

**Hafodty Farm farmhouse and barns,
Llansilin, SY10 7JN**

Bat survey with mitigation plan

For: Dave Allen

23 June 2020

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1.0 INTRODUCTION

1.1 Background – Gerald Longley

Gerald Longley Ecological Consultants (GLEC Ltd) has been commissioned to undertake a Bat Survey for a proposed development at Hafodty Farm farmhouse and barns, Llansilin, SY10 7JN (national grid reference SJ20432961). Gerald Longley has over three decades of experience of wildlife surveying and, prior to working as an independent ecological consultant, held posts as Conservation Officer with Montgomeryshire Wildlife Trust and Head of Shrewsbury Countryside Unit.

1.2 Background – This Survey

Works to renovate and convert the buildings at Hafodty Farm to accommodation are proposed. The request for this bat survey comes from the client's need to ensure that if the buildings are being used by protected species, notably bats or nesting birds, their conservation needs are met and the law is not broken.

Under the law, a bat roost is any structure or place used for shelter or protection. "Structure" could be any building, wall, well, cave or mature tree. Bats use many roost sites and feeding areas throughout the year. These vary according to bat age, condition, gender and species, as well as season and weather. Since bats tend to re-use the same roosts for generations, the roost may be protected whether the bats are present or not. A full citation of the law with regard to bats and birds is given in the Appendices.

1.3 Report Summary

Hafodty Farm farmhouse and barns, Llansilin, SY10 7JN

Bat Survey with Mitigation Plan



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A Bat Survey based on Bat Conservation Trust guidelines (BCT, 2016) was carried out by GLEC Ltd on buildings at Hafodty Farm, Llansilin, SY10 7JN. The survey consisted of a thorough daytime inspection followed by two evening and one pre-dawn bat activity surveys plus passive monitoring in one building for seven nights between 09 and 23 June 2020. Works to renovate and convert the buildings into accommodation are proposed.

Maximum counts of 6 common pipistrelle, 7 brown long-eared, 1 lesser horseshoe and 2 whiskered bats were recorded roosting in buildings at Hafodty Farm. Natterer's and greater horseshoe bats were also recorded using the buildings. All numbers are approximate. These surveys establish that buildings at Hafodty Farm are bat roosts and the bats' presence is therefore a material consideration for any works or planning application.

The presence of nesting redstarts in a wall of the former dairy and jackdaws in various places in the barns is also an ecological constraint.

The Mitigation Plan approach is to carry out works that may affect bats (e.g. roof stripping, dismantling or re-pointing of walls) in the period when bats are least likely to be present (October to April inclusive) and provide a new Dedicated Bat Building located within 30 metres of the buildings, providing new bat mitigation features prior to bats being excluded from the existing buildings.

It is recommended that:

1. The presence of roosting bats in buildings at Hafodty Farm is a constraint to the proposed works. If works were to go ahead without approved mitigation, it is likely that bats would be negatively affected, especially if works were carried out in the spring or summer.
2. For the works to be carried out, a Mitigation (European Protected Species) Licence with regard to bats will need to be applied for from Natural Resources Wales once planning consent has been granted.
3. A brief Bat Mitigation Plan, including a Method Statement, has been drawn up and is presented in this report. It includes such matters as:
 - a) Timing of works
 - b) Worker/contractor induction on bat presence.
 - c) Contingency for discovering bats.
 - d) Provision of bat boxes.
 - e) Protection of existing/creation of new bat roosts and entry/exit points.
 - f) Applicant to provide details of the mitigation with their application.
 - g) Monitoring
4. Works do not take place to buildings with bird nests once redstarts or other birds are nesting, usually in the period March to September, or birds must be safely excluded prior to this period in the year works are to start. (*continued*)

(continued) Report Summary

**Hafodty Farm farmhouse and barns, Llansilin, SY10 7JN
Bat Survey with Mitigation Plan**

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5. Provision is made to replace the lost bird nesting sites. Two nest boxes suitable for redstarts with a 32mm diameter entrance hole (for example, [NHBS bird boxes by species redstart](#)) should be placed on the walls of new or existing buildings within 30m of the existing nest site.

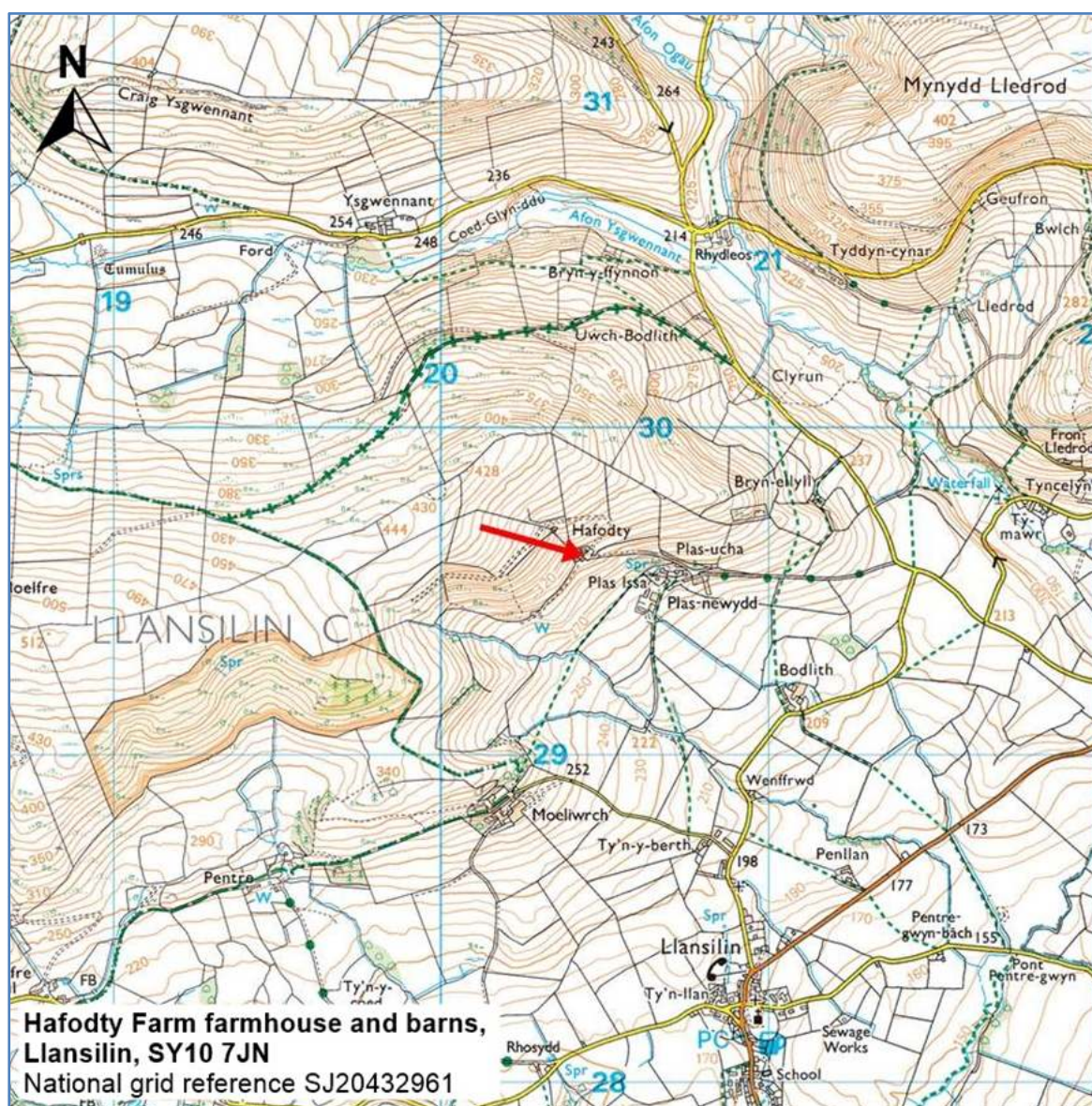
2.0 METHODOLOGY

2.1 Aims of the Survey

- To establish the actual or likely presence or absence of bat roosts and/or bat species in buildings at Hafodty Farm.
- To establish the presence of any nesting birds in or on the buildings.
- To make recommendations accordingly.

2.2 Desk Study

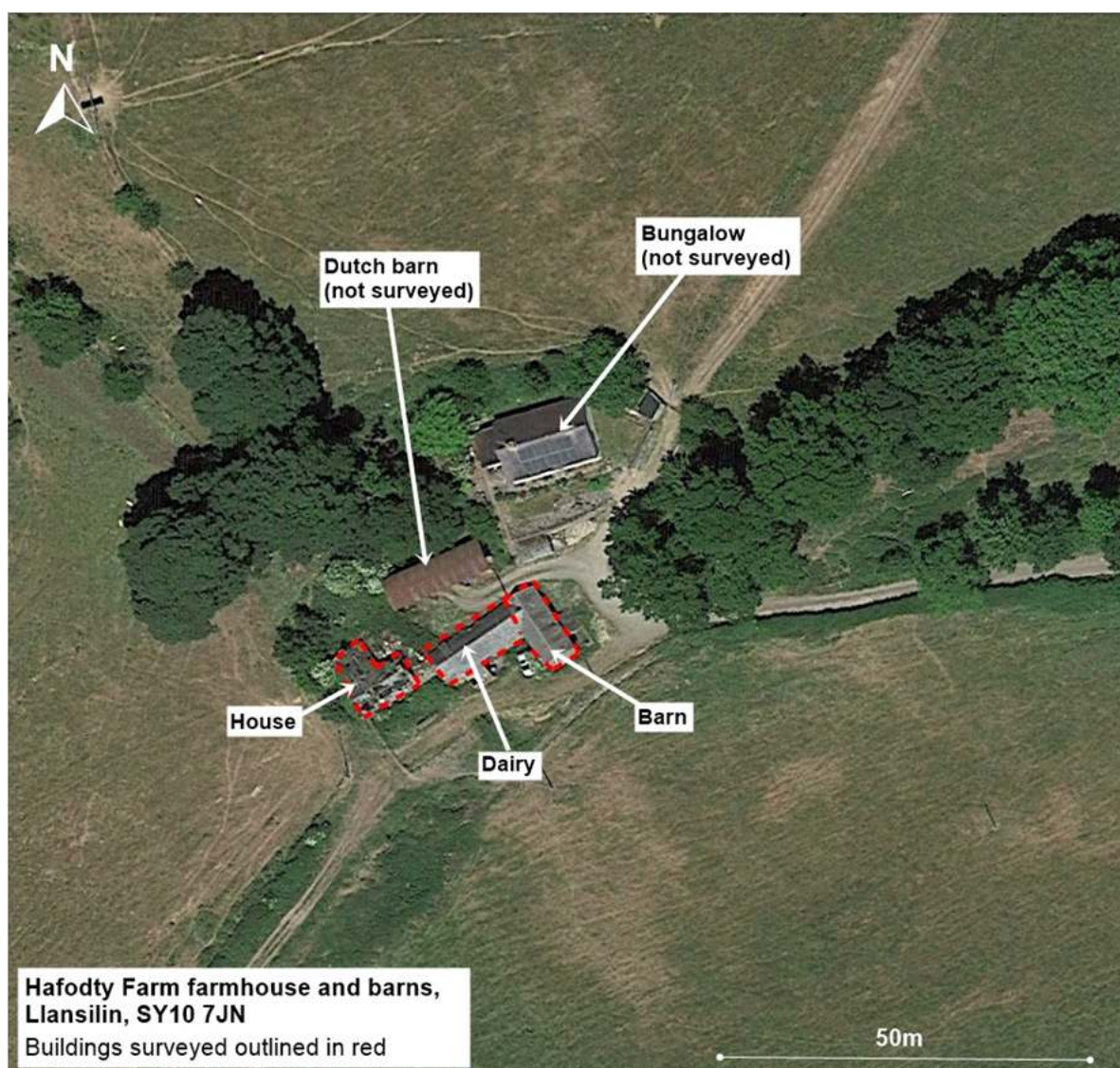
The 1:25000 Ordnance Survey map covering the site, and aerial photos accessed from the internet, were scrutinised to initially assess the wildlife value of the proposed development site and surrounding habitat at a crude level. This looked for any semi-natural habitat that may be of value to wildlife, for example ponds, hedges, parkland, wetland, and woodland with interconnecting habitat links. Searches were made on MAGIC and the NBN Atlas for statutory designated sites coincident with or adjacent to the area of search and existing records of the keynote species within two kilometres.



2.3 Site Surveys

Surveys were designed by Gerald Longley using standard techniques based on the guidance and information in the Bat Conservation Trust Bat Survey Guidelines (2016). The surveys of the buildings consisted of a thorough daytime inspection followed by two evening and one pre-dawn bat activity surveys (not necessarily in that order). An Anabat Express bat detector was used to carry out passive monitoring in the hayloft above the dairy for seven nights during the survey period. See the Appendices for a full list of equipment used. The pre-dawn bat detector survey looked for possible re-entry into the buildings by bats and the evening activity surveys looked for emergence from the buildings. The visits also provided checks to assess whether nesting birds used the buildings. The surveyors were Gerald Longley (Natural Resources Wales (NRW) Licence no. S086082/1), Mary Thornton (NRW licence no. S087511/1), Katie Longley (09 and 23 June) and Lindsay Barton (09 and 23 June)

The external and internal survey of the buildings included an assessment for potential for nesting birds and bats and a search for evidence, such as pellets, dead bats, prey remains, droppings, urine marks and staining. Close-focusing binoculars were used immediately below potential roost areas. Droppings around the bases of and/or stuck to walls, on shelves, wall plates, purlins, etc. were searched for with the aid of a high-powered torch. Holes and cracks in the walls, purlins, beams etc. and behind any cladding were inspected with the colour video endoscope where they could be safely reached.



3.0 RESULTS

3.1 Desk Study

No specific records of bats were found for the site itself and no statutory protected wildlife sites were coincident with the site.

No specific bat records within 2km of the site were found. Records for common and soprano pipistrelle (most recent 2015 and 2012), Natterer's (2012), brown long-eared (1998) and lesser horseshoe (1992) were found between 2 and 5km from the site.

There were no SSSIs or other statutory sites within 2km of the site.

It should be noted that the lack of records for a particular species in a particular location does not confirm that the species is absent.

3.2 Site Surveys

The buildings

The buildings surveyed are shown on the aerial photograph above. They were an old (1800s) farmhouse and a former dairy with a barn attached. All the buildings were built into a southeast facing slope. There was access for bats into all the buildings on all elevations through missing doors and windows and holes in roofs.

The two storey, L-shaped former farmhouse had been abandoned in the mid-1960s and was semi-derelict with much of the roof missing and the rear part of the building more or less collapsed and overgrown with brambles. The walls were stone with lime mortar and partly rendered. The roof had been a pitched roof with a wooden frame and slates. Brick chimneys were still standing at the northeast and northwest ends of the roof. Cracks in the stone walls offered potential roosting places for bats but otherwise the building was open to the weather and did not offer good roosting sites for bats.

The former dairy had lime mortared stone walls, repaired with small areas of brick in places, with a pitched, wooden 'A' frame roof with slates. Although in a better state of repair than the house, there were many missing slates and large holes in the roof. Remains of torching were visible beneath the slates. There was a hayloft at the southwest end of the building. There were potential roosting places for bats among the roof timbers and on the tops of walls.

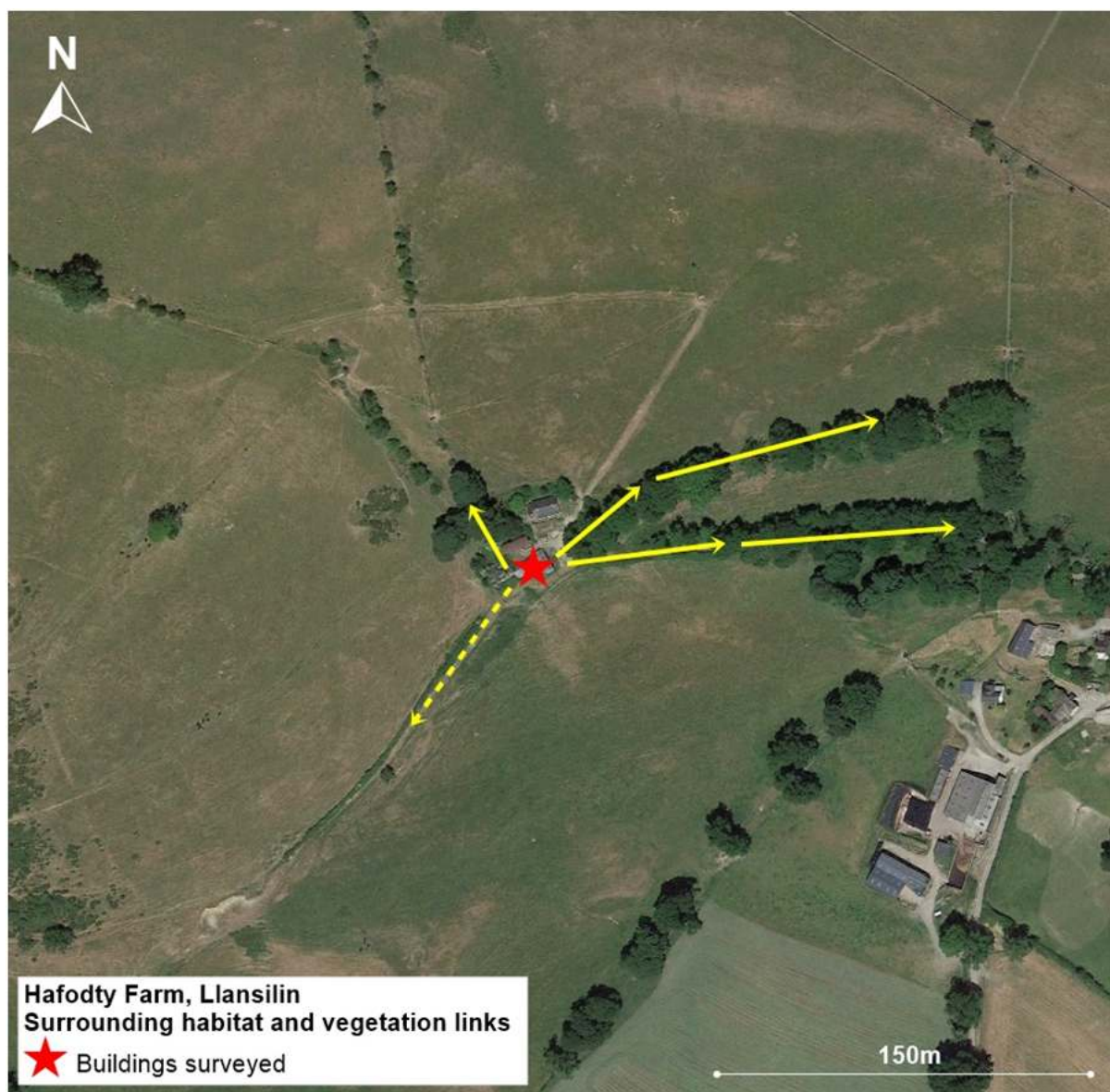
The attached barn was another stone walled building with lime mortar. The pitched roof had been repaired in the past and had newer, small timbers with corrugated fibre board in place of slates. There were potential roosting places for bats among the roof timbers and on the tops of walls. There was a small stone walled lean-to pig sty with a slate roof on the northeast wall of the barn.

