

Garth Farm
Pant
Merthyr Tydfil
CF48 2YA

An Ecological Survey
Report

For
Nicola Harris

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Morgan Ecology

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1 Summary

The owners of Garth Farm wish to demolish the existing house, and some minor outbuildings, in order to construct a new family dwelling on the site. As the proposals require planning permission, a Preliminary Roost Assessment was commissioned to establish if there are any impacts for bats, nesting birds, or other protected wildlife.

Initial survey was carried out in late July 2023, by an experienced, independent ecologist. The assessment found no evidence of protected wildlife of any sort at the property, beyond a disused wren nest, and an old jackdaw nest, in a stone barn, which stands just north-west of the house. However, despite the lack of evidence for bat presence, the house was considered to offer a moderate level of potential to be used by bats, with gaps around the ridges of the roof, at lifted slates, at gaps around lead flashing at the two chimneys, and at a gap at the south-eastern gable end, near the front of the house. The stone barn also had low/moderate potential to be used, with numerous gaps around its roof. Two additional small structures, described as adjacent stone and brick sheds, were assessed to have negligible potential to contain bat roosts.

As a consequence of this potential, further appraisal was deemed necessary, to confirm or dismiss the presence of protected bat species. It was therefore recommended that two dusk emergence/activity observations were carried out on the house and the stone barn only, in the active summer period, when bats were most likely to use the structures for roosting purposes. No additional survey effort was proposed for the stone/brick walled sheds.

The summer activity observations found no evidence that bats were using the house or stone barn. Two observations were undertaken in late July and mid-August 2023 by a small team of experienced, licenced, ecologists using high quality bat detection and recording equipment, aided by night vision cameras, in order to determine bat usage of the property. Six species of bat were recorded to be present foraging and commuting at Garth Farm, including common pipistrelle, soprano pipistrelle, Daubenton's, Natterer's, lesser horseshoe, and a small myotis species – possibly whiskered bat, although not verified as such.

Apart from the bird nests found in the stone barn, a pair of swallows were seen nesting in the adjacent long barn (not included in the survey). Other bird species noted to be present in the area included carrion crow and magpie.

No additional survey effort is proposed. Recommendations are made in this report to ensure the protection of both nesting birds, and bats, in the event that they are encountered during any of the proposed development works. However, given the findings, it is possible for the demolition of the house and stone barn, as well as the small sheds, to proceed without the need to apply to Natural Resources Wales for a European Protected Species licence, provided appropriate planning consent has been granted by Merthyr Tydfil County Borough Council.

Additionally, and in compliance with Section 6 of the Environment (Wales) Act 2016, PPW 11, and Future Wales policy, recommendations are made for enhancements to benefit wildlife, for both bats and birds in particular. These are proposed in order to meet the planning requirement for Net Benefits for Biodiversity.

2 Background

The owners of the house at Garth Farm, Pant, are seeking consent from the Local Planning Authority, Merthyr Tydfil County Borough Council, to demolish the structure, and some minor outbuildings, in order to construct a modern dwelling to meet the needs of their family. The property is situated at National Grid Reference (NGR) SO 0639 0953, at an altitude of some 361m above ordnance datum (AOD), on the northern edge of the village of Pant.

As the proposals require planning consent, the owners commissioned a Preliminary Roost Assessment (PRA) of the property from Morgan Ecology, in order to inform the application process. The property, part of which is a working farm, includes several structures, some of which are still in agricultural use, and not within the scope of this report. However, structures which were considered include the farm house, a small two-storey stone barn (just north-west of the house), and two small stone/brick built sheds (in the back garden of the house). A detached former stables, just south-west of the house, was inspected, but is not included in this report.

The PRA did not find any evidence of bat presence, but concluded, that there was a moderate potential for the house to be used by bats, with gaps around the ridges of the roof, at lifted slates, at gaps around lead flashing at the two chimneys, and at a gap at the south-eastern gable end, near the front of the house. With regard to the stone barn, it was assessed to have low/moderate potential to be used, with numerous gaps around its roof. The two small stone/brick built sheds were considered to have negligible potential to contain bat roosts. Both wren (*Troglodytes troglodytes*), and jackdaw (*Corvus monedula*) nests were also found within the stone barn.

Given these initial findings, it was recommended that two dusk emergence/activity observations needed to be carried out on the house and the stone barn, during the active summer period, when bats were most likely to use structures for roosting purposes. No additional survey effort was proposed for the stone/brick walled sheds.

The dusk observation did not record any bats emerging from the house, or the stone barn, and established that despite the potential, neither building is a bat roost. Consequently, there is no requirement for the owners to apply to Natural Resources Wales (NRW) for a European Protected Species (EPS) licence. Bat species recorded during the observation included common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Daubenton's (*Myotis daubentonii*), Natterer's (*Myotis nattereri*), and a single pass by a lesser horseshoe (*Rhinolophus hipposideros*) bat. Other bats noted during the first observation included small myotis species, possibly whiskered bat (*Myotis mystacinus*), although this could not be verified.

Birds noted during the observations included swallows (*Hirundo rustica*), magpie (*Pica pica*), and carrion crow (*Corvus corone*), although not associated with the house, stone barn, or sheds. No evidence was found for the presence of barn owls (*Tyto alba*).

Situated within the community of Pant, the property is largely surrounded by open fields, which probably have some historic interest. Stone walls, mature but gappy hedges, and fences, form most of the field boundaries, and apart from the other farm buildings, the nearest other building is over 100m distant, to the south.

Although the house is not a Listed Building, as defined under the Planning (Listed Buildings and Conservation Area) Act 1990, the Merthyr Tydfil County Borough Council Heritage Map identifies Garth Farm 'Farmhouses' as Locally Listed. This is a designation, which acknowledges that whilst a building may not be of National interest, it is 'Locally' important. The map pin, somewhat confusingly is located on the long-barn next to the house – a point which will need to be clarified.

Principal objectives of the PRA were to:

- determine if bats, nesting birds or other protected species were present in, or had the potential to roost in the existing structures;
- consider if there will be impacts on bats and birds from the proposed works; and,
- to gather sufficient information to be able to make appropriate recommendations.

