



ARBOR VITAE

ECOLOGY • FORESTRY • LAND USE



PRELIMINARY ECOLOGICAL APPRAISAL

LAND AT BETTISFIELD

Project name: Land at Bettisfield, Cadney Lane, Wrexham,
SY13 2LW

Grid Reference: SJ46193533

Date: 08/12/2021

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Requested by: Roger Parry and Partners

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1 INTRODUCTION

1.1 BACKGROUND TO DEVELOPMENT

Planning permission will be sought for the construction of nine residential dwellings on a plot of land at Cadney Lane in Bettisfield.

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.

Comments received from Natural Resources Wales on 03/12/2021 have been addressed within this amended report and for ease of assessment, all additional information has been underlined.

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 is located within a large arable field on Cadney Lane in Bettisfield (Figure 1). The land to the east of the site is dominated by intensively farmed field systems, intercepted by native species hedgerow. The west boundary of the site is met by residential properties which extends to the northwest (Figure 2). Llangollen Canal sits approximately 100m north of the site and makes up the north boundary of the arable field.

The proposals will include the construction of nine residential dwellings and all associated works.

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 26/08/2021. 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
- Otter

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 newts

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).

Otter

Any water courses within the area and appropriate terrestrial land were searched for the following field signs:

- Spraint,
- Footprints,
- Feeding remains.

3.3 PERSONNEL

The survey was carried out by Phillipa Stirling MSc ACIEEM: Ecologist.

3.4 CONSTRAINTS

There were no constraints to the survey being carried out.

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
Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses	SSSI SAC Ramsar NNR	0.85km
The search included Ramsar, SSSI, SAC, SPA, 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
Great crested newt*	<u>0.125km</u>	European Protected Species, Wildlife and Countryside Act 1981.
Kingfisher	0.5km	Wildlife and Countryside Act 1981.
Redwing	0.8km	Wildlife and Countryside Act 1981.
Fieldfare	0.5km	Wildlife and Countryside Act 1981.
*Record reported by NRW in correspondence dated 03/12/2021. No records of protected or priority species for the site itself.		

4.2 HABITATS ON SITE

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

Arable

The field site is an arable field which has most recently produced a barley crop. Arable plant species have begun to colonise the newly exposed ground including: scentless chamomile, creeping buttercup, germander speedwell, green alkanet, common fumitory, *Epilobium sp.* and several scattered oak saplings.

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.

The margins of the arable field are approximately 1m in width and contain the following plant species: scentless chamomile, common nettle, creeping thistle, curled dock, yarrow and hedge bindweed.

Hedgerow

There are three distinctive hedgerows on site:

The north hedgerow is made up of native hedge (hawthorn, blackthorn and hazel) with mature trees including one early mature oak (covered with dense ivy), holly, sycamore and wild cherry. The mature trees sit outside of the development boundary.

The west hedgerow sits along the existing road and is maintained at around 1.5m in height. Species include: hawthorn, hazel and bramble. Common nettle and hedge bindweed are common at the hedgerow base with greater willowherb also present sporadically. There is a mature hazel at the northern end of the hedgerow and a juvenile Douglas fir near to the existing entrance.

The south hedgerow is made up of 10 early mature sycamore trees with low level hedgerow at the base. Hedge plants include: hawthorn, blackthorn, holly, hazel, lilac, ash and elder. Bramble is growing along the base of the hedgerow and there are sycamore saplings scattered throughout the field beneath the trees.

4.3 ADJACENT HABITATS

Arable

The land to the east is an arable crop field.

Buildings/hardstanding

Land to the west and north is dominated by residential properties with associated driveways and road systems.

Running water

The Llangollen Canal sits at the north boundary of the larger field site. The canal is bordered by mature trees including: oak, ash, horse chestnut, sycamore and wild cherry.

4.4 PROTECTED SPECIES

Badgers

The site visit revealed no evidence of badger within the search area and there are no historic records of badger within 1km of the site.

Bats

The arable field provides low quality habitat for bat species and there are no potential roosting sites present.

The boundary vegetation including mature and juvenile trees and hedgerow could provide foraging and commuting opportunities for individual bats within the landscape.

There is one mature oak tree within the north hedgerow which is covered by dense ivy. There are no obvious holes or cavities associated with the tree but the ivy growth provides some crevices which could be used by individual opportunistic bats. The tree sits outside of the development boundary.

Breeding birds

The field site provides very limited opportunities for breeding birds, including ground nesting species.

The boundary hedgