



ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE



PRELIMINARY ECOLOGICAL APPRAISAL

TY MAWR

Project name: Ty Mawr, Penybontfawr, Oswestry, SY10 0HN

Grid Reference: SJ06722643

Date: 08/02/2022

Prepared by: Phillipa Stirling MSc ACIEEM

Reviewed by: William Prestwood BSc Director

Requested by: Roger Parry and Partners

Contents

1	INTRODUCTION.....	2
1.1	BACKGROUND TO DEVELOPMENT.....	2
1.2	SCOPE OF SURVEY.....	2
1.3	KEY PRINCIPLES.....	2
2	SITE DESCRIPTION.....	3
2.1	LOCATION, LANDSCAPE, AND BACKGROUND.....	3
3	SURVEY METHODOLOGY.....	3
3.1	DESK STUDY.....	3
3.2	SITE SURVEY.....	3
3.3	PERSONNEL.....	4
3.4	CONSTRAINTS.....	4
4	SURVEY RESULTS.....	5
4.1	DESK STUDY.....	5
4.2	HABITATS ON SITE.....	5
4.3	ADJACENT HABITATS.....	6
4.4	PROTECTED SPECIES.....	6
5	POTENTIAL ECOLOGICAL IMPACT.....	8
5.1	HABITAT ASSESSMENT.....	8
5.2	PROTECTED SPECIES ASSESSMENT.....	8
6	AVOIDANCE, MITIGATION AND ENHANCEMENT.....	9
6.1	HABITAT MITIGATION.....	9
6.2	PROTECTED SPECIES MITIGATION.....	9
6.3	ECOLOGICAL ENHANCEMENT.....	10
7	SUMMARY.....	10
8	REFERENCES.....	11
	FIGURE 1 LOCATION. 1:50,000.....	12
	FIGURE 2 AERIAL PHOTOGRAPH.....	13
	APPENDIX 1 PHOTOGRAPHS.....	14

1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the conversion of a single storey barn into residential accommodation.

Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

1.2 SCOPE OF SURVEY

The survey is primarily designed to:

- Identify and record habitats and important ecological features on site;
- Evaluate the potential of the proposed development site to provide opportunities for protected species;
- Determine any likely impact which the development and landscape proposals may have on these.
- Identify opportunities for the enhancement of habitats and biodiversity features on site.

1.3 KEY PRINCIPLES

All ecological surveys conducted by Arbor Vitae Environment Ltd are underpinned by the following key principles, as outlined by CIEEM (2018):

Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site).

Mitigation - Adverse effects should be avoided or minimized through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.

Compensation - Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.

Enhancements - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

2 SITE DESCRIPTION

2.1 LOCATION, LANDSCAPE, AND BACKGROUND

The site lies at the foot of Craig Rhiwarth and Glan Hafon, both summits in the Berwyn range in the Tanat Valley between Penybontfawr and Llangynog (Figure 1). To the north, the site is bordered by grazing land and plantation conifer woodland with the uplands of Glan Hafon beyond. To the south lies more extensive grazing land within the valley basin and wet/marshy grassland (Figure 2).

The barn to be converted is currently used as stables with two separate bays and an open, south-facing elevation.

3 SURVEY METHODOLOGY

3.1 DESK STUDY

An initial desk study was composed to gain background information regarding any protected species or designations within the area. The main sources of information were MagicMap, Lle Geoportal and NBN Atlas.

3.2 SITE SURVEY

A site visit was made on 01/02/22. The survey was carried out in accordance with CIEEM (2017) best practice guidelines. The objective of the survey was to find and record any signs of use by protected species and to note the habitat features present.

An assessment of the available habitats both on and adjacent to the site led to consideration of the potential of the site for the following protected species:

- Bats
- Breeding birds
- Great Crested Newts

The survey methodology was tailored to evaluate the area for these species in the following ways:

Bats

The objective of the survey was to find and record any signs of use by bats, for example:

- Droppings, sometimes in concentrations below roost sites
- Feeding signs such as butterfly and moth wings
- Staining of timber, brickwork around access points

The general structure of the building was assessed for its potential to provide bats with roosting opportunities.