For clarification, the buildings specifically included within this report are:

- the house – SO 0639 0953;
- the stone barn – SO 0638 0954
- the adjacent stone/brick sheds – SO 0639 0955

3 Survey team experience

The lead ecologist, and author of this report is Phil Morgan, who has nearly 40 years' experience of undertaking building, tree and cave surveys for all bat species. In addition, he has undertaken foraging and flight line surveys using heterodyne and other echo-location equipment, and in 1991 made a significant contribution to a Bristol University project, which established the methodology used in the National Bat Monitoring Programme. Phil has also undertaken numerous radio tracking exercises on both lesser horseshoe and Daubenton's bats. He holds an NRW licence for bats (S091084/1, expiry April 2024), as well as other species including otters, dormice, and great crested newt. Phil was previously the Ecologist with Dŵr Cymru Welsh Water, and responsible for over 37,000ha of land, before becoming Principal Ecologist with the Just Mammals Consultancy LLP, a company which he established in 2001. He is now the Principal with Morgan Ecology. He is a Chartered Environmentalist, with the Society for the Environment (CEnv), and full Member of the Chartered Institute for Ecology and Environmental Management (MCIEEM).

Assisting with the additional survey effort/dusk observations, were Diane Morgan, and Nigel Isaksson. Diane is a Senior Ecologist with Morgan Ecology, and an NRW bat licence holder. She has 30 years' experience of undertaking bat surveys in all sorts of locations, from houses, to caves and mines, as well as trees and bridges/tunnels. Nigel is a Senior Survey Assistant, of eighteen years' experience, and also holds an NRW bat licence.

4 Assessment methodology

A Potential Roost Assessment (PRA), was undertaken of the house and outbuildings, with the aim of detecting any signs of bat or bird presence. With respect to bats, the attic of the house was examined for bat presence, including actual bats, or signs of bats, in the form of bat droppings (faeces), discarded feeding remains (e.g. butterfly wings, crane-fly legs), and fur oil staining (on roof timbers). The interiors of the outbuildings were similarly assessed for bat/bird presence.

All outer surfaces of the house and outbuildings were examined, from the ground seeking signs of use, including bat faeces (droppings) on walls, ledges, doors and sills. Urine staining on paintwork, and window glass, or staining on the surfaces of exposed timbers caused by oil from bat fur were also searched for. A high-powered lamp and binoculars were used to examine Potential Roosting Features (PRFs), and any gaps or crevices in the structures were inspected as closely as possible. The context of the buildings within the surrounding landscape was also assessed at this time. Potential for hibernation by bats was also considered, so any entrances low down on the walls, particularly at the north or west sides of the buildings, was also assessed.

Additionally, the presence of nesting birds was considered. The surveyor recorded any signs of historic and current bird activity including nest-building, feeding at nest sites, and any indirect evidence such as nest remains, bird droppings, and feathers.

As the house and stone barn were considered to offer potential to be used by bats, additional survey, in the form of two dusk emergence/activity observations was recommended and commissioned. The observations were undertaken in July and August 2023, by a team of three experienced observers, aided by the use of infra-red video cameras.

Observers were positioned at strategic locations during the visits, so that they could record all bat activity, but particularly seeking to identify whether bats emerged from the buildings. Surveyors documented the time, bat species, and behaviour. This survey schedule was based on the Bat Conservation Trust's, Bat Surveys Good Practice Guidelines (Collins 2016).

Surveyors used Pettersson D-240x bat detectors during the dusk observations. These detectors are extremely sensitive, and ideal for separating species which employ the middle range frequencies for foraging (45 – 55 kHz). They are therefore excellent for identifying the different pipistrelle species (*Pipistrellus sp.*), and the different myotis bats* (*Myotis sp.*) (*myotis bat is a

collective term used where the species could not be specifically identified beyond this broad group). The myotid group encompasses seven species of British bat including Alcathe's (*Myotis alcathoe*); Bechstein's (*M. bechsteinii*); Brandt's (*M. brandtii*); Daubenton's; mouse-eared (*M. myotis*); Natterer's; and the whiskered bat.

The Pettersson D-240x machines were used in time expansion mode, with the received signals being downloaded to Roland RO-5 recording devices, for later analysis. Time expansion allows recording of a digital signal of the bat's ultrasonic echo-locations calls, then slowing it down for playing back at a measured speed. As the signal is stretched out in time, it is possible to hear details of the sound not audible with other types of detector.

Time expansion retains all aspects of the original call, making it perfect for analysis. In addition to the simple echo-location calls which bats can use for commuting, and finding their way about, they also make feeding 'buzzes' for foraging. These buzzes occur when the bat closes in on its prey and are a consequence of the Doppler Effect, which results in a 'buzz' as the reflected signal shortens when the animal approaches its prey. Such buzzes are used to assess the importance of an area for foraging. The recorded echo-location calls are then interpreted initially using SonoBat 30.0 software, with more detail interpretation later, using the BatSound package. By use of these software packages it is possible to separate the different species by examining the sonograms produced, and have high confidence in the accuracy of the identification.

Night vision aids were also used, to complement the observations by the ecologists. A Sony CX-11 camera, with night shot capability, and with additional output provided by a Nightfox XB5 torch emitting infra-red light at a wavelength of 850nm. Cameras were set up to view the eastern gable of the stone barn, and south-western aspect to the house.

5 Site description

The property is a farmstead on the northern edge of Pant, in an elevated position looking over the conurbation of Merthyr Tydfil which lies approximately 3.2km to the south-west. The site comprises several buildings, the two most prominent being the farm house, and a long barn combination, sandwiched between the access track/road, and the house. Other smaller barns and sheds area scattered around the house and long barn.

Examination of Ordnance Survey (OS) 6 inch maps for 1888 – 1913 reveals that Garth Farm, was formerly Madoc's Castle, and a site of some historic interest. However, an internet search suggests that whilst the site may have been the location of Castell Madog (a fortified manor house), the house/barns do not include features of that historic property. Nonetheless, at the rear (north-eastern side), the house is clearly built either on bedrock, or substantial stonework.

