



# ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE



## **PRELIMINARY ECOLOGICAL APPRAISAL**

### **OLD LLWYN ONN FARM**

**Project name:** Old Llwyn Onn Farm, Wrexham, LL13 0NY

**Grid Reference:** SJ36174867

**Date:** 24/05/2023

**Prepared by:** Molly Isherwood BSc Hons

**Reviewed by:** Phillipa Stirling BSc MSc ACIEEM

**Requested by:** Roger Parry & Partners

## Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>2</b>
1.1	BACKGROUND TO DEVELOPMENT .....	2
1.2	SCOPE OF SURVEY .....	2
1.3	KEY PRINCIPLES .....	2
<b>2</b>	<b>SITE DESCRIPTION .....</b>	<b>3</b>
2.1	LOCATION, LANDSCAPE, AND BACKGROUND.....	3
<b>3</b>	<b>SURVEY METHODOLOGY .....</b>	<b>3</b>
3.1	DESK STUDY .....	3
3.2	SITE SURVEY .....	3
3.3	PERSONNEL .....	4
3.4	CONSTRAINTS.....	4
<b>4</b>	<b>SURVEY RESULTS.....</b>	<b>4</b>
4.1	DESK STUDY .....	4
4.2	HABITATS ON SITE .....	5
4.3	ADJACENT HABITATS.....	5
4.4	PROTECTED SPECIES.....	6
<b>5</b>	<b>POTENTIAL ECOLOGICAL IMPACT .....</b>	<b>7</b>
5.1	HABITAT ASSESSMENT .....	7
5.2	PROTECTED SPECIES ASSESSMENT .....	8
<b>6</b>	<b>AVOIDANCE, MITIGATION AND ENHANCEMENT .....</b>	<b>8</b>
6.1	HABITAT MITIGATION .....	8
6.2	PROTECTED SPECIES MITIGATION.....	9
6.3	ECOLOGICAL ENHANCEMENT .....	10
<b>7</b>	<b>SUMMARY .....</b>	<b>11</b>
<b>8</b>	<b>REFERENCES.....</b>	<b>12</b>
	FIGURE 1 LOCATION.....	13
	FIGURE 2 AERIAL PHOTOGRAPH .....	14
	APPENDIX 1 PHOTOGRAPHS .....	15

# 1 INTRODUCTION

## 1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the construction of two agricultural buildings and all associated work on an area of arable land at Old Llwyn Onn farm, Cefn Road near Wrexham.

Arbor Vitae were commissioned by Roger Parry & 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 area to be developed is located at Old Llwyn Onn Farm, Cefn Road, Wrexham. The landscape surrounding the site is characterised by permanent pasture, arable agriculture, several blocks of broadleaved woodland, and large areas of residential property, including Wrexham city, which lies roughly 2 miles to the west of the site. The River Clywedog runs 170 metres to the south of the site.

The proposal will include the construction of two agricultural buildings and all associated work.

## **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, NBN Atlas and DataMap Wales.

### **3.2 SITE SURVEY**

A site visit was made on 18/05/2023. 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:

- Badger
- Bats
- Breeding birds
- Great Crested Newt

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

#### **Badger**

An area within 50 metres of the site was closely searched for the following signs of badger activity:

- Setts,

- Tracks and footprints,
- Latrines,
- Snuffle holes.

### **Bats**

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).

## **3.3 PERSONNEL**

The survey was carried out by Phillipa Stirling MSc ACIEEM: Ecologist, Natural Resources Wales bat licence number: S091037-1 and GCN licence number: S089109-1 and Molly Isherwood BSc Hons: Assistant Ecologist.

## **3.4 CONSTRAINTS**

There were no constraints to the survey being carried out successfully.

# **4 SURVEY RESULTS**

## **4.1 DESK STUDY**

The desk study found that there were no designated sites within 1km of the site. The search included Ramsar, SSSI, SAC, SPA, NNR and LNR.

