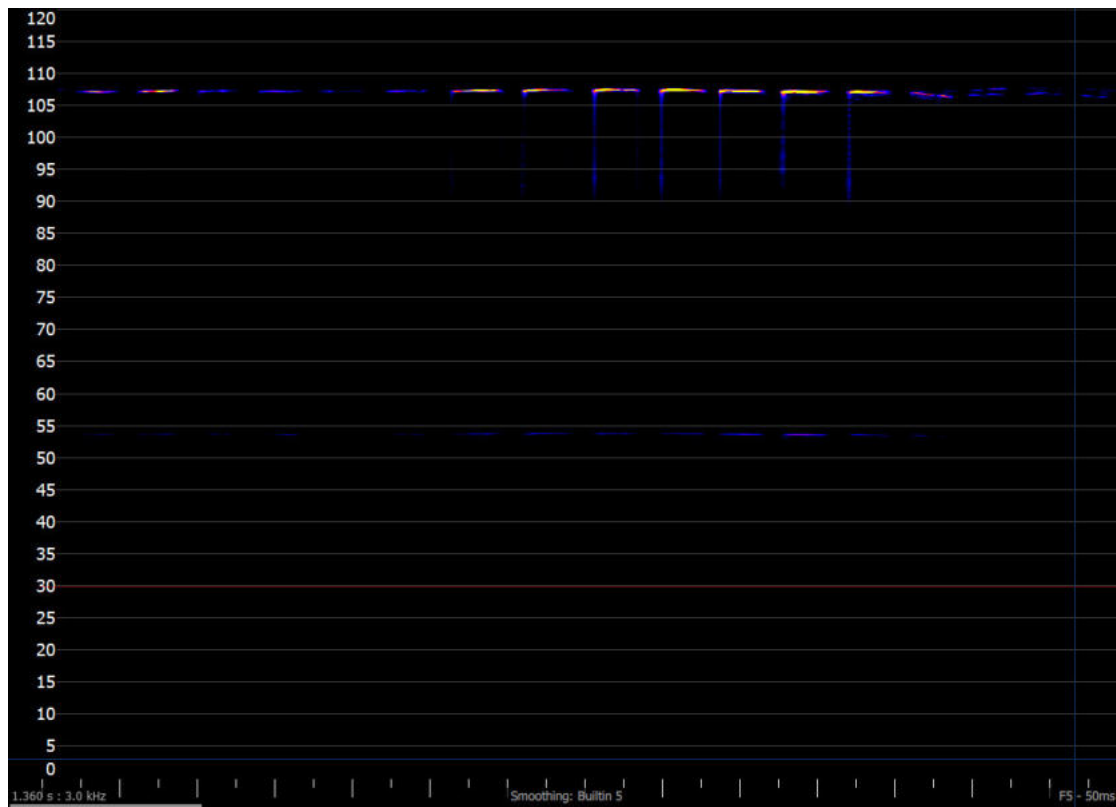


Figure 4: Lesser Horseshoe [110kHz] emerging from building.