The surroundings

Hafodty Farm was in a very rural location at an altitude of approximately 320m on a southeast facing slope above the village of Llansilin. Features of the landscape around the farm are shown on the aerial photograph below. Solid yellow lines indicate good habitat connectivity (i.e. vegetation links) and dashed lines moderate habitat connectivity.

The buildings were well connected to the surrounding area by hedgerows and trees, particularly to a group of mature trees just to the northwest of the house and along access

tracks to the east and northeast. The wider landscape was of pasture fields and open hillside grazing land. Fields below the farm had some hedgerows and mature trees and lanes between the farm and Llansilin were lined with dense, mature hedgerows which linked to the trees along the access track to the farm and provided good foraging habitat for bats.



Daytime inspection – 09 June 2020

No bats or signs of bats were found on the outside of any of the buildings.

A small number (<5) large, coarse-grained droppings typical of brown long-eared or Natterer's bats were found on the floor of the barn under the apex of the roof.

No bats or signs of bats were found in the house, dairy or pigsty although the hayloft in the dairy was not inspected closely as the loft floor was considered unsafe to walk on. Straw, bits of torching and other debris covering the floor would have made it difficult to see any bat droppings in any case.

Remains of jackdaw nests were recorded in the apex of the barn roof and in slits on its southeast wall. There was an active redstart nest in a crack in the southwest wall of the dairy.

First evening survey

09 June 2020 – 21.18 to 22.50 (sunset 21.36 BST)

A mild, dry, largely overcast evening with a slight westerly breeze. 13°C (start of survey) - 12°C (end of survey). 7/8 oktas cloud cover. The surveyors were placed so as to view all elevations of the buildings.

From 21.32 until 22.00 approximately 2 common pipistrelle bats (*Pipistrellus pipistrellus*) (45 KHz) emerged from a crack in the stonework just below the left side of the chimney on the northeast elevation of the house. From 21.32 until 22.15 approximately 4 common pipistrelles emerged from an opening into the hayloft on the southwest gable of the former dairy.

From 22.13 until 22.32 approximately 4 brown long-eared bats (*Plecotus auritus*) emerged from a doorway into the hayloft on the northwest elevation of the former dairy. At 22.22 a single brown long-eared bat emerged from an opening on the southeast wall of the barn.

At 21.50 a noctule bat (*Nyctalus noctula*) passed overhead

Throughout the survey pipistrelle bats were making passes and foraging along the trees along the access track to the site and bats could also be seen feeding around the trees on the slope just above the buildings to the north.

Total emergence counts for the first evening survey:

6 common pipistrelle, **5** brown long-eared

Dawn survey

16 June 2020 – 03.50 to 04.45 (sunrise 04.46 BST)

A mild, still, humid morning after rain early in the night. 12.5°C throughout survey. 8/8 oktas. The surveyors were placed so as to attempt to view all elevations of the buildings

From 03.58 until 04.29 approximately 2 common pipistrelles entered through the opening into the hayloft on the southwest gable of the former dairy. Another 2 entered through gaps around a door on the southeast wall of the former dairy.

At 03.57 a single brown long-eared bat pass was recorded along the southeast side of the buildings but was not seen to enter.

Noctule bat passes overhead were recorded from 04.04 until 04.08 and from 04.36 until 04.39.

Total entry counts for the dawn survey:

4 common pipistrelle

Second evening survey

23 June 2020 – 21.25 to 22.55 (sunset 21.42 BST)

A very warm evening after a hot day. A south south-westerly air with a few clouds. 20°C (start) - 19°C (end of survey). 1/8 oktas. The surveyors were placed so as to view all elevations of the buildings.

At 21.58 a single common pipistrelle emerged from under the eaves on the southeast side of the former dairy. From 22.02 until 22.38 approximately 5 common pipistrelles emerged from the crack in the stonework just below the left side of the chimney on the northeast elevation of the house.

From 22.34 until 22.35 approximately 6 brown long-eared bats emerged from the doorway into the hayloft on the northwest elevation of the former dairy. At approximately 22.00 a single quiet bat that did not show up on bat detectors emerged from the opening into the hayloft on the southwest gable of the former dairy. It was considered most likely to have been a brown long-eared bat.

At 22.35 approximately 2 *Myotis* species bats emerged from the doorway into the hayloft on the northwest elevation of the former dairy. Subsequent analysis of the Anabat files of the calls with AnalookW found that they were most likely to be from whiskered bats (*Myotis mystacinus*).

From 22.36 until 22.37 at least 1 lesser horseshoe bat (*Rhinolophus hipposideros*) emerged from the opening into the hayloft on the southwest gable of the former dairy.

Total emergence counts for the second evening survey:

6 common pipistrelle, **7** brown long-eared, **2** whiskered, **1** lesser horseshoe

Passive survey

09 (sunset) – 16 June (sunrise) 2020

An Anabat Express bat detector was used to carry out passive monitoring for seven nights in the hayloft above the former dairy. The detector was located as far as possible with the microphone pointing into the building and away from gaps and openings.

The bat species recorded on each night are in table 1. Six species of bat were recorded altogether. They were common pipistrelle, brown long-eared, whiskered, Natterer's (*Myotis nattereri*), lesser horseshoe and greater horseshoe (*Rhinolophus ferrumequinum*).

Common pipistrelle and brown long-eared bat calls were recorded every night of the survey. Natterer's calls were recorded on six nights and whiskered bat calls on five nights. Lesser horseshoe bat calls were recorded on two nights and greater horseshoe bat calls on just one night.

Table 1: Passive bat survey 2020
Hafodty Farm farmhouse and barns, Llansilin, SY10 7JN
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Date	Ppip	Paur	Mmys	Mnat	Rhip	Rfer
09/06/20	✓	✓	✓	✓	-	-
10/06/20	✓	✓	✓	✓	✓	-
11/06/20	✓	✓	-	-	-	-
12/06/20	✓	✓	✓	✓	-	-
13/06/20	✓	✓	-	✓	--	-
14/06/20	✓	✓	✓	✓	✓	✓
15/06/20	✓	✓	✓	✓	-	-

Key to bat species:

Ppip: common pipistrelle (*Pipistrellus pipistrellus*)

Paur: brown long-eared bat (*Plecotus auritus*)

Mmys: whiskered bat (*Myotis mystacinus*)

Mnat: Natterer's bat (*Myotis nattereri*)

Rhip: lesser horseshoe bat (*Rhinolophus hipposideros*)

Rfer: greater horseshoe bat (*Rhinolophus ferrumequinum*)

See 8.0 SITE PICTURES for entry and emergence points

3.3 Constraints of this survey

As with all wildlife surveys conducted, the data collected is only a representation of the species and species presence markers found during the actual dates of the survey. There are other seasons and many species are mobile or transitory.

There were no weather constraints. Temperatures were mild (10°C or above) and there was no rain during the surveys. Bats were recorded entering or emerging from the buildings on all the surveys.

The hayloft in the dairy was not inspected closely as the loft floor was considered unsafe to walk on. It was possible that a roosting horseshoe bat could have been missed as not all of the roof frame could be seen from the doorway. The fact that a lesser horseshoe bat was recorded emerging during the second evening survey confirmed that the species was at least sometimes day roosting as well as night roosting in the building.

Evidence for some crevice-dwelling bats, e.g. *Myotis* species, can be difficult to find. Brown long-eared bats are notoriously difficult to pick up on a bat detector as they call very quietly or not at all. They are also difficult to see during evening emergence, as it is getting very dark when they emerge. All counts of bats should be regarded as good estimates rather than precise numbers.

During the passive survey it is possible for a single bat to be recorded more than once, particularly in the case of species like brown long-eared, horseshoe and *Myotis* bats which make passes around the inside of the roost building to sample light levels before emerging. The number of recordings gives an indication of relative levels of activity rather than precise numbers of bats.

3.4 Interpretation/evaluation of survey results

Buildings at Hafodty Farm offered potential roosting habitat for a range of bat species among roof timbers, on tops of walls and in cracks in stonework and were well connected to good bat foraging habitat in the surrounding area.