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
<b>Mammals</b>		

Western European Hedgehog	0.9km	Wildlife and Countryside Act 1981.
Whiskered bat	0.9km	European Protected Species, Wildlife and Countryside Act 1981.
<b>Birds</b>		
Fieldfare, Redwing	0.9km	Wildlife and Countryside Act 1981.
<b>Amphibians</b>		
Great Crested Newt 2002-2016	0.6-0.8km	European Protected Species, UK Post-2010 Priority Species, Wildlife and Countryside Act 1981.

## 4.2 HABITATS ON SITE

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

### *Arable land*

The area to be developed lies within an arable field that has recently been ploughed. This has left an area of bare earth within which no plant species were recorded.

### *Individual tree*

A early mature in-field oak tree lies to the north-east boundary of the site, between the arable field and the improved grassland field to the north. It lies outside of the proposal's red line boundary.

## 4.3 ADJACENT HABITATS

### *Broadleaved woodland*

A mature broadleaved woodland, Black Wood, lies to the south of the site and, as shown by figure 2, is connected to the woodland corridor along the River Clywedog. Species identified within the woodland include ash, sycamore, hazel, cherry, silver birch, elder and holly. Ivy growth was noted on some of the trees. The ground flora along the woodland boundary is dominated by common nettle with mare's tail and creeping buttercup.

### *Improved grassland*

The field parcel on the north boundary of the site is an improved grassland field currently used for grazing cattle. The sward is dominated by Yorkshire fog, cocks-foot and perennial

rye grass. Broadleaved dock, common nettle, white clover and dandelion were also identified within the sward.

#### *Hedgerow with trees*

A hawthorn hedge lies to the north-west of the site and extends along the track to the north. Species present in the ground flora include common nettle, cow parsley, annual meadow grass, Cock's foot, creeping buttercup and dandelion.

#### *Buildings*

Immediately to the west of the site lies a yard with many agricultural buildings. These are modern, steel framed barns with Yorkshire boarding that are currently used as cattle pens and for agricultural equipment storage.

#### *Hardstanding*

The agricultural buildings to the west of the site sit on a hardstanding concrete yard.

The yard is connected to Cefn Road to the north by a minor concrete lane which will also be used for access to the new buildings in the proposal.

#### *Other habitat- waste store*

A farm waste store is located near the west boundary of the site, to the south of the existing cattle sheds. The waste store has precast concrete panels in a steel frame and is uncovered.

## **4.4 PROTECTED SPECIES**

#### *Badgers*

There are no historical records of badger at the site and no field signs were found within the search area. No further survey work is required with regard to this species.

#### *Bats*

The area of arable land provides no features which could offer a roosting site for bat species.

The young oak tree along the access track provides negligible suitability as a bat roost as no aged features, such as cervices and small hollows which could be utilised as a bat roost, were visible from ground level during the field survey. However, it likely offers a valuable foraging habitat for bat species. There are no current plans to remove this tree as it lies outside of the proposed development area.



The lane-side hedgerow provides valuable foraging and commuting habitat for bat species, but does not possess any features which bat species could utilise as a roost. There are no current plans to alter or remove this habitat and it lies outside of the proposal's red line boundary.

The adjacent woodland to the south of the site provides valuable foraging and commuting habitats for bat species. As there are mature trees within the woodland, it likely offers potential features which bat species could utilise as a roost.

#### *Breeding birds*

The hedgerows provide potential habitat for breeding birds due to the presence of dense vegetation. However, no evidence that these features have been previously used for nest building by breeding birds was found during the field survey.

The adjacent woodland habitat is highly likely to provide suitable habitat for breeding birds.

#### *Great Crested Newt*

There are previous records of GCN at a distance of 0.6 km from the site and the most recent observation was in 2016.

However, no ponds were identified within 250m of the proposed development site and the habitats on site provide negligible value for amphibians. No further survey work is required with regard to this species.

## **5 POTENTIAL ECOLOGICAL IMPACT**

### **5.1 HABITAT ASSESSMENT**

The proposal will result in the loss of a portion of recently ploughed arable land. Mitigation for this loss of habitat will be required.