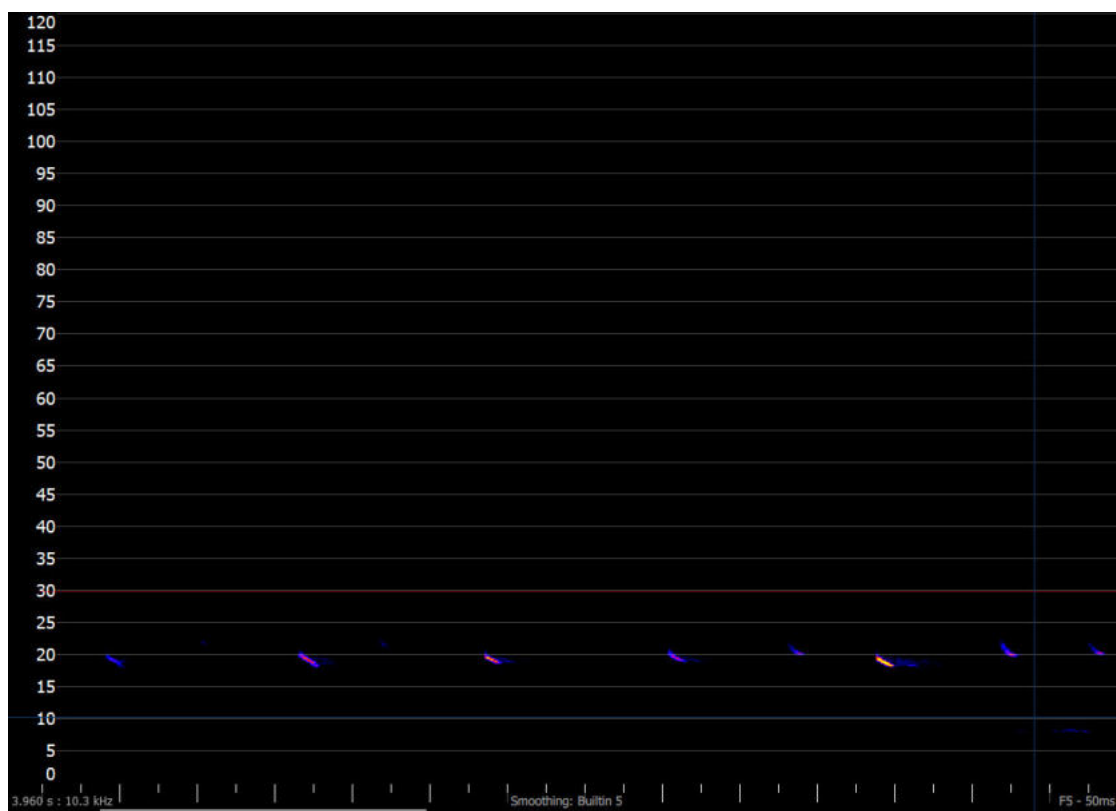


Figure 5: Noctule 18kHz] foraging high over site.

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APPENDIX 5 – Mitigation details