The site was assessed in terms of its suitability to support bat species. Hedgerow habitat and nearby potential habitat were assessed and recorded and potential impacts from the proposals considered.

Breeding birds

The site was assessed in terms of its suitability to support breeding bird populations. Hedgerow habitat and nearby potential habitat were assessed and recorded.

Great crested newt

A desk study and a ground search were conducted to search for any areas of open water within 250 metres. Waterbodies were then assessed based on the Habitat Suitability Index for great crested newts (Oldham et al., 2000 and ARG UK, 2010). One pond was mapped within 250m of the site.

3.3 PERSONNEL

The survey was carried out by Phillipa Stirling MSc ACIEEM: Ecologist. Natural Resources Wales bat licence number: S089403-1 & GCN licence number: S089403-1.

3.4 CONSTRAINTS

Breeding birds would not have been present at the time of the survey but previous nesting and appropriate nesting sites would have been apparent.

4 SURVEY RESULTS

4.1 DESK STUDY

The desk study found that within 1km of the site there were the following designations:

Name	Designation	Distance from site
Berwyn	SSSI SAC SPA	0.2km
Wood at Glan Hafon Uchaf	Ancient Semi Natural Woodland	0.3km
Wood at Llwyn Onn	Ancient Semi Natural Woodland	0.5km
Coed Hen-stent	Ancient Semi Natural Woodland	0.8km
Wood to south	Ancient Semi Natural Woodland	0.9km
The search included Ramsar, SSSI, SAC, SPA, LWS, NNR and LNR. ¹		

Results from the desk study revealed that within a 1km radius of the proposed development site the following protected species have been recorded:

Species	Distance	Protection
Kingfisher	0.3km	Wildlife and Countryside Act 1981.
Bat hibernation site at Craig Rhiwarth slate mine	0.9km	The Conservation of Habitats and Species Regulations 2017, Wildlife and Countryside Act 1981.

4.2 HABITATS ON SITE

All habitats are classified using JNCC's Phase 1 Habitat Survey Handbook (JNCC, 2010).

Building

The building to be converted is a small single storey barn of stone construction with a footprint of approximately 90m². The barn is partially built into the bank at the north

¹ SSSI: Site of Special Scientific Interest, SAC: Special Area of Conservation, SPA: Special Protection Area, LWS: Local Wildlife Site NNR: National Nature Reserve, LNR: Local Nature Reserve.

elevation and therefore the roof height sits approximately 1.5m from the ground to the rear of the building. The stone walls are cemented inside and out with some surface gaps present lower down on the walls.

The roof of the barn comprises modern timber rafters which rest on the top of the barns walls with corrugated tin sheets fixed above. The eaves of the barn are mostly open with the roof overhanging the wall plate and there are no voids or cavities present.

The south elevation of the building is mostly open to the elements and the opening has been reinforced with modern blockwork at some point. The floor throughout is covered with bedding material within the stables with poured concrete exposed at the entrance. The barn joins a new steel framed structure at its east elevation.

The adjoining building is steel framed with timber cladding in 'Yorkshire boarding' style. The floors within are poured concrete and the roof is covered with corrugated tin sheets. The structure as a whole is 'single skin'.

4.3 ADJACENT HABITATS

Grassland

The paddocks immediately surrounding the barn are all grazed year round by a number of ponies. Lle Geoportal 'Terrestrial Phase 1 Habitat Survey' has the areas mapped as 'improved grassland' which appears likely to be the case. The sward height and time of year the survey was carried out made full identification of individual species difficult.

Standing water

There is a single pond mapped within 250m of the site. Pond 1 sits 50m to the west of the barn to be converted.

Hardstanding

The yard in front of the buildings and existing access track are made up of bare earth and loose stone.