Six species of bat were recorded roosting in the farmhouse, former dairy and barn during the activity and passive surveys. They were common pipistrelle, brown long-eared, whiskered, Natterer's, lesser horseshoe and greater horseshoe bats.

A maximum count of approximately 6 common pipistrelles was recorded emerging from or entering a crack in the stonework just below the left side of the chimney on the northeast gable of the house, an opening into the hayloft on the southwest gable of the former dairy and through gaps around a door and under eaves on the southeast wall of the former dairy. They were also recorded in the hayloft on all seven nights of the passive survey. They were considered to be a summer day roost of non-breeding adults and/or juveniles using roosting sites in the wall of the house and in the hayloft and roof of the former dairy.

A maximum count of approximately 7 brown long-eared bats was recorded emerging mainly from the doorway into the hayloft on the northwest elevation of the former dairy. One bat, recorded emerging from an opening in the southeast wall of the barn, was considered most likely to have flown through the buildings from a roost among roof timbers in the hayloft.

They were also recorded in the hayloft on all seven nights of the passive survey. A maximum count of seven was considered just possible to perhaps be a small maternity colony (usually 10 or more).

A maximum count of 2 whiskered bats was recorded emerging from the doorway into the hayloft on the northwest elevation of the former dairy. They were recorded on five of the seven nights of the passive survey and it was considered that a small number were regularly day roosting among roof timbers and in other cracks and crevices in the hayloft.

A single lesser horseshoe bat was recorded emerging from an opening into the hayloft on the southwest gable of the former dairy during the second evening survey confirming that the species did day roost in the building on at least some occasions. Lesser horseshoe bats were recorded on two of the passive survey nights. In both cases there were a small number of Anabat files of calls (four on both nights) close together around midnight suggesting that a single bat was night roosting from time to time.

Greater horseshoe bat calls were recorded on one night of the passive survey with nine Anabat files being recorded over approximately 12 minutes around 01.00. It was concluded that a single bat was occasionally night roosting in the barn.

Although Natterer's bats were not recorded during the activity surveys, they were recorded on most nights of the passive survey from fairly early in the night (22.00 onwards) suggesting that individuals were day roosting in the hayloft.

The presence of nesting redstarts and jackdaws was also an ecological constraint. Works to buildings where there are nests must not take place once redstarts or other birds, including jackdaws, are nesting, usually in the period March to September, or birds must be safely excluded prior to this period in the year works are to start and replacement redstart nest sites must be provided in the new development as follows:

- Two nest boxes suitable for redstarts with a 32mm diameter entrance hole (for example [NHBS bird boxes by species redstart](#)) should be placed on the walls of new or existing buildings within 30m of the existing nest site.

Maximum counts of 6 common pipistrelle, 7 brown long-eared, 1 lesser horseshoe and 2 whiskered bats were recorded roosting in buildings at Hafodty Farm. Natterer's and greater horseshoe bats were also recorded using the buildings. All numbers are approximate. These surveys establish that buildings at Hafodty Farm are bat roosts and the bats' presence is therefore a material consideration for any works or planning application.

The presence of nesting redstarts in a wall of the former dairy and jackdaws in various places in the barns is also an ecological constraint.

All the bat species recorded and their roosts are legally protected in the UK and all bats are listed as European protected species under the Habitats Directive. In addition, common pipistrelle, brown long-eared and greater and lesser horseshoe bats are among the eight bat species included on the Welsh list of Species of Principal Importance for the Conservation of Biological Diversity (sometimes called Priority Species).

An assessment of the likely impact of the proposed works on bats if they were to go ahead without mitigation is in section 6 along with an outline Mitigation Plan.

The Mitigation Plan approach is to carry out works that may affect bats (e.g. roof stripping, dismantling or re-pointing of walls) in the period when bats are least likely to be present

(October to April inclusive) and provide a new Dedicated Bat Building (DBB) located within 30 metres of the buildings, providing new bat mitigation features prior to bats being excluded from the existing buildings. Mitigation for the bat species recorded requires a large loft. The existing buildings are small, traditional agricultural buildings and incorporating a large loft would make their conversion to accommodation very difficult due to lack of space so a DBB was considered the best solution. A European Protected Species (EPS) Mitigation licence will be required from Natural Resources Wales to carry out the works once planning consent has been granted.

4.0 RECOMMENDATIONS

It is recommended that:

1. The presence of roosting bats in buildings at Hafodty Farm is a constraint to the proposed works. If works were to go ahead without approved mitigation, it is likely that bats would be negatively affected, especially if works were carried out in the spring or summer.
2. For the works to be carried out, a Mitigation (European Protected Species) Licence with regard to bats will need to be applied for from Natural Resources Wales once planning consent has been granted.
3. A brief Bat Mitigation Plan, including a Method Statement, has been drawn up and is presented in this report. It includes such matters as:
 - a) Timing of works
 - b) Worker/contractor induction on bat presence.
 - c) Contingency for discovering bats.
 - d) Provision of bat boxes.
 - e) Protection of existing/creation of new bat roosts and entry/exit points.
 - f) Applicant to provide details of the mitigation with their application.
 - g) Monitoring
4. Works do not take place to buildings with bird nests once redstarts or other birds are nesting, usually in the period March to September, or birds must be safely excluded prior to this period in the year works are to start.
5. Provision is made to replace the lost bird nesting sites. Two nest boxes suitable for redstarts with a 32mm diameter entrance hole (for example [NHBS bird boxes by species redstart](#)) should be placed on the walls of new or existing buildings within 30m of the existing nest site.

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6.0 MITIGATION PLAN

Hafodty Farm farmhouse and barns, Llansilin, SY10 7JN

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Bat Survey

Common pipistrelle summer day roost (max. count 6 bats)
Brown long-eared bat possibly small maternity roost (max. count 7 bats)
Whiskered bat summer day roost (max. count 2 bats)
Natterer's bat summer day roost (no count – on passive detector 6 nights out of 7)
Lesser horseshoe bat summer day and night roost (max. count 1 bat)
Greater horseshoe bat night roost (no count – on passive detector 1 night out of 7)

Objective: To ensure the bats remain at a favourable conservation status.

Impact assessment (in absence of this mitigation plan)

Proposed works

Works to restore and convert the buildings at Hafodty Farm to residential accommodation are proposed. Planning was at an early stage but it is likely that works will include stripping roofs and repairing/replacing roof timbers, re-laying slates/tiles, dismantling, rebuilding, repairing and re-pointing of walls and installation of new doors and windows.

Short-term impacts: disturbance

Adult and juvenile bats, and possibly pregnant, feeding and infant bats too, could be killed or abandon their roosts if works start while they are present in spring and summer. Any bats hibernating in cracks in walls could be killed or injured if works started while they were present during the winter.

Long-term impacts: roost modification

The proposed renovation and conversion works will result in loss rather than modification of roosts.

Long-term impacts: roost loss that is relevant

Roosts and flying space inside the buildings would be lost when they are converted into living space and doors and windows installed. Potential roosts among roof timbers and in holes in old timbers would be lost when these are repaired or are left exposed as part of the conversion works. Access under eaves to roosts on wall tops will be lost when roofs are re-laid. Roosts in cracks in stonework would be lost when walls are rebuilt or repointed.

Long-term impacts: fragmentation and isolation

Any loss of linear features such as hedges or tree lines, loss of foraging areas such as woodland and long grass, increased lighting, or severance of flight lines by open spaces would be negative.

Post-development interference impacts

The buildings were not in use at the time of the survey. The house had been abandoned since around the mid-1960s. Once they are renovated and converted there is likely to a significant increase in regular human and vehicle activity, particularly on summer evenings when people are likely to be active outside; sitting out or having barbecues for example. New lighting on and around the buildings could have an impact on any roosting and foraging bats.

Predicted scale of impact

The impact on the individual bats of all species concerned would be high and the impact on the numbers in the locality would be:

Common pipistrelle - low

Brown long-eared bat – moderate (if maternity roost) otherwise low

Whiskered bat - low

Natterer's bat summer day roost - low

Lesser horseshoe bat summer day and night roost – low-moderate

Greater horseshoe bat night roost – moderate

Land ownership – Hafodty Farm is in the ownership of Dave Allen

Method Statement

Hafodty Farm farmhouse and barns, Llansilin, SY10 7JN

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Bat Survey

Common pipistrelle summer day roost (max. count 6 bats)

Brown long-eared bat summer day roost (possibly small maternity roost) (max. count 7 bats)

Whiskered bat summer day roost (max. count 2 bats)

Natterer's bat summer day roost (no count – on passive detector 6 nights out of 7)

Lesser horseshoe bat summer day and night roost (max. count 1 bat)

Greater horseshoe bat night roost (no count – on passive detector 1 night out of 7)

The Mitigation Plan approach is to carry out works that may affect bats (e.g. roof stripping, dismantling or re-pointing of walls) in the period when bats are least likely to be present (October to April inclusive) and provide a new Dedicated Bat Building located within 30 metres of the buildings, providing new bat mitigation features prior to bats being excluded from the existing buildings.

a) Timing of works

Works to construct the Dedicated Bat Building (DBB) can be carried out at any time before other works to the buildings as it is on a new site distant enough not to cause disturbance while those works take place. It must be completed before 30 April following the period in the Autumn/Winter when works start on the existing buildings.

Carry out all the works that may affect bats to include all roof stripping, repairs to large timbers, taking down of any walls, re-pointing of existing walls, and creation of any new apertures in a single period **01 October to 30 April**. Any works to take down, repair or re-point stone walls or create new apertures in walls will take place in **October, November, March or April only** to avoid disturbance or harm to any hibernating bats. Works must be sufficiently advanced by the end of April for returning bats to be dissuaded from roosting.

b) Worker/contractor induction on bat presence

Provide a "Tool Box Talk" and Method Statement to site owners and all workers/contractors before works begin.

c) Creation of temporary roosts for any bats found during conversion

Erect at 3m to 4m height, prior to any works, three untreated timber bat boxes to BCT design, with a slot width 16 - 17mm within 20m of the buildings. They will be primarily a safe, temporary roosting site for the licensed ecologist to place bats in if any are found at the searches prior to and during the works.

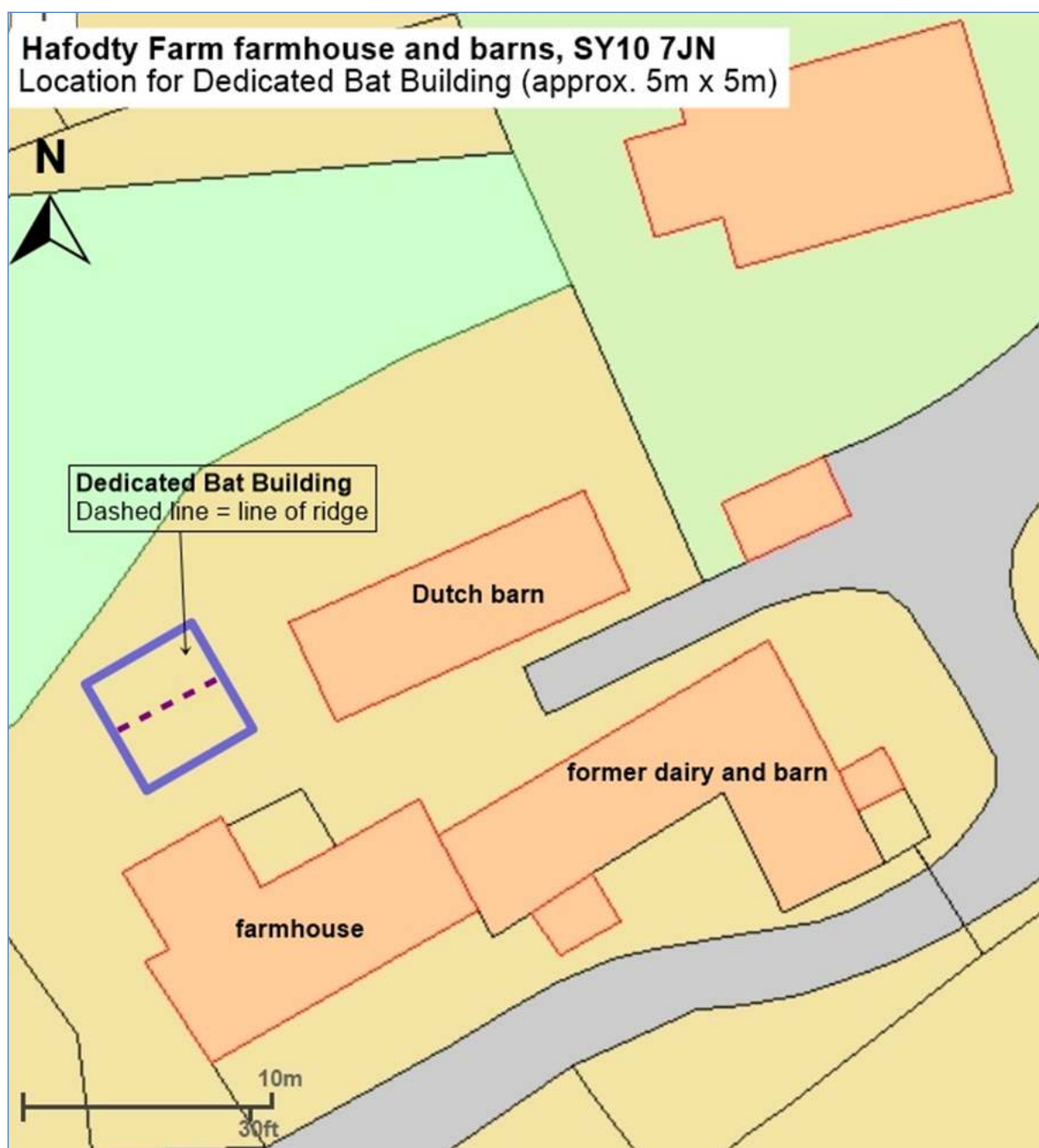
d) Contingency for discovering bats

The licensed bat ecologist will carry out a thorough search of the relevant buildings for bats with an endoscope etc. immediately prior to any work starting and, if bats are found, consider delaying the works until the bats are not present. They will also provide a "watching brief" of work to strip and dismantle roofs and dismantle any walls. This will be by hand. If any bats are found, work will stop and the licensed ecologist will be contacted and will attend the site. Any bats found that do not fly will be released immediately at the site into the bat boxes already erected by the licensed ecologist. If this is not possible they will be rehabilitated at a suitable centre with later release at site.

e) New/existing bat roosting habitat

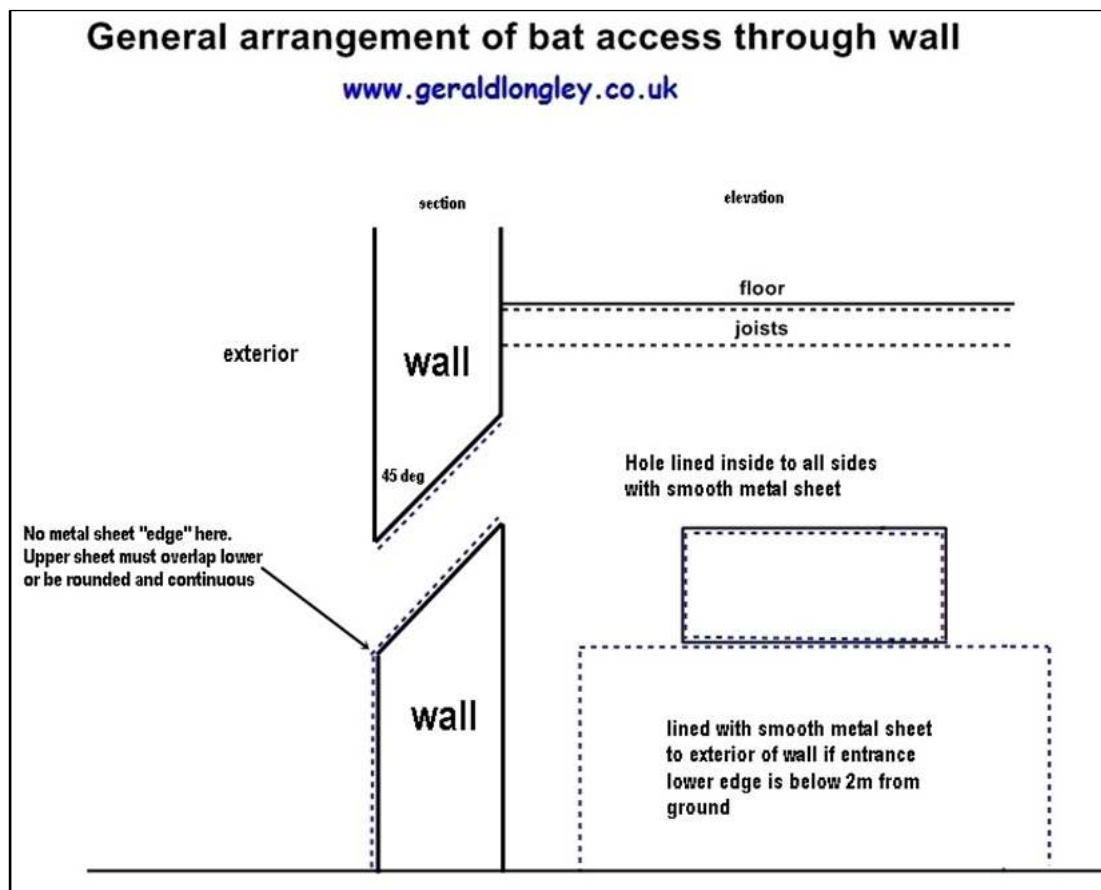
A new Dedicated Bat Building for maternity and night roosting and possible hibernation for a range of species, including horseshoe bats, with no human use (no storage, no electric power, lighting, solar panels or water installed)

- i) A new dedicated bat building is to be constructed for bats on the north side of the farmhouse within 30m of the existing buildings (its location is marked on the plan below). The design will provide an upper loft with a floor and “cool room” below with a range of temperature regimes within the building, but with a minimum afternoon, mid-summer loft apex temperature of 30°C. The loft will be subject to solar gain providing the energy for warm conditions in this part; the ideal roof pitch for this is 52°. The lower room will be much cooler with a floor left as earth for moist conditions and can be further enhanced by digging it out below ground level to create a type of cellar, even up to 1m to provide more stable temperatures in the winter (depending on footing depth).



- ii) Of traditional gabled, “cut roof” construction with no trusses, the alignment of the roof ridge will be east-west or as close as possible. One roof pitch will have a southerly aspect to maximise solar gain to the loft space and ideally a roof pitch of 52°. The bat building will be close (within 3m) to existing shrubs/scrub if possible. New low shrubs/scrub or low hedges of native species must be planted at 2m spacing to join to existing vegetation to enhance the flight lines for bats and be planted in a stock-proof fenced buffer around the DBB of at least 5m. Tall tree species must NOT be planted as these will shade the roof and cause unwanted cooling. A list of suitable species is at the end of this section.
- iii) It will have a minimum loft height of 2.8m with minimum internal dimensions of 5m long, and width between 4m (roof pitch 55° for 2.8m high loft) to 5m (52° degrees gives an loft height of 3.2m). Eaves’ height to the underside of the floor joists inside will be a minimum of 2.0m. It will ideally avoid having an A frame or similar to support its purlins and have a single, open loft. If the building is over 8m long it can have a hipped roof which focuses heat better.
- iv) It is to be a permanent structure and will be constructed of concrete block, brick or stone and clad in horizontal timber weather boarding in Tanalyth E tanalised boards.
- v) The pointing mortar work on the inside of the stone, brick or block work walls will, in around 20 random places on each wall (i.e. 80 in total) above 1m height of its earth floor, be left out in small sections 150mm long and 100mm deep into the wall and mortar depth (not open to the exterior though).
- vi) The roof will be constructed with a traditional cut and pitch method to form an unobstructed open space using tanalised (Tanalyth E), rough sawn/un-planed timbers to aid bats to hang and grip. Ancient timbers can be fixed in the roof structure with cracks, splits, open mortises, slots etc. in them. These do not have to be structural. It will ideally be roofed with slate (must be natural slate) but can be roofed with black or very dark clay tiles using traditional bitumastic, hessian backed roofing felt BS8747:2007 TYPE 1F under. Breathable ‘Tyvek’ type products must not be used. Ridge tiles will be dark or black coloured to absorb heat.
- vii) To the underside of the rafters on both pitches fix 6 number rough sawn battens, about 25mm x 25mm in dimension, the length of the building excluding in the hot box (see below). The highest placed within 100mm of the apex beam and the other 5 at approx. 200mm spacing down the roof pitches. The lower parts therefore have no underside battens.
- viii) Five evenly spaced ridge tiles (more on buildings longer than 5m) will be “notched” to their lower edges on both sides to provide a slot 100mm long and an effective depth, when the ridge tile is in situ, of 20mm (and no larger or smaller) to provide access for bats under the ridge tiles, with a cavity left inside at this point. The ridge will be a mortared not “dry system” ridge. See the photograph ‘Example of notched ridge tile in situ’ below.
- ix) A rectangular bat entrance/exit will be provided as a hole in the northeast facing wall. The entrance will be 500mm in width and 200mm in depth. It will be angled up through the wall at 45° in section. It will be installed with its upper edge at about 1.7m from ground level. If the eaves’ height is greater than 2m it can be higher. It is to enter the interior in the ground floor room (not into the loft) just below the loft floor. To deter cats jumping/climbing in the entrance, the bat entrance will be lined to all 4 sides in smooth metal sheeting. The area of exterior wall below the bat entrance will also be covered in a smooth metal sheet 1m wide over the timber cladding from ground level bending into the

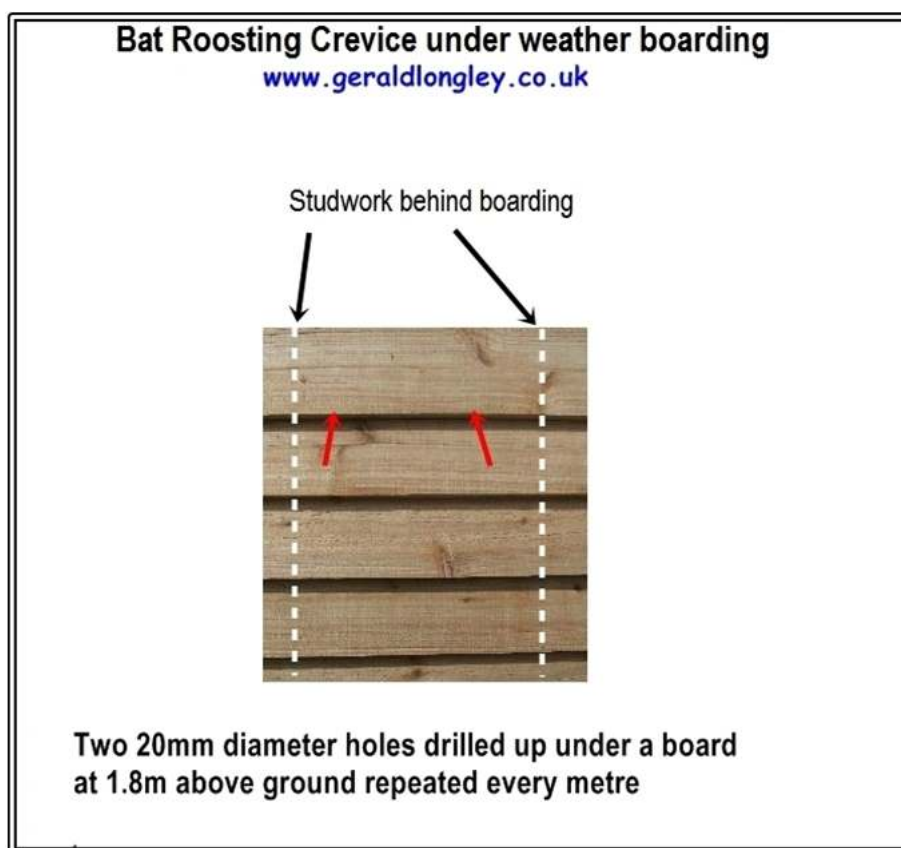
entrance hole with no "edge" there. The sheet will be as smooth as possible with any sheet overlaps being upper sheet over lower sheet. See the diagram 'General arrangement of bat access through wall' below.



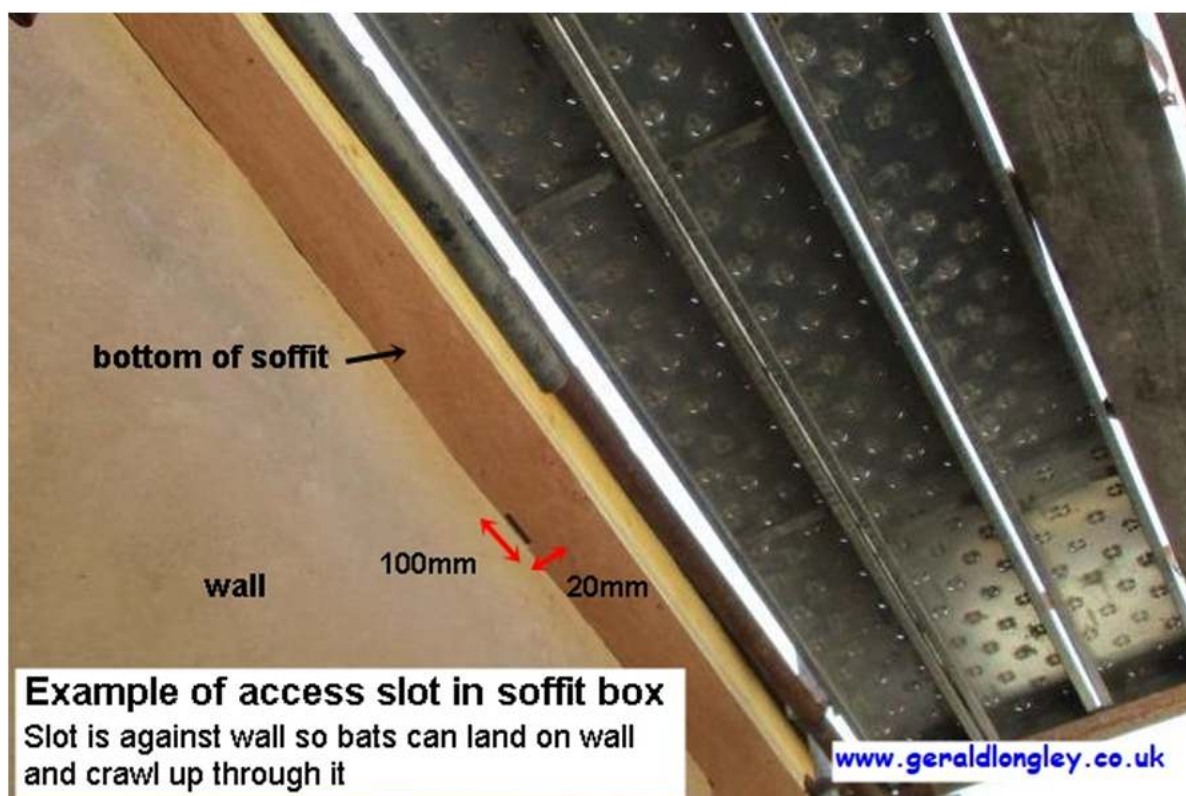
- x) In the centre of the loft, a “hotbox “ will be constructed of sterling/OSB and untreated timber, to be approximately 2m long, and 1m deep, sealed with mastic at its joints, painted black on the outside with a bat access hatch through its “floor” of 45cm by 45cm. See illustrative photo of an unpainted hotbox installed and a drawing with roof and slates removed for clarity (below).



- xi) An alternative bat entrance/exit slot, intended to be used in an emergency if the main bat access is blocked by a predator for example, must be provided in the opposite gable wall to the main entrance (southwest). A horizontal slot 300mm wide by 100mm high set with its upper edge 1.8m from the ground.
- xii) A human load bearing ceiling/floor will be installed at eaves level with rough sawn/un-planed timber joists and suitable timber flooring. An access hatch, 600mm by 600mm without a hatch door, no safety rail above and no access ladder will be installed in the centre of the ceiling/floor to allow bat access to the loft and human bat monitoring access.
- xiii) A secure, lightless exterior door will be provided on one of the walls that does not have a bat access hole for human access to monitor bats. This door must be kept locked and will be labelled: "This building has no access. The door is locked. This building must not be used for any human purpose e.g. no storage. It is a Dedicated Bat Building."
- xiv) The tanalised, horizontal exterior timber cladding will be on battens 50mm deep and will have pairs of holes, 20mm in diameter, at approx. 1m spacing, drilled up vertically at the bottom edge of a cladding board, at approx. 1.8m from the ground on each elevation to allow access for bats behind the cladding into the cavities between battens.



- xv) At the eaves and along the gables soffit boxes will be built with rectangular bat access slots at their wall edge about every metre. Similar slots will be made at the apex of the gables. All slots will be 100mm long and 20mm deep (and no larger) giving access to the soffit boxes and the wall tops. See the photograph 'Example of access slot in soffit box' below.



xvi) It will have no lighting inside it or fixed to the outside of it and will have no exterior lighting within 10m of it at all and no exterior lighting directed at it at all. No electrical power will be wired in or supplied to the building or water supplied to it. It will have no human use, i.e. no storage, animal housing or any other human use.

xvii) It will have no solar panels of any sort placed over or on the roof or walls or contain any wiring, inverter or controller from any other panels nearby.

xviii) It will be completed to the satisfaction of the ecologist prior to any works on the building/structure it replaces and where bats are to be excluded from. All works will be carried out under a Mitigation Licence issued by Natural Resources Wales.

Native Shrubs and Climbers

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No. of Species	Scientific name	Common name
1	<i>Cornus sanguinea</i>	Dogwood
2	<i>Corylus avellana</i>	Hazel
3	<i>Crataegus monogyna</i>	Hawthorn
4	<i>Euonymus europaeus</i>	Spindle
5	<i>Frangula alnus</i>	Alder Buckthorn
6	<i>Ilex aquifolium</i>	Holly
7	<i>Ligustrum vulgare</i>	Wild Privet
8	<i>Lonicera periclymenum</i>	Honeysuckle
9	<i>Malus sylvestris</i>	Crab Apple
10	<i>Prunus padus</i>	Bird Cherry
11	<i>Prunus spinosa</i>	Blackthorn
12	<i>Rhamnus cathartica</i>	Buckthorn

Native Shrubs and Climbers		
www.geraldlongley.co.uk		
No. of Species	Scientific name	Common name
13	<i>Rosa canina</i>	Dog rose
14	<i>Salix cinerea</i>	Grey Willow
15	<i>Sambucus nigra</i>	Elder
16	<i>Viburnum opulus</i>	Guelder-rose

f) Providing clear details and connection to Planning Permission/Listed Building Consent

The applicant will provide details of the mitigation with their Planning Application.

g) Monitoring

As the works will take place under an EPS Mitigation licence issued by Natural Resources Wales (NRW) monitoring will be:

1. On completion of bat mitigation works, a report including photographs of the mitigation works will be written and sent to Natural Resources Wales by the ecologist Gerald Longley.
2. Two post development bat surveys will be carried out in the two summers following completion of the renovation/conversion works to establish the presence or absence of bat roosts and/or bat species in the new mitigation and make recommendations accordingly. Surveys will include a day time inspection and bat emergence/re-entry activity surveys. They will be carried out with a minimum of two surveyors, using standard methodology as per Bat Conservation Trust (2016).
3. Any remedial works identified and required will form part of recommendations made in a report on the post development monitoring of bats to Natural Resources Wales and the licence holder.

7.0 APPENDICES

7.1 Relevant Legislation

Bats – Legislation

All British bat species receive legal protection in the United Kingdom under the Wildlife and Countryside Act 1981 (WCA) (as amended). The WCA 1981 was amended by the Countryside and Rights of Way (CROW) Act 2000. All British bat species are listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which makes it an offence to:

- Intentionally kill, injure or take a bat
- Possess or control any live or dead specimen or anything derived from a bat
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection
- Intentionally or recklessly obstruct access to any structure or place which a bat uses for shelter or protection
- Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a bat

Bats are also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora. As a result of the UK ratifying this directive, all British bats are also protected under the Conservation of Habitats and Species Regulations 2010. It makes it an offence to:

- Deliberately capture or kill a bat.
- Deliberately disturb a bat in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR ii) the local distribution of that species.
- Damage or destroy a breeding site or resting place of a bat.

Under the law, a roost is any structure or place used for shelter or protection. This could be any structure, for example any building or mature tree. Bats use many roost sites and feeding areas throughout the year. These vary according to bat age, condition, gender and species, as well as season and weather. Since bats tend to re-use the same roosts for generations, the roost may be protected whether the bats are present or not.

Birds - Legislation

Under Section 1 of the Wildlife and Countryside Act 1981 it is an offence to intentionally kill, injure, handle or remove any wild bird (with the exception of a few pest species); take or damage a nest whilst in use or being built; and take or destroy eggs. A person is not guilty of any offence if their action was the incidental result of a lawful activity and could not have been reasonably avoided.

A higher level of protection is afforded to those birds listed in Schedule 1 of the Act. It is an offence to disturb Schedule 1 species whilst it is building or sitting on a nest, in addition to damaging or destroying their nests or eggs.

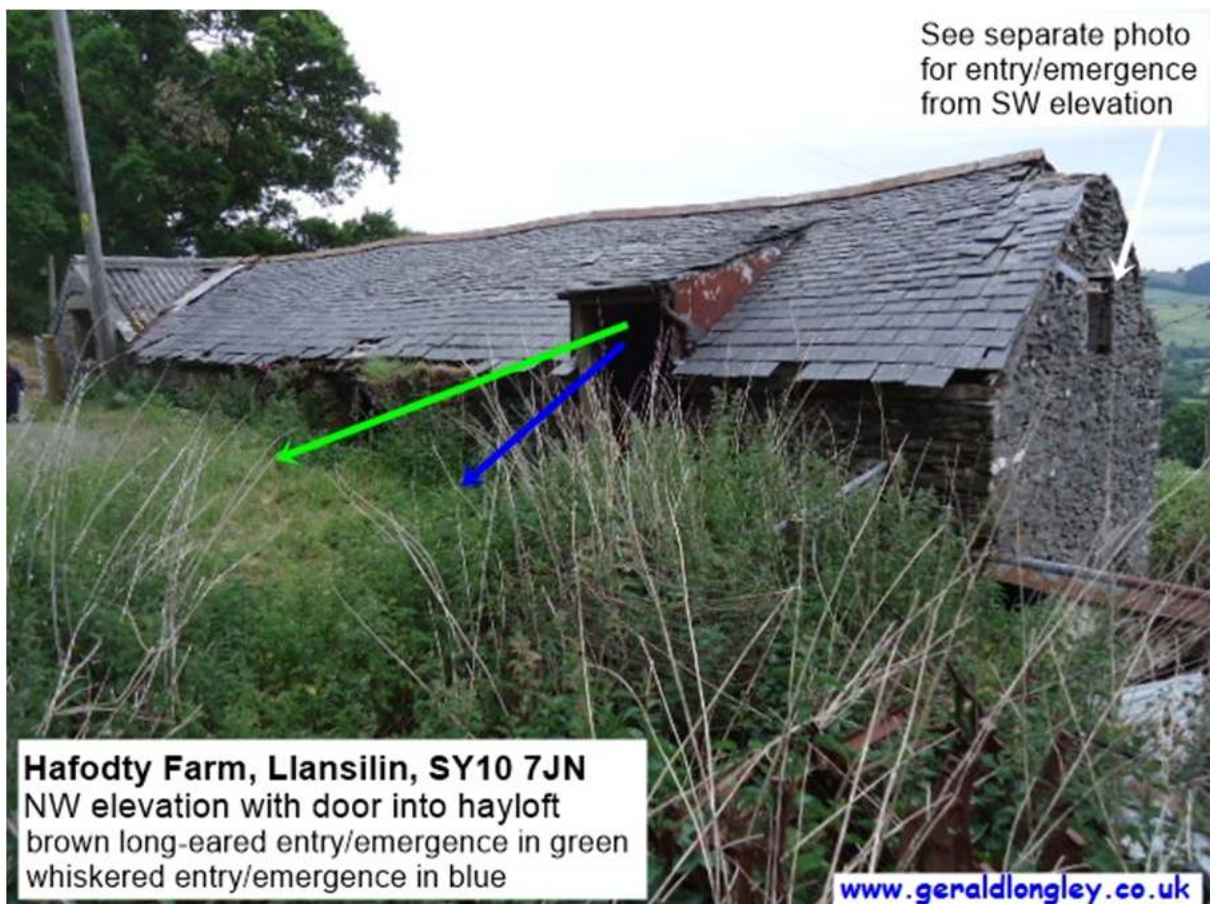
It is not an offence to disturb non-Schedule 1 species whilst they are building a nest or sitting on it. However, an offence may be committed if the bird is driven away from a nest by prolonged disturbance which results in the failure of eggs or death of dependent young.

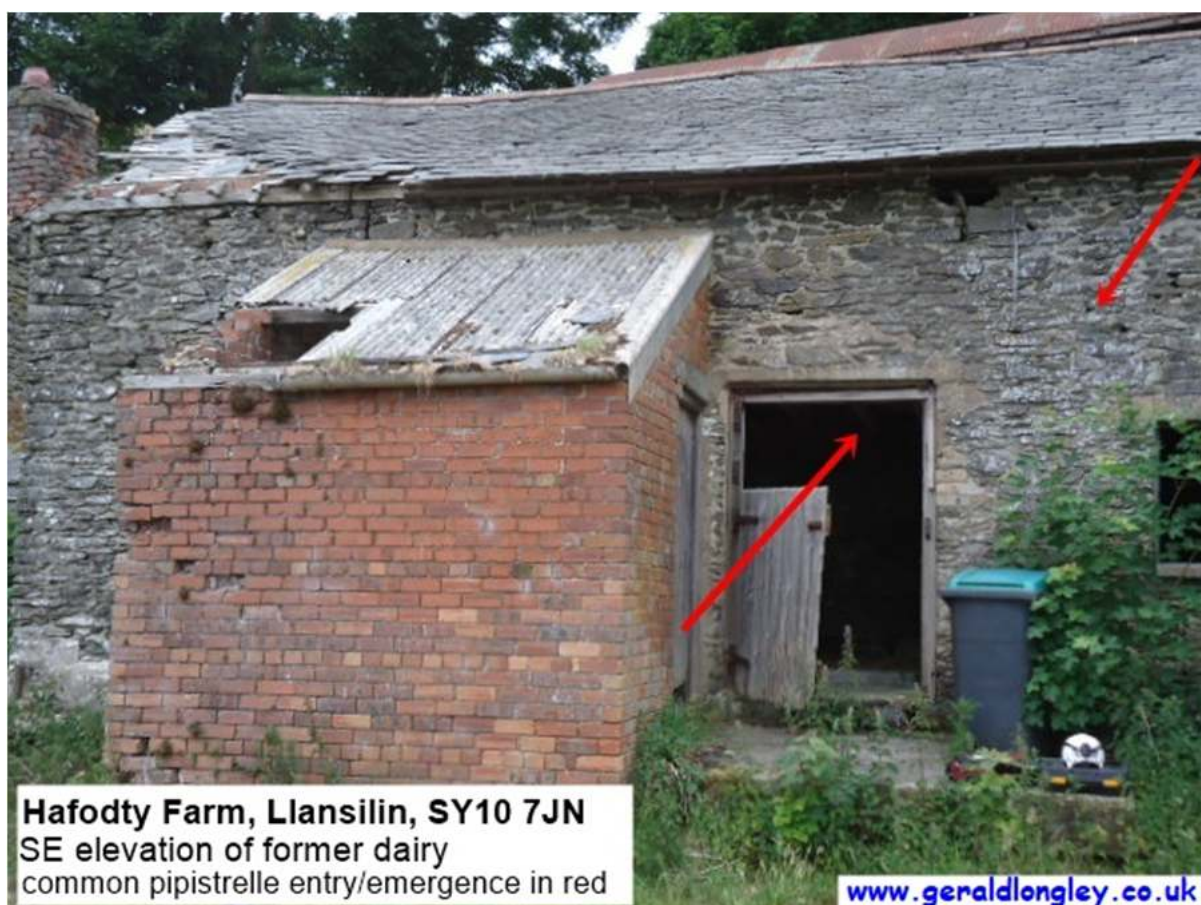
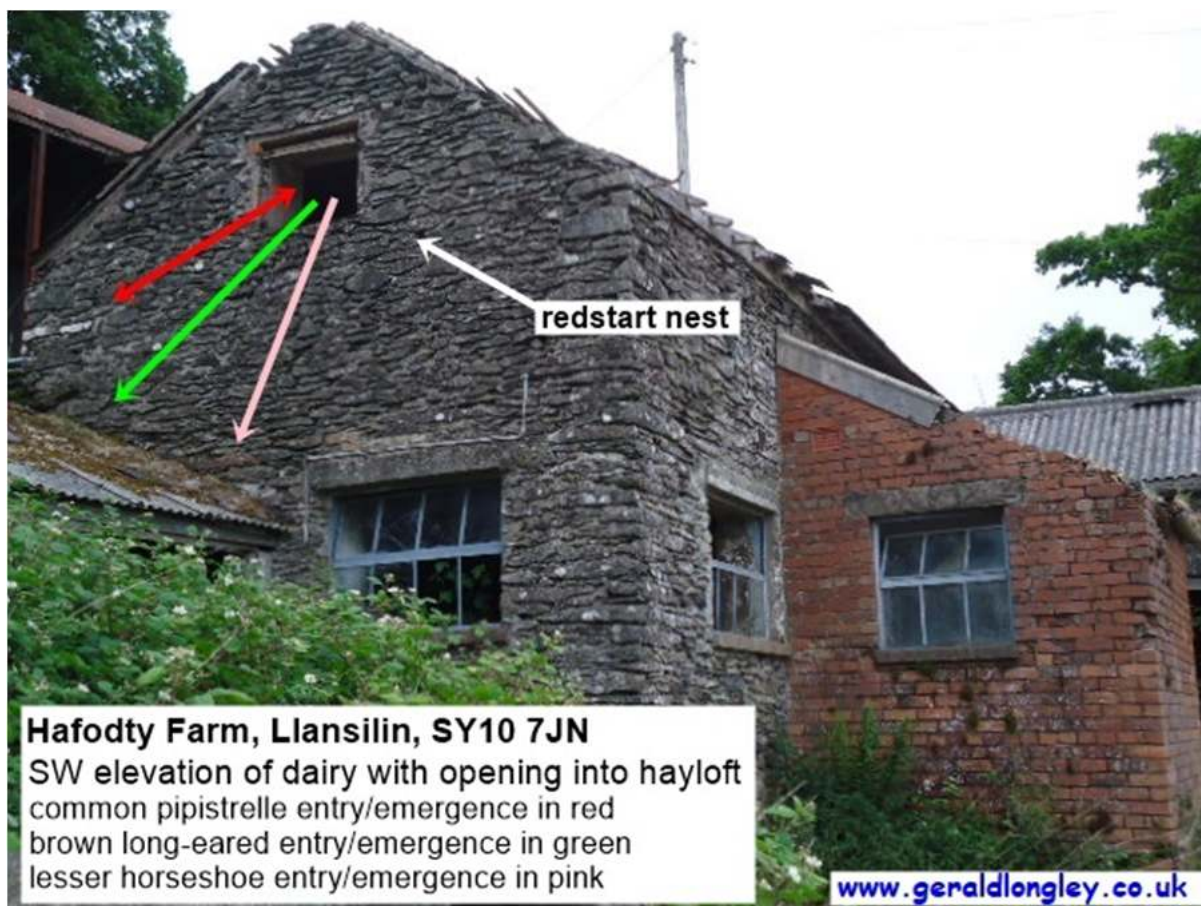
7.2 Field equipment used for the survey:

Escort mini temperature data logger
Silva compass
Leica 8 x 42 close-focusing binoculars
Cluson Clubman 1 Million candle-power lamps
Access Cam Pro-Sight colour video endoscope (1m probe)
Telescopic mirror
Suunto clinometer
3.8-metre extendable ladder
8m extendable ladder
Anabat SD2 bat detectors with GPS and HP iPaq PDAs (active monitoring)
Anabat Express bat detector (passive monitoring)
AnalogW v4.1 (bat data analysis software)
Anapocket v2.5b (bat data analysis software)
Wildlife Acoustics EM3+ bat detector
Kaleidoscope v1.12 (sound analysis software)
Batbox Duet bat detector (frequency division and heterodyne bat detector)
SSF Bat2 bat detector (frequency division and heterodyne bat detector)
Two-way radios

8.0 SITE PICTURES









This report is released for this client (Dave Allen) and site (**Hafodty Farm farmhouse and barns**, Llansilin, SY10 7JN) **only**. It may not be copied or quoted or its results used in another report or used for any other application without the written consent of GLEC Ltd.



Hafodty Farm, Llansilin, SY10 7JN
Interior of barn at NE end of buildings

09/06/2020

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