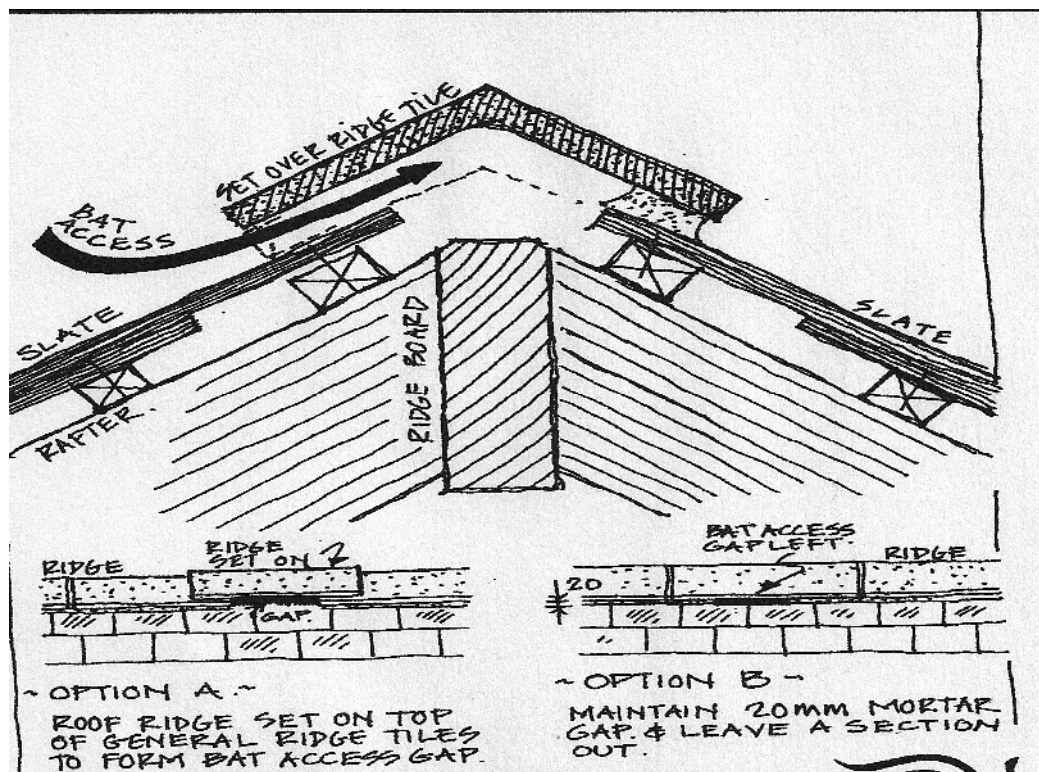


Figure 6: Ridge tile details

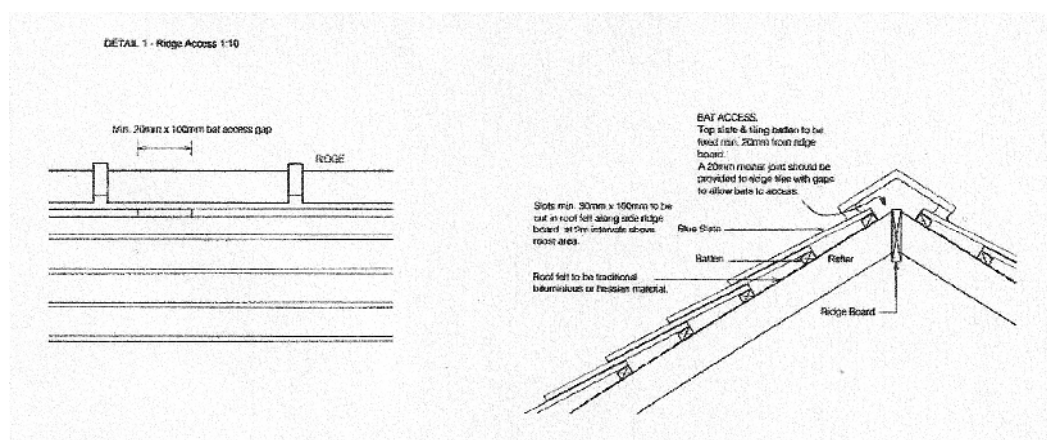


Figure 7: Ridge tile details



APPENDIX 5 – Mitigation details

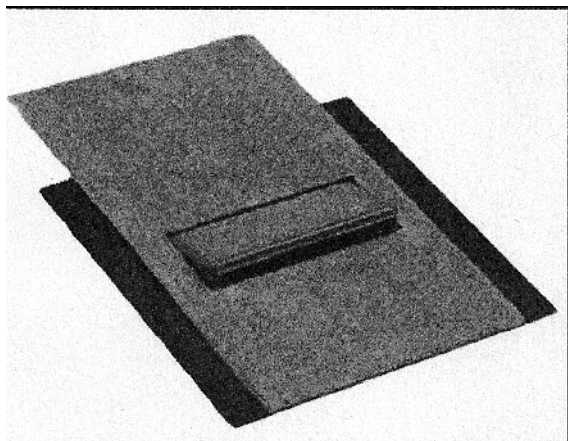


Figure 8: 'Slate-line' bat tile

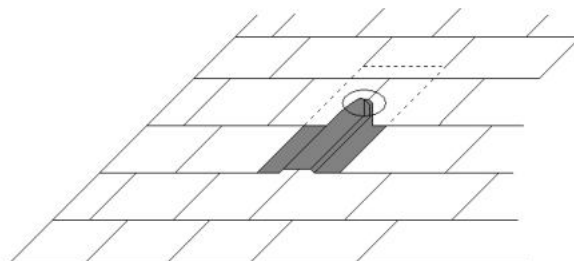


Figure 9: To allow access into the loft void, a 3-sided hole (75mm x 30mm) needs to be cut in the underfelt, adjacent to a rafter or wall