4.4 PROTECTED SPECIES

Bats

The barn was inspected internally and externally using a high powered torch. The base of the walls, the top of the wall plate and any visible gaps in the stonework were searched closely for any evidence of bats. No droppings, feeding signs, urine or grease marks were identified in association with the building.

The roof structure does not provide any cavities or voids and internal light levels are high throughout the day due to the building being open at the south elevation. The timbers of the roof structure are modern and do not provide any potential roosting features. The corrugated tin sheets on the roof also do not provide any suitable roosting sites for bats.

There are some small surface gaps at low points in the wall which were fully inspected and found to provide no substantial roosting opportunities. The barn is partially built into the bank at the north elevation and as such, sits close to the ground with no part higher than approximately 3m. The barn to be converted provides 'negligible' potential as a bat roost.

The adjoining steel framed structure also provides 'negligible' potential as a bat roost with no evidence of bats or suitable roosting features identified.

Breeding birds

There was one swallow nest found built onto the side of a rafter within the barn and also one blackbird nest perched on a shelf in the wall inside the barn.

Great Crested Newt

Pond 1 is approximately 200m² and is fed by a land drain from surrounding fields. The pond doesn't dry out in the summer and the banks and margins are denuded of vegetation with no egg-laying opportunities for GCN. There are no other ponds present within 1km of the site and no records of GCN were found during the desk-top study. The terrestrial habitat surrounding the pond is grazed pasture with little opportunity for shelter or foraging. The pond scored 'poor' in terms of its suitability as a breeding site for GCN and its highly unlikely that the species is present within the surrounding landscape.

GCN HSI Calculator

		Pond Name	Pond 1
		Position	SJ06722643
SI No	SI Description		
1	Geographic location	0.5	
2	Pond area	0.4	
3	Pond permanence	0.9	
4	Water quality	0.67	
5	Shade	1	
6	Water fowl effect	0.01	
7	Fish presence	1	
8	Pond Density	0.1	
9	Terrestrial habitat	0.33	
10	Macrophyte cover	0.3	
HSI Score		0.32	
Pond suitability (see below)		<i>Poor</i>	

5 POTENTIAL ECOLOGICAL IMPACT

5.1 HABITAT ASSESSMENT

The conversion of the barn will not result in the loss or damage of important or sensitive habitats.

The barn's ecological interest is limited to the two species of birds who have previously used the structure for nesting. Appropriate mitigation and replacement nest sites will be required.

5.2 PROTECTED SPECIES ASSESSMENT

Bats

The barn to be converted and the adjoining stable block both provide 'negligible' potential as a bat roost. No evidence of bats was found during the inspection and there is no reason to believe that bats are/have used the barn. No further survey work is required.

Given the rural location of the proposed conversion and the presence of known hibernation sites within abandoned nearby mines, a Wildlife Sensitive Lighting Plan will be implemented to ensure that the permanent presence on site does not adversely impact nocturnal wildlife.

Breeding birds

The conversion of the barn will result in the loss of a nesting site for swallow and blackbird.

Replacement nesting sites will be required on site and works will also have to be carefully timed to avoid the nesting season.

Great crested newt

Pond 1 provides 'poor' suitability as a breeding site for GCN, there are no records of GCN nor other ponds within 1km of the site.

It is highly unlikely that GCN would be present within the area or surrounding landscape and the proposals will have no impact upon good quality terrestrial habitat.

The project will have no impact upon this species and mitigation is not required.

6 AVOIDANCE, MITIGATION AND ENHANCEMENT

6.1 HABITAT MITIGATION

The barn is of no ecological interest other than for the bird species who has used it for nesting. Mitigation for the loss of nesting sites is outlined below.