The in-field oak provides ecological value to bat species and breeding birds as a foraging and commuting habitat. There are no current plans to remove this tree and as it lies outside of the red line boundary at the north-east corner of the arable field, the proposal will have no impact on this feature.

The adjacent woodland is of high ecological value as it likely provides roosting opportunities for bat species and nesting potential for breeding birds. Although the current proposal does not extend into the woodland, mitigation is required to avoid any unintentional impacts to this valuable habitat.

## 5.2 PROTECTED SPECIES ASSESSMENT

### *Badger*

There are no historical records of badger at the site and no field signs were found within the search area. Hence, this proposal will not result in an impact on badgers.

### *Bats*

The proposal will result in negligible impacts to bat species as the arable field does not offer any suitable features which could be utilised as a bat roost. Furthermore, the retention of the hedgerow, trees and adjacent woodland will retain foraging, commuting and potential roosting habitats for bat species. Any increase in external lighting may have an impact on bat foraging behaviour and this requires mitigation.

### *Breeding birds*

The proposal is unlikely to have any impact upon breeding birds but precautionary measures will be adopted due to the rural location of the site.

### *Great crested newt*

No ponds were identified within 250m of the proposed development site and the site provides negligible opportunities for GCN. The proposal will have no impact upon this species.

## 6 AVOIDANCE, MITIGATION AND ENHANCEMENT

### 6.1 HABITAT MITIGATION

The proposal will result in the loss of a small area of arable land which does not provide any valuable habitat. No mitigation is required for this loss of habitat.

Although the in-field oak tree lies outside of the proposal's red line boundary, a buffer zone of a minimum of 1 metre from the outer spread of its canopy shall be implemented. This will avoid any disturbance to this feature from construction work.

As the adjacent woodland is an ecologically valuable habitat, a buffer zone will be implemented to avoid any disturbance to the woodland. This will be a minimum of a metre from the outer spread of the canopy. The Wildlife Sensitive Lighting Plan outlined in Section 6.3 shall be enforced to further reduce any impacts upon this habitat and the species that utilise the woodland.

## 6.2 PROTECTED SPECIES MITIGATION

### *Badger*

This proposal will not result in an impact to badgers and no mitigation will be required with regard to this species.

### *Bats*

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

- Hedgerows and key habitat features including mature trees on the site 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.
- No artificial lighting will be installed on the south site of the proposed sheds and all elevations at the south will be covered to ensure there is no light spill onto the woodland.
- 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*

As a precaution, a thorough ground inspection should be completed prior to works commencing on site if works start between 1<sup>st</sup> March and 31<sup>st</sup> August (inclusive) in any given year. If breeding birds are found, an exclusion zone of 5 metres should be implemented and maintained until breeding is complete and the fledglings have left the nest.

### *Great crested newt*

The proposals will have no impact upon this species and mitigation will not be required.

### *General avoidance Measures*

The following measures should be implemented to decrease the likelihood of killing/injuring small animals such as amphibians and hedgehogs:

- If piles of rubble, logs, bricks, other loose materials or other potential refuges are to be disturbed, this should be done by hand and carried out during the active season (March to October) when the weather is warm to allow animals to disperse naturally.
- The grassland areas should be kept short prior to and during construction to avoid creating attractive habitats for wildlife.
- All building materials, rubble, bricks and soil must be stored on raised platform (e.g. wooden pallets) to prevent their use as refuges by wildlife.
- Where possible, trenches should be opened and closed in the same day to prevent any wildlife becoming trapped. If it is necessary to leave a trench open overnight then it should be provided with a means of escape in the form of a shallow ramp. Any open pipework should be capped overnight. All open trenches and pipework should be inspected at the start of each working day to ensure no animal is trapped.
- Any common reptiles or amphibians discovered should be allowed to naturally disperse. Advice should be sought from an appropriately qualified and experienced ecologist if large numbers of common reptiles or amphibians are present.