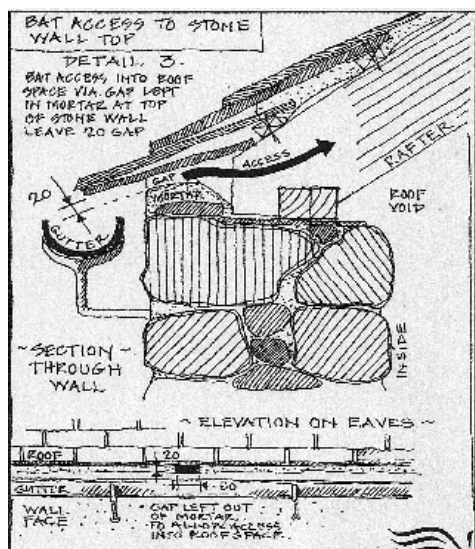


Figure 10: Bat access via eaves



Figure 11: Schwegler IFS bat box (95).

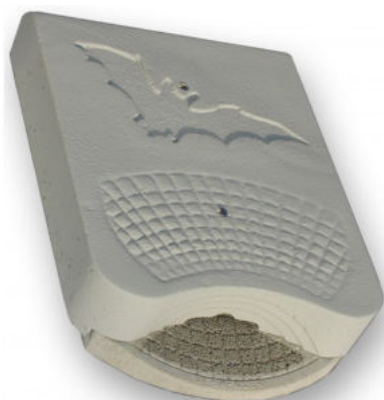


Figure 12: Schwegler (1WQ) Summer & winter roost box



Figure 13: Schwegler (1FQ) bat box fitted to wall.



APPENDIX 5 – Mitigation details



Figure 14: Example of LHS covered fly in access in roof.



Figure 15: Example of LHS fly in access in gable-end wall.