6.2 PROTECTED SPECIES MITIGATION

Bats

Any artificial lighting will be designed with nocturnal wildlife in mind. The following Wildlife Sensitive Lighting Plan will be incorporated into plans for the site:

- Key habitat features such as mature trees will not be illuminated in order to retain dark movement corridors for nocturnal wildlife. Illuminance along these features should be below 0.2 lux on the horizontal plane, and 0.4 lux on the vertical plane.
- Security lighting will be set on motion sensors with short timers (<1 minute) and should be LED lighting.
- External lights will be hooded and directed toward the ground to reduce upward light spill.
- A warm white spectrum will be adopted throughout the scheme to reduce blue light component (<2700Kelvin).
- Internal luminaires will be recessed where installed in proximity to windows to reduce glare and light spill. LED luminaires should be used internally where possible due to their sharp cut-off, lower intensity, and dimming capability.
- Luminaires will always be mounted horizontally with an upward light ratio of 0%.

Breeding birds

Two Woodcrete swallow cups will be installed into the adjoining steel framed stable block. The cups will be positioned at the top of the wall plate, just below the roof, but no less than 10cm from the corrugated tin. The two cups will be at least 1m from each other and positioned within easy access of the open doors at the south elevation. The cups should be installed before March of the development year.

Two open nest boxes suitable for blackbird will also be installed under cover of the adjoining stable building.

A thorough internal inspection of the barn will be carried out prior to works starting on the site. If swallows have returned to use the nest, works will need to be postponed until the young have fledged and nesting has concluded.

Alternatively, the barn can be sealed up entirely, to include open apertures and gaps at the eaves, to prevent returning swallows and other breeding birds from accessing the barn.

6.3 ECOLOGICAL ENHANCEMENT

In order to introduce suitable roosting opportunities for bat species to the site, the following features will be installed:

- 1x Woodcrete bat box suitable for crevice dwelling species
- 1x Woodcrete bat box with multiple internal chambers

The boxes will be installed into mature trees at the south boundary of the site and will sit at 3m from ground level. The boxes will face south or south west ideally.

7 SUMMARY

Planning permission will be sought for the conversion of a single storey barn into residential accommodation. Arbor Vitae were commissioned by Roger Parry and Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

The barn's ecological interest is limited to the two species of birds who have previously used the structure for nesting. Replacement nesting sites will be required on site and works will also have to be carefully timed to avoid the nesting season.

The barn to be converted and the adjoining stable block both provide 'negligible' potential as a bat roost. No evidence of bats was found during the inspection and there is no reason to believe that bats are/have used the barn. No further survey work is required.

Given the location of the proposed conversion, a Wildlife Sensitive Lighting Plan will be implemented to ensure that the permanent presence on site does not adversely impact nocturnal wildlife.

Pond 1 provides 'poor' suitability as a breeding site for GCN, there are no records of GCN nor other ponds within 1km of the site. It is highly unlikely that GCN would be present within the area or surrounding landscape and the proposals will have no impact upon good quality terrestrial habitat. The project will have no impact upon this species and mitigation is not required.

In order to introduce roosting opportunities to the site for bat species two types of bat box will be installed into mature trees on the site.

8 REFERENCES

- ARG UK (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom
- Bat Conservation Trust (2018) Bats and artificial lighting in the UK. *Bats and the Built Environment series*, Guidance Note 08/18. Institution of Lighting Professionals.
- CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
- English Nature (2001) Great crested newt mitigation guidelines. English Nature, Peterborough.
- Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust.
- JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7.
- Mitchell-Jones, T. (2004) Bat mitigation guidelines. External Relations Team, English Nature.
- Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.