The house is rectangular in shape and built on a north-west/south-east alignment. The historic OS maps suggest that it was once shorter than the current arrangement, and had a wing which projected south-west, from the front. It is likely that the original house is of the order of 150 – 180 years old, and there have been alterations to it over the intervening period. The original house is built in stone, and this has been modified over the years, with stone, brick, and possibly cement block additions. Being such an exposed site, efforts have clearly been made over the years to proof the building against the elements, and the front (south-western elevation) of this two storey dwelling has been rendered with cement and a spa finish. Door and window surrounds are in a dressed stone, and a small portico roof projects over one of the two entrance doorways.

On the other three sides of the house, the wall finish varies considerably. The south-east gable end is finished in dressed stone, which the opposite end, the north-west gable is finished in a Canterbury spa in the upper portion, with plain cement. A relatively new, single story extension projects from this gable, and this is also covered by the spa dressing. To the rear (north-eastern aspect), the walls are stone built, with two, small, mono-pitched roofed, ground floor extensions being constructed from stone.

The timber roof of the original house is an A frame arrangement, and is accessed by a staircase reaching up into a central attic space. Openings in the end walls (former windows) permit access to attic rooms to the north-west and south-east of the original house. The central attic is largely boarded, and has historically been part of the living space of the farm house. There is no boarding in the south-eastern attic, but fibreglass insulation has been laid across the floor, between the joists. The north-western attic partially boarded. The roof is covered in slate, with a 1F bitumen underfelt beneath. Ridge tiles appear to be clay type, and two chimneys project through the roof at the south-eastern end, and northern-western end of the original house (there being an attic space beyond this chimney). The attic is relatively well lit, due to the provision of three Velux type skylights, on the south-western slope of the roof.

Roof coverings elsewhere on the house, include slate on the two mono-pitched lean-to extensions, and portico, and cement tiles/ridges on the single storey extension at the north-western gable. Lead flashing is evident in several places, particularly around the chimneys. The house has been well maintained, and all windows have been replaced, and are uPVC. Rainwater goods around the house are plastic, and barge boards and soffits are a mixture of timber and uPVC. The barge boards at the north-western gable of the original house are ornate. Other features of the exterior of the house include a satellite dish at the southern corner of the south-eastern gable and a gas boiler flue projecting through the wall of one of the small rear extensions.

Other structures on the property include a two storey stone built barn close to the north-western end of the house. The building, which has been constructed on a north-east/south-west alignment. The timber roof is covered with a mixture of corrugated iron and asbestos sheet, with timber barge boards and wall plates. The lower room/area of this barn includes a stove, with a timber entrance door and window on the south-eastern aspect. Access to the upper room is via an external stone stairway on the north-eastern gable, giving access through a timber door to an area which is open to the pitch of the roof. There is a single window in the south-western gable end at this level. The barn is substantially built, with its north-eastern wall forming part of the northern boundary of the farmstead. A stone wall projects from the eastern corner of the barn, south along the rear of the house.

Also included in the assessment of the property are two, small, stone and brick built sheds, in the rear garden, which also form part of the original stone boundary around the farmstead. The stone shed is open to the elements, and the metal sheets, which originally formed the roof, are stored nearby. The brick shed has a metal sheet roof, and like its stone counterpart, slopes south towards the house. This has a cement floor. Rainwater goods, where present, are plastic, and doors etc. are timber.

Other structures in the immediate surroundings include a stables to the south of the house. The stables is a simple rectangular stone built structure, with a pitched timber roof frame clad with corrugated iron sheets, and with a sheet metal ridge. There is a window and door on the western aspect, a high level window at the northern gable end, and substantial ivy (*Hedera helix*) growth on the southern gable. A long stone barn close to the east side of the house, and a stone granary to the south-east of the house are in separate ownership. These three other buildings are not included in the scope of this report.

Immediately surrounding the house are numerous stone walls and features, possibly old foundations, and extensive areas of lawn and garden. The site slopes gently to the south-west, with the course of an old railway line, beyond the property to the south.

6 Constraints or limitations

The owners provided complete freedom of access to the property for the survey, and there were no restrictions on when the PRA was undertaken. The observations were undertaken in good conditions, and there were no limitations on visibility resulting from poor weather.

7 Record search

Following normal practice a record search was commissioned from the South East Wales Biodiversity Record Centre (SEWBReC), and this search (unique reference 0234-289), revealed the presence of 150 historic records of bats within 2km.

None of the records related to the site itself, and the closest related to a lesser horseshoe bat hibernation roost some 288m distant. However, this record is unassessed, and the map reference is suspect. Other species recorded include verified records of lesser horseshoe bat, greater horseshoe (*Rhinolophus ferrumequinum*), brown long-eared (*Plecotus auritus*); common pipistrelle; soprano pipistrelle bat; unidentified pipistrelle species (*Pipistrellus sp.*); Daubenton's Natterer's; unidentified myotis bats (*Myotis sp.*); noctule (*Nyctalus noctula*); and serotine (*Eptesicus serotinus*).

Most of these records relate to foraging or commuting, but hibernation, day, and maternity roosts, have also been recorded for most of these species within 2km. There were also numerous unconfirmed/unverified records in this data set, which may or may not be accurate.

With respect to birds, the search revealed just 11 records. Species noted included great tit (*Parus major*), blue tit (*Cyanistes caeruleus*), European barn swallow, house martin (*Delichon urbicum*), pied wagtail (*Motacilla alba*), starling (*Sturnus vulgaris*), kestrel (*Falco tinnunculus*), peregrine (*Falco peregrinus*), herring gull (*Larus argentatus*), and house sparrow (*Passer domesticus*). Many of the records are of feeding birds, with a predominance of the sightings around Pant cemetery.

None of the bat or bird records revealed by the data search relate to Garth Farm, but some are on adjacent properties/nearby domestic gardens. Neither is the property designated for nature conservation reasons. By consulting the Magic Map Application, it was determined that there were a number of protected sites within the 2km search radius, including Baltic and Tyle'r Quarries Site of Special Scientific Interest (SSSI), some 1.6km to the north; and the Cwm Taf Fechan Woodlands SSSI, and Special Area of Conservation (SAC), approximately 730m to the west. It is not considered that these important sites will be affected by the development proposals.

8 Survey findings

The PRA was conducted on Thursday the 27th of July 2023 in fair conditions. The dusk observations were carried out in late July and mid-August 2023. Details of the conditions under which the PRA/dusk observations were conducted are given in Table 1 below. Wind speeds employ the Beaufort scale.

Table 1: Survey and conditions

Date	Survey type	Timing	Weather conditions
27/07/2023	Preliminary Roost Appraisal (PM)	10.00 – 11.10 hours British Summer Time (BST)	Air temperature: 16.5°C Cloud cover: 8/8 oktas Conditions: Drizzle Wind speed: F0, calm
28/07/2023	Dusk emergence/activity observation (NI, DM, PM)	20.35 – 22.20 hours BST (Sunset 21.12 hours BST)	Air temperature: 15.0°C – 13.8°C Cloud cover: 8/8 oktas Conditions: Dry Wind speed: F2, light breeze
20/08/2023	Dusk emergence/activity observation (NI, DM, PM)	20.10 – 21.35 hours BST (Sunset 20.30 hours BST)	Air temperature: 13.0°C – 11.6°C Cloud cover: 0/8 oktas Conditions: Dry Wind speed: F0, calm
Surveyors	Nigel Isaksson (NI), Diane Morgan (DM), Phil Morgan (PM)		

Assessment commenced with the interior of the house, which although not currently resided in, was found to be in good condition. The attic spaces were inspected for the presence of bats, and/or evidence of bat presence. Features normally used by bats were checked, and the floor,

and stored items examined for bat droppings or signs of insect remains, which might indicate a bat feeding perch. No evidence of bat presence was noted, or that of nesting birds.

Survey continued with the exterior of the house, which again noted that it was generally well maintained. Inspection of the outside of the house found no bat droppings, which might indicate an exit/access point for bats, or evidence of nesting birds. The eaves of the house were well sealed, and only in two locations on the upper parts of the house were gaps found which might be exploited by bats to access roost locations. The first was a gap in the stonework, behind a satellite dish and the south-eastern gable end, close to the front to the house. Nearby there was a gap between the soffit and the barge board. No gaps or access points were found low down on the walls of the building, suggesting that hibernation potential would be impossible.

Examination of the roof of the house indicated several locations where bat access would be possible. Locations were noted where the ridge tiles were not sitting tightly on the surrounding slates, and any mortar previously present had been lost, creating gaps which bats might exploit to use the area beneath the ridges. Numerous lifted slates were also noted on the roof, permitting bat access. Additionally, and with respect to both chimneys, the lead flashing was lifted in a number of places around the base of each chimney, permitting access to these locations. Overall the house was judged to offer a moderate level of potential to be used for roosting by bats.

No evidence of bird presence was found on the exterior of the house, and no birds were seen during the day survey. The surveyor next turned their attention of the stone barn, situated north-west of the house.

The stone barn was found to offer low to moderate potential to be used by bats. The two entrance doors, one at ground floor level on the south-east elevation, and the other on the north-east gable, at first floor level (at the top of a stone stairway), were open, permitting free access to bats and birds. Although the roof was covered in corrugated and asbestos cement sheets, there was still potential access to the ridge area, and at the eaves and gable ends. Whilst no evidence of bat presence was established, an historic wren nest was noted inside the door lintel on the first floor. What was thought to be an historic jackdaw nest was also noted on top of the wall plate at the south-west gable end. Consideration was made of the potential of the structure to support hibernating bats, but this was dismissed due to the lack of any obvious access on the lower walls. No evidence was found for the presence of owls, particularly barn owl

Attention next focussed on the two shed structures, just to the east of the stone barn. The stone shed was found to lack a roof, but this was only apparent upon opening the door on the western elevation, or, looking at it over the boundary wall from the east. It was considered to offer no potential to be use by bats for roosting, or birds for nesting. The adjoining brick shed, whilst sporting a tin roof in good condition was still very open. Access for wildlife to this structure would be relatively easy, but no evidence was found to suggest that any use was occurring. Hibernation potential was dismissed, due to a lack of low level gaps, and despite the access, the actual potential of either shed was considered to be negligible.

The stables, to the south-west of the house was inspected, but not in a detailed fashion, as a lack of ecological resources meant it would be impossible to include it in any additional survey, if this proved necessary. However, inspection of the interior noted bird droppings inside, but no obvious nests. No bat droppings were seen, and the inside was found to be well lit. Ivy growth on the south-west gable end was considered to offer birds potential nesting locations, and overall, from a bat roost viewpoint, the building was considered to have low potential to offer roost sites.

No alien invasive plants, also known as Invasive Non-Native Species (INNS), were noted, such as Himalayan balsam (*Impatiens glandulifera*), Japanese knotweed (*Reynoutria japonica*), or giant hogweed (*Heracleum mantegazzianum*). The garden, whilst clearly well maintained historically, does not appear to have hosted any exotic plant species.

Given the identified potential of the house, and the stone barn, two dusk emergence/activity observations were recommended, and commissioned. The first observation was therefore carried out on the evening of Friday the 28th of July 2023, by three observers and supporting night vision aids. The first bat noted was at 21.25 hours, some 13 minutes after sunset, when a soprano pipistrelle bat was observed commuting from east to west along the north side of the stone barn. Thereafter a number of bat species were seen, or heard, including common pipistrelle, Daubenton's, Natterer's, and unidentified myotis species. No bats were seen to emerge from any of the structures, but a common pipistrelle bat was seen to briefly fly into the upper floor room of the stone barn, at 21.38 hours, before literally emerging a few seconds later and flying off. This was verified later, by playing back the footage captured by one of the video cameras. Fuller details of the activity noted on the evening are given in Table 2 (see Appendix III). A magpie (*Pica pica*) was seen in the garden at the front of the house when the surveyors arrived.

A second dusk observation was undertaken on the evening of Sunday the 20th of August 2023, with three observers, and night vision equipment used. An inspection was made of the interior of the stone barn before commencing the observation. There were no obvious changes within the barn, so the surveyors then set up the video camera equipment, commencing the observation at 20.10 hours, some 20 minutes before sunset, at 20.30 hours.

The first bat was seen at 20.49 hours: a pair of common pipistrelle bats in quick succession, which were thought to have come up the track from the south and the direction of the village, flew between the south-east end of the house and long barn, into the rear garden and off to the north-west. Other common pipistrelle bats were also seen doing this throughout the evening. No bats were seen to emerge from any of the structures, and bat species recorded during the survey included soprano pipistrelle, Daubenton's, and relatively late, at 21.19 hours, a single lesser horseshoe bat.

Birds seen during the survey included a pair of swallows, which appeared to be nesting in the long barn (not part of the survey), and carrion crow, which were noted gathering some way to the south, close to Pant.

9 Discussion

The owners wish to demolish the old farm house at Garth Farm, as well as a number of small outbuildings in the surrounding garden of the property. Reasons for doing so are the prohibitive cost of trying to modify the existing house, to meet modern family needs, and to make it energy efficient and cost effective to live in and run. The house also stands in very close proximity to the adjacent long barn. This barn is in separate ownership, and is in active agricultural use. The demolition proposals, and new build, therefore offer the owners the opportunity to construct a new fuel and cost efficient, family home, away from the working farm, but continuing the historic use of the site as a residence.

In order to inform the planning process a PRA was conducted in July 2023, seeking signs of protected bat or bird species, as well as any other ecological issues which might be impacted by the development proposals. The assessment was undertaken by an experienced, licenced, independent ecologist.

No evidence was found for bat presence, either in the form of actual bats, or traces of bats (e.g. bat droppings, fur oil staining, feeding signs) in any of the buildings (i.e. house, stone barn, stone/brick sheds, or the stables). However, the potential of these various structures to support bats was evident, in the case of the house, around the roof area, which was assessed to have moderate potential to be used. The stone barn was found to offer low/moderate potential for bat presence, again around the roof of the building, whilst the stone/brick sheds were considered to offer negligible potential. No evidence was found to support the use of any of the structures

for hibernation purposes. A partial assessment was made of the stable building, which suggested that this offered low potential for bats.

Evidence was found to suggest that the stone barn has been used by birds for nesting purposes, either historically, or recently. A wren's nest was found in the lintel above the doorway at first floor level on the eastern side, with what is believed to be a jackdaw nest on top of the wall plate of the western gable wall. No evidence was found in the other buildings, although bird droppings in one location in the stables suggests this building may be used at night for roosting by birds – access being available through an open doorway. No evidence found for the presence of barn owl, or any other owl species.

No notable plants or invasive species were noted whilst assessing the garden of the property, which appears to have historically been well maintained, when the house was occupied.

Bats are protected under the provisions of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), whilst their roosting places are also protected under the provisions of the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019. All bats, and their places of rest, are fully protected under British legislation, and as such, where there is evidence for the presence of bats, or where there is potential for them to be present, detailed assessment is appropriate. This has been conducted at Garth Farm, with respect to the house, stone barn, and stone/brick sheds. The stable building has also been subject to a cursory appraisal. No evidence for bat presence was found. Nonetheless, the house and stone barn in particular, offer a level of potential to be used by bats and it was considered appropriate to investigate further if the identified potential was actually being exploited.

Two dusk observations were undertaken, with the first in late July 2023, and the second in the middle of August 2023. No bats were seen to emerge from either the house, or the stone barn during the observations, confirming, that although both structures have potential to be used, no actual use is occurring. Species recorded included widespread species such as common pipistrelle, soprano pipistrelle, Natterer's and Daubenton's bats. Other bats recorded included small myotis species, which might be whiskered bat (although this was not confirmed), and briefly, during the second observation, a single lesser horseshoe bat. This last observation was not surprising given that there is a known roosting within 300m. The lesser horseshoe bat is expanding its range into the area, and populations in the Merthyr Tydfil area are probably benefitting from bats arriving from the north – particularly the Usk valley (where there are now established populations), and others coming from the south – through the Taf catchment.

Other bird species noted in the vicinity of the site included barn swallow (with a pair nesting in the adjacent long barn), magpie (seen in the garden), and carrion crow, which are widespread in this part of the community.

All breeding birds are protected under the provisions of the Wildlife and Countryside Act 1981 (as amended), and active bird nests cannot legally be disturbed or destroyed. As a wren nest, and possible jackdaw nest were found in the stone barn, it is appropriate to offer guidance with respect to nesting birds, in the event that they are found during any work.

Section 6 of the Environment (Wales) Act 2016 requires the local planning authority to seek to maintain and enhance biodiversity. The Welsh Government has clarified this to mean that developments must include biodiversity enhancement measures prior to the determination of the application. There are opportunities to accommodate biodiversity enhancement measures within this development, and accordingly recommendations are made below to create Net Benefits for Biodiversity (NBB).

10 Recommendations

A thorough survey in compliance with National Guidelines has been conducted with no evidence for bat presence identified in any of the buildings assessed. The house and stone barn both have features around the roof areas, which offer potential access to crevice dwelling bat species (e.g. pipistrelle bats etc.), but these structures show no sign of current usage. No additional survey effort is recommended.

As no bat roosts are present, a European Protected Species (EPS) licence is not required in order to demolish either the house, or stone barn, assuming that planning consent is granted for the development to proceed.

Nonetheless, it is appropriate to propose recommendations and offer advice on how matters may proceed during the destruction of the two structures in order to safeguard wildlife. It is also necessary for compliance with development policy to recommend enhancements for biodiversity with respect to the new dwelling.

In the event that a bat(s) or evidence of bats is found during demolition, then all work must stop immediately, in order to avoid committing an offence. Advice must then be sought from Morgan Ecology or NRW. It is possible that a bat may be in a torpid state, and not to fly for up to 20 minutes. All bat species are legally protected from the impacts of disturbance, as well as loss and damage to roost locations; and loss of access or obstructed bat access under the provisions of the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019.

With respect to any new dwelling on the site, currently the property is relatively dark at night, with little artificial light. A Bat Conservation Trust study of the impacts of lighting on bats has considered the increased risk of the bats being preyed on in well illuminated areas. Lighting was also found to be harmful when present near woodland edges and hedgerows, as well as causing isolation of colonies and altering insect prey behaviour. If external security lights are to be fitted as part of the proposals, these must be installed no higher than 2.3m above ground level, and use low wattage bulbs. There must be no upward light spill and shrouds or deflector fittings are a simple way of avoiding this. Lights must be on timers to ensure that lights are extinguished within 30 seconds of movement ceasing.

Breeding birds are protected under the provisions of the Wildlife and Countryside Act 1981 (as amended). Given that a wren nest has been identified in the stone barn, as well as what is possibly a jackdaw nest, the owners need to take this into account, with respect to the timing of demolition of this building. An active bird nest cannot legally be disturbed or destroyed. Once a nest is established, the birds must be able to have access at all times until the young have fledged, and the nest is no longer active. The bird breeding season commences as early as March, and continues into August for species which rear a second or third brood. If an active nest is found elsewhere, it must also be retained and protected. A cordon must be established for a safe working zone a suitable distance from the nest, and not until the chicks have fledged can the nest be destroyed. Demolition work is recommended to avoid the nesting period and the risk of discovering an active nest which can result in expensive delays.

A new development provides the opportunity to enhance the biodiversity of the site, and to comply with Planning Policy Wales 11 (PPW11), a number of enhancements are recommended as suitable for a site of this size. As the bat roost potential of the existing structures at the site will be lost, it is appropriate to provide new potential, in the event that bats choose to use such provision in future. It is therefore recommended that two integrated bat boxes are built into the design of the new dwelling. There are a number of 'off the shelf' products available currently, and ideally two Schwegler 1FR bat tubes will be built into the upper walls. Other designs can be used, and different types are illustrated in Appendix V, along with an example of an installation.

The boxes would ideally be located on different aspects of the new house, ideally at a gable end, or beneath the eaves. The placing of the box is crucial, and they must not be located close to, or above, windows or doors, where bat droppings may become a nuisance if the boxes are used. It is vital that no satellite dishes, guttering, vents, lights, or air conditioning units are located within close proximity of the bat mitigation arrangements.

Wrens are very difficult to provide for, and there is currently no product available specifically tailored for these small birds. However, they are adaptable, and it is recommended that in the short term two small nest boxes are put up on posts in the garden, until the garden matures and provides suitable natural locations. An appropriate type is shown in Appendix V, and the boxes must have 25mm entrance holes, which prevents larger birds from exploiting them to the exclusion of the wrens.

11 Conclusions

There is nothing to indicate that the Garth Farm site is of ecological importance. If the recommendations set out above are followed, then the new dwelling can provide Net Benefits for Biodiversity, and enhance the property for both the human residents, and the wildlife that chooses to live there in future.

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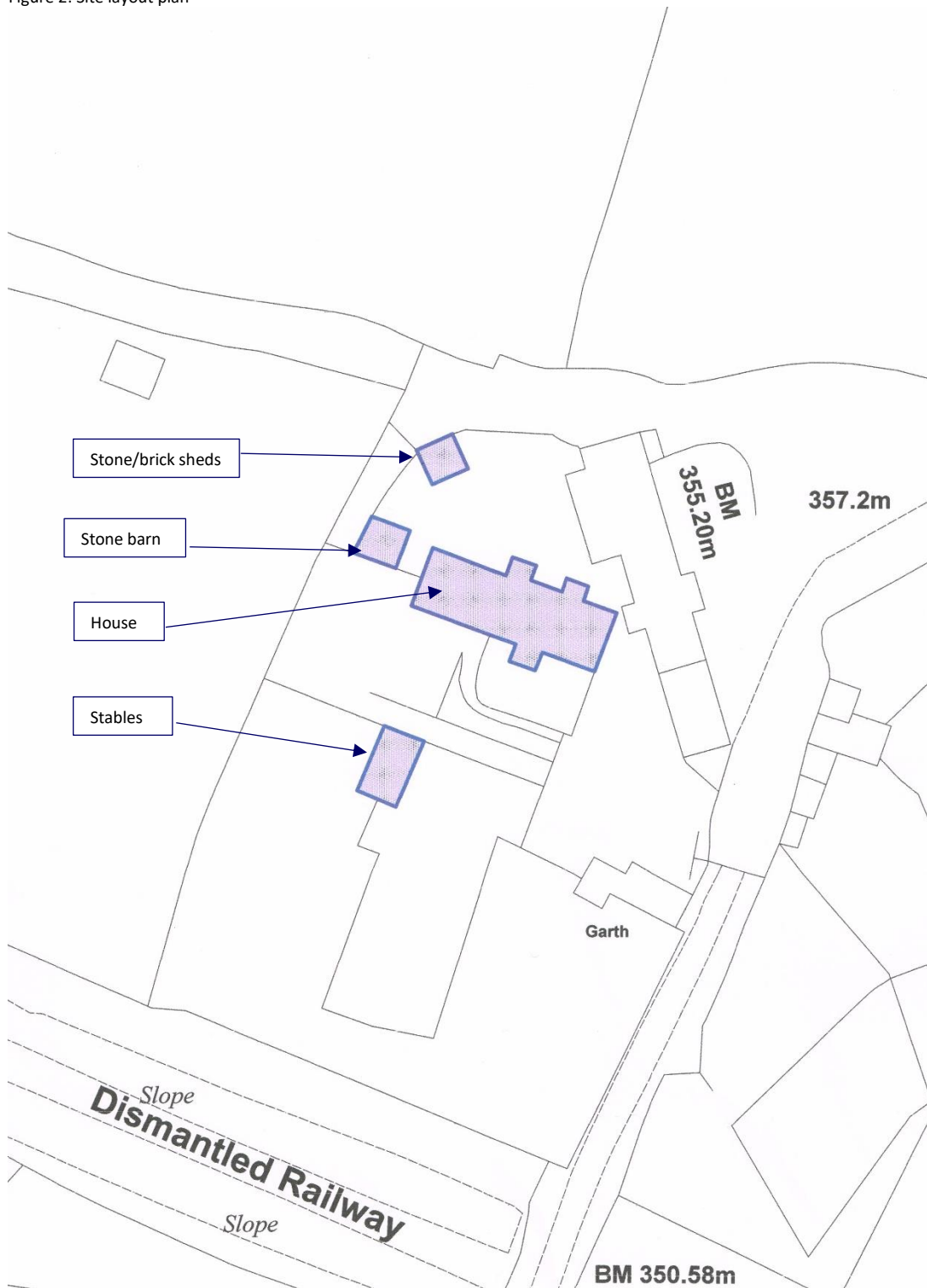
Appendix I: Site location/layout plans

Figure 1: Site location plan



© Google satellite imaging 2023

Figure 2: Site layout plan



Appendix II: Site photographs

Plate 1: Front, western aspect of house



Plate 2: Rear aspect of house, viewed from north



Plate 3: Internal view of main attic, looking south-east



Plate 4: South-western aspect of roof, with raised or missing slates



Plate 5: Southern aspect of house



Plate 6: Gap in stonework at south eastern gable and slot in soffit



Plate 7: Gap on northern side of ridge and western end



Plate 8: Lifted lead flashing around eastern most chimney



Plate 9: Northern aspect of stone barn



Plate 10: Southern aspect of stone barn



Plate 11: Sheds in back garden



Plate 12: Stone stables (only superficially surveyed)



Appendix III: Bat activity tables

Table 2: Dusk observation results – 28 July 2023

Time	Species	Rec No.	Observed activity
21.25 hours	Soprano pipistrelle	NI 1	Commuting north-east to south-west on north-west side of stone barn
21.28 hours	Common pipistrelle	PM 1	Heard but not seen on north side of house
21.29 hours	Common pipistrelle	DM 1	Heard but not seen to south of house
21.31 hours	Common pipistrelle	PM 2	Commuting south-east to north-west at rear of house
21.32 hours	Common pipistrelle (x2)	DM 2	Chasing from south-west to north-east between house and long barn
21.32 hours	Soprano pipistrelle, and common pipistrelle	NI 2	Soprano pipistrelle commuting north-east to south-west along north-west side of stone barn; common pipistrelle in background
21.34 hours	Common pipistrelle	PM 3	Commuting north-west to south-east; foraging in back garden for short while
21.34 hours	Common pipistrelle	DM 3	From back garden, south-west between house and long barn
21.36 hours	Common pipistrelle	PM 4	Commuting onto property from west and foraged around the house
21.36 hours	Common pipistrelle	DM 4	From back garden, and off south-west between house and long barn
21.37 hours	Common pipistrelle	DM 5	From back garden, and off south-west between house and long barn
21.38 hours	Common pipistrelle	PM 5	Commuting from west, flew into upper room of stone barn, at doorway, and flew out again, and off to the east, after a few seconds foraging inside
21.39 hours	Common pipistrelle	NI 3	Foraging over grassland west of house and stone barn
21.43 hours	Daubenton's	PM 6	Commuting from west between house and stone barn
21.46 hours	Daubenton's	PM 7	Heard but not seen north of house
21.46 hours	Daubenton's	DM 6	Commuting north-west to south-east, at front of house
21.49 hours	Myotis sp.	PM 8	Heard but not seen north of house
21.49 hours	Daubenton's	DM 7	Commuting north-west to south-east, in front of house
21.50 hours	Daubenton's	PM 9	Commuting east to west between house and stone barn
21.54 hours	Myotis sp.	DM 8	Heard but not seen south of house
21.57 hours	Myotis sp.	PM 10	Heard but not seen north of house
21.57 hours	Myotis sp.	DM 9	Heard but not seen south of house
22.03 hours	Common pipistrelle	PM 11	Heard but not seen north of house
22.03 hours	Common pipistrelle	DM 10	Heard but not seen south of house
22.04 hours	Natterer's	PM 12	Commuting south-east to north-west at back of house

Table 3: Dusk observation results – 20 August 2023

Time	Species	Rec No.	Observed activity
20.49 hours	Common pipistrelle (x2)	DM 1; PM 1	Flew onto site from south, between long barn and house, through back garden, and off to the north-west
20.50 hours	Common pipistrelle	NI 1; DM 2	From the east, and foraged in front of house, before heading off north
20.53 hours	Common pipistrelle	DM 3; PM 2	Flew onto site from south, between long barn and house, through back garden, and off to the north-west
20.54 hours	Common pipistrelle	NI 2; DM 4	From the north between house and stone barn and then around into back garden
20.56 hours	Common pipistrelle	DM 5; PM 3	Commuting north-west to south-east across front garden
20.57 hours	Soprano pipistrelle	NI 3; DM 6	Flew onto site from south, between long barn and house, through back garden, and off to the north-west
20.58 hours	Common pipistrelle (x2)	DM 7	Flew onto site from south, between long barn and house
21.01 hours	Common pipistrelle	PM 4	Foraging to the north, behind observer north of the house
21.02 hours	Bat?	DM 8	From south, past south-east side of house; no call heard
21.03 hours	Common pipistrelle	NI 4	Foraging over lawns to south-west
21.06 hours	Common pipistrelle	PM 5	From south, foraged in back garden and off to north-west
21.11 hours	Daubenton's	DM 9; PM 6	Heard but not seen
21.11 hours	Bat?	DM 10	Foraging to the south-west of observer
21.14 hours	Daubenton's	DM 11	Foraging around stables to the south-west of observer
21.16 hours	Daubenton's	DM 12	Foraging around stables to the south-west of observer
21.19 hours	Lesser Horseshoe	NI 5	Heard but not seen south of house
21.21 hours	Common pipistrelle	DM 13	Foraging to the south-west of observer
21.22 hours	Daubenton's	PM 7	Heard but not seen north of house
21.27 hours	Daubenton's	PM 8	Heard but not seen north of house

Appendix IV: Biodiversity enhancements for bats and birds

Plate 13: Schwegler 1FR bat tube



Plate 14: Vivara Pro build-in wood-stone bat box



Plate 15: Green and blue bat box



Plate 16: Integrated box in place



Plate 17: NHBS small bird nest box



Appendix V: Ecology of bats

During the evolution of life on Earth, as far as is known, only four groups of animals have achieved the ability to fly by their own means/physical powers. These groups include the long extinct Pterosaurs – flying dinosaurs; birds; insects (e.g. bees, butterflies, flies); and bats (the only flying mammals). This makes bats particularly special, and due to this ability to fly, they are widespread, with roughly 1400 different species found across the globe.

This diversity means that they have evolved to exploit many habitats and opportunities, from deserts to forests, and lakes, and cities. Only the open seas and oceans, and ice caps are devoid of bats, although crossings of seas by bats have been recorded on numerous occasions. Bats fall into two groups, the mega-chiroptera – the old world fruit bats – and the micro-chiroptera – mostly smaller, mainly insect eating bats. Both groups evolved separately: the fruit bats from a lemur like ancestor, whilst the micro-chiroptera evolved from a shrew like ancestor, probably just before the dinosaurs became extinct – they are therefore a very ancient group of animals.

In Britain, there are some 18 species currently present and most of these are considered to be breeding in the country. They are all micro-chiroptera and eat only insects. Whilst there are many ‘old wives tales’ about bats, many of them are false, and bats are highly social animals with excellent eyesight, particularly in poor light. They are mammals, being warm blooded and giving birth to live young – usually only one baby at most – although twins are sometimes found in Scotland, where insect populations allow female bats to occasionally support more than one pup. They can also be long living, although typically smaller bats live for around five years. However, some species, such as Daubenton’s bat, have been recaptured over 21 years since they were originally encountered!

Whilst not unique, bats have evolved to see with sound – known as echo-location – something whales and dolphins can also do, as well as some birds, insects, and terrestrial mammals like shrews. In bats it is particularly refined, allowing them to detect moving objects and determine if an insect, such as a moth or gnat is good to eat.

British bats live in a variety of places, and following the last ice age, most lived in caves or rot holes on trees since bats have no means to gnaw or chew at wood, or make modifications to a structure. Today, with very little woodland left in Britain, bats have had to learn to exploit modern structures, and although some still rely on caves in order to hibernate, bats are good at finding access points around the roof features of buildings. Some like to roost within loft spaces, these loft dwelling species include the lesser horseshoe, and greater horseshoe bats, as well as the brown long-eared bats, although all bats are capable of exploiting roof spaces if necessary.

However, most bats exploit the verges or edges of the roof space and sometimes the walls of a building, and these animals are known as crevice roosters – including our most common species – the pipistrelle bats.

In the past 70 years modern agricultural practices, habitat fragmentation and the use of pesticides have resulted in a massive reduction in bat numbers, driving some to the edge of extinction, and for this reason all bats in Britain are legally protected.

Appendix VI: Legislation

All British bats, and their roosts (whether occupied or not) are legally protected. The main legislation is the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000). Protection is also afforded under the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019. Under the provisions of these legal protections, anyone found guilty of harming bats or damaging, destroying or denying access to a bat roost, can be subject to fines or custodial sentences.

In an effort to start to address the decline in bat populations, the Natural Environment and Rural Communities Act 2006, and the Environment (Wales) Act 2016 require all public authorities/bodies to have regard for the conservation of biodiversity – e.g. when considering planning applications. With regard to Wales, species and habitats of principal importance are listed in Section 7 of the Environment (Wales) Act 2016 which includes 8 bat species: common and soprano pipistrelles, noctule, brown long-eared, greater and lesser horseshoes, barbastelle, and Bechstein's bats.

A legal ruling (Woolley v. Cheshire East Borough Council) has set a precedent stating that it is necessary for a planning authority to be appropriately informed or aware of the presence (or absence) of legally protected species prior to considering the issues of a planning proposal. Good practice is to assess as soon as possible if bats are present at potential sites for development and possibly even before land is purchased. In some cases the period required for adequate survey work may span more than one calendar year. If a development, including demolition or change of use, is likely to impact on bats and their roosts then a derogation licence will usually be required. Adequate survey results are a necessary input to any licence application. If bats are not found until late in the development stage this may result in expensive delays while a derogation licence is sought and even in offences being committed.

The law with respect to dwellings and other structures is applied equally. Where disturbance is deemed likely to have a significant effect on bats to survive, breed and rear their young or will affect the local distribution and abundance of the species, a European Protected Species licence issued by Natural Resources Wales. A licence application must demonstrate that the development will not be detrimental to the maintenance and favourable conservation status of the species concerned.

All wild birds, their eggs and nests are protected by The Wildlife and Countryside Act 1981 (as amended). It is an offence, with certain exceptions, to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
- intentionally take or destroy the egg of any wild bird;
- sell wild birds or put them on display for sale;
- use traps or similar items to kill, injure or take wild birds; and
- intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Penalties that can be imposed for criminal offences in respect of a single bird, nest or egg contrary to the Wildlife and Countryside Act 1981 (as amended) is an unlimited fine, up to six months imprisonment or both. In exceptional cases NRW can issue a licence for a specific purpose, so that legitimate work may be undertaken without breaking the law. However, this is exceptional, and not something that is normally expected or done.

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This document is valid for a defined period, in compliance with National Guidelines, for a period of two years from the front cover date.

Details of the species recorded during this survey have been passed to the South East Wales Biodiversity Record Centre.

Morgan Ecology provides ecological services with respect to bats and terrestrial mammals, and is based in Mid-Wales. It specialises in providing affordable, and expert services on protected species, for a wide of clients.

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