APPENDIX 6: Temperature Data Loggers

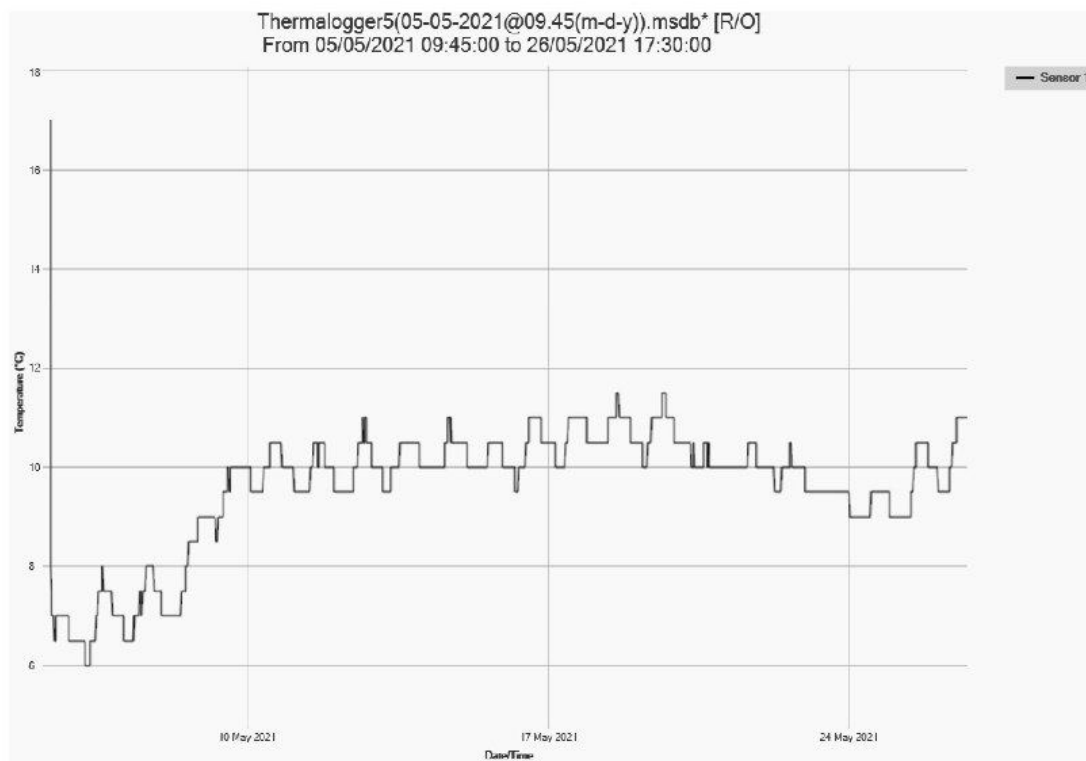


Figure 16: Graph of temperatures recorded by Logger #5 in bathroom/toilet.

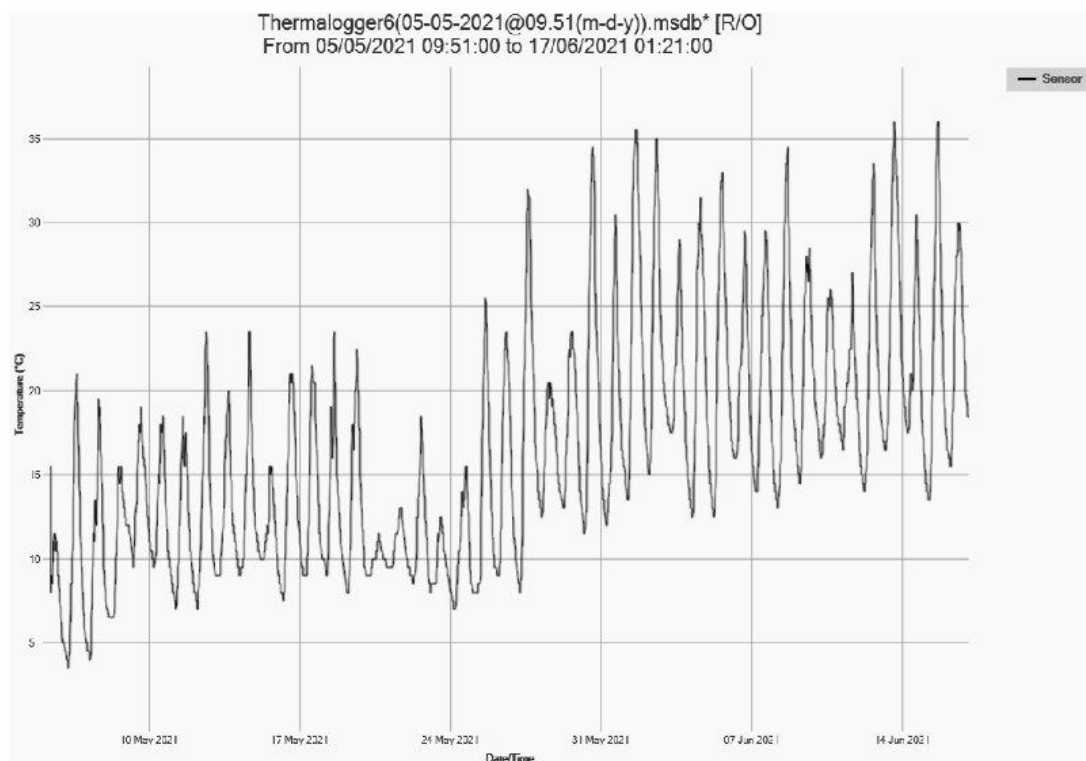


Figure 17: Graph of temperatures recorded by Logger #6 in large loft void.

Client: Tim Latham
Ref: 092021/BES/TL

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APPENDIX 7: Bibliography

The following publications were referred to in preparing this report.

British Standards Institution (2013). *BS42020 'Biodiversity. Code of Practice for planning and development'*. BSI Standards Limited, London.

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

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

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

Russ, J (2012) *British Bat Calls – A Guide to Species Identification (1st edn.)*. Pelagic Publishing. Exeter.