FIGURE 1 LOCATION. 1:50,000

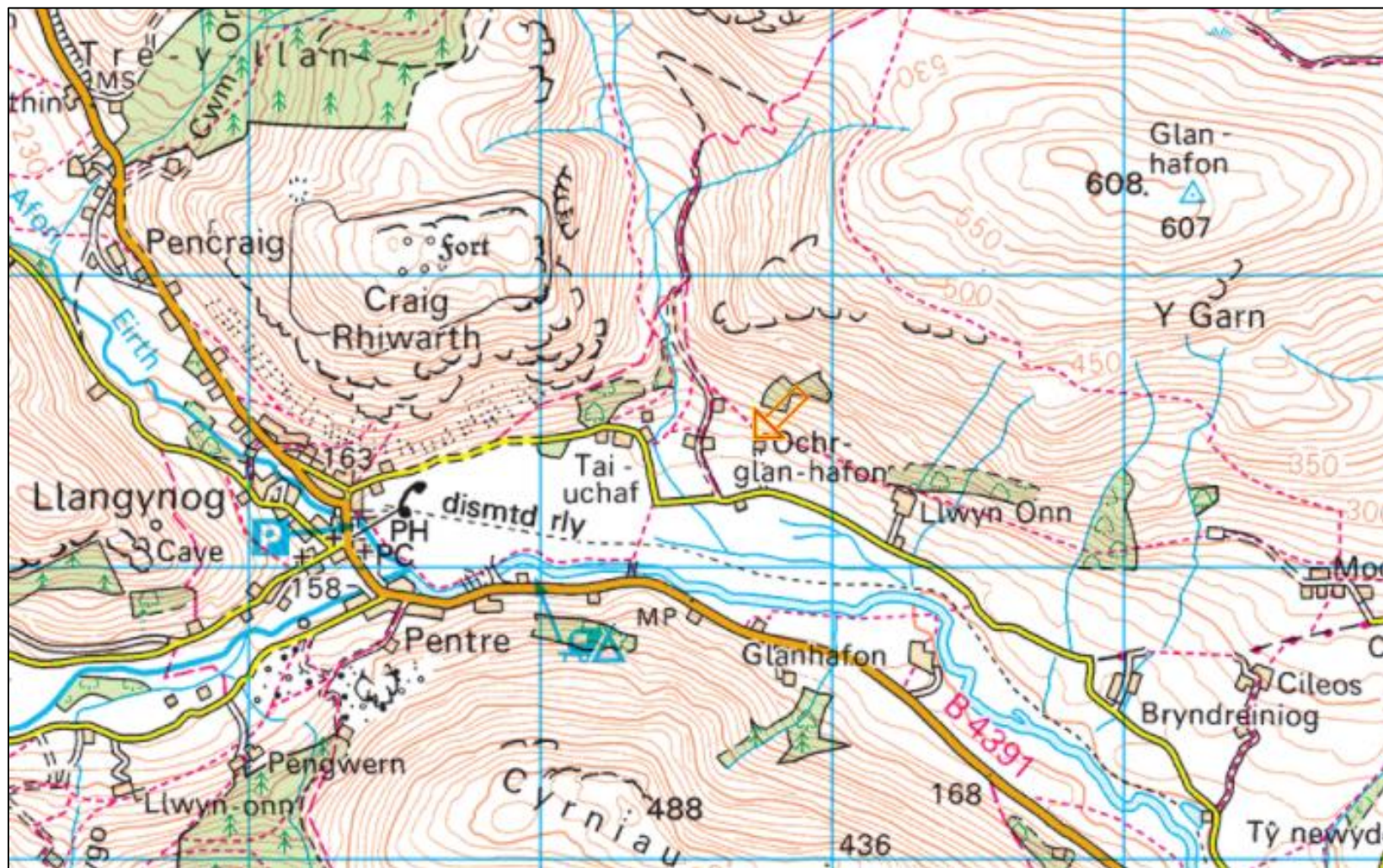


FIGURE 2 AERIAL PHOTOGRAPH



APPENDIX 1 PHOTOGRAPHS



North elevation of barn to be converted.



Roof structure within.



External stonework is mostly well-sealed with cement.





Internal stonework is mostly well-sealed with cement. Some surface gaps present.



Junction between stone barn and adjacent steel framed stable block.



Existing access track and surrounding landscape.



Pond 1.



Areas surrounding barn include grazed grassland.