### **6.3 ECOLOGICAL ENHANCEMENT**

To provide ecological enhancement on site, a native species-rich hedgerow will be planted along the west boundary of the site. Species to be included within this hedgerow are hawthorn, hazel, holly, field maple, oak, wild privet and elder. The hedge will link up to the woodland at the south.

Furthermore, the area of land between the woodland and the southern-most proposed agricultural building will be reseeded with a species-rich wildflower/grassland mix. This area will be allowed to grow annually, cut once in mid-July.

In order to provide shelter, breeding and hibernating opportunities for a variety of wildlife, we recommend that a nest box scheme is adopted as follows:

- Two Woodcrete general purpose bat boxes, suitable for crevice-dwelling species should be installed into mature trees to the south. No lighting should be installed

in the vicinity of the boxes. They should be at least 3m from the ground and face south or south west.

- Two Woodcrete cavity nesting bird boxes with 28mm or 32mm access holes. These should be positioned within mature trees on the boundary of the site and the access should face away from the prevailing wind.

## **7 SUMMARY**

Planning permission will be sought for the construction of two agricultural buildings on area of arable land at Old Llwyn Onn Farm near Wrexham. Arbor Vitae were commissioned by Roger Parry & Partners to undertake a Preliminary Ecological Appraisal in order to assess the impact of the development on habitats and protected species.

The proposal will result in the loss of a small area of arable land which does not provide any valuable habitat and does not require mitigation.

Due to the high ecological value of the adjacent woodland, a buffer zone of a minimum of a metre from the outer spread of the canopy shall be implemented to avoid any disturbance. A low-light level scheme shall be enforced to further reduce any impacts.

This proposal will not result in an impact on badgers and no mitigation will be required with regard to these species.

The proposal will result in negligible impacts to bat species as the arable field offers no features which could be utilised as a bat roost. The retention of the hedgerow, oak tree and adjacent woodland will retain foraging, commuting and potential roosting habitats for bat species. Any increase in external lighting may have an impact of bat foraging behaviour and so a Wildlife Sensitive Lighting Plan will be adopted on site.

The proposal is unlikely to have any impact upon breeding birds but precautionary measures outlined in Section 6.2 will be adopted due to the rural location of the site.

No ponds were identified within 250m of the proposed development and so the proposal will have no impact upon great crested newts.

To provide ecological enhancement on site, a new native species-rich hedgerow will be planted along the west boundary of the site including species such as hawthorn, hazel, holly, field maple, oak, wild privet and elder. Furthermore, the area of land between the woodland and the southern-most proposed agricultural building will be reseeded with a species-rich wildflower/grassland mix.

The following features will also be installed on site following completion of works in order to provide enhanced opportunities for wildlife: two Woodcrete general purpose bat box, two Woodcrete cavity nesting bird boxes.

## 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 (3<sup>rd</sup> edn). The Bat Conservation Trust, London.

Cresswell, W. and Whitworth, R., 2004. An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt. Natural England Research Reports, p.36.

Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.

Gent, A.H., and Gibson, S.D, eds (2003) *Herpetofauna workers' manual*. Peterborough, Joint Nature Conservation Committee.

GOV.UK. (2015) Badgers: surveys and mitigation for development projects. [online] Available at: [Accessed 29 October 2021].

Harris, S., Creswell, P. and Jefferies, D. (1989) Surveying Badgers. 1st ed. London: The Mammal Society, pp.3-21.

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.

Natural England (2002) Badgers and Development. 1st ed. Peterborough: Natural England, pp.2- 12.

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

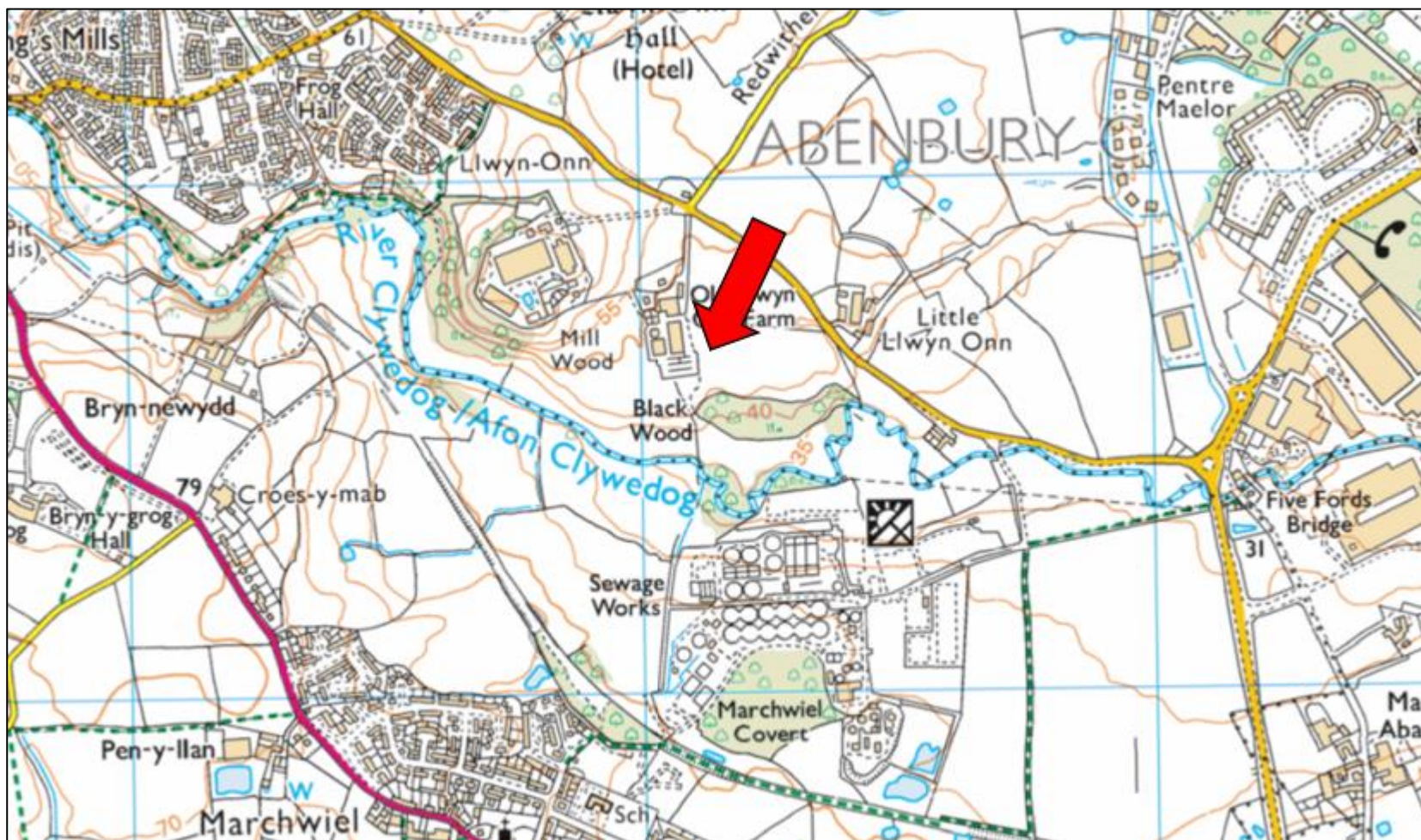




FIGURE 2 AERIAL PHOTOGRAPH



ARBOR VITAE  
ECOLOGY • FORESTRY • LAND USE



## APPENDIX 1 PHOTOGRAPHS



Showing the ploughed arable field and the adjacent waste store and agricultural buildings.



The adjacent improved grassland field.



The adjacent improved grassland field.



View of the access track, yard and cow sheds.



The adjacent woodland habitat to the south.



The lane-side hedgerow with a young oak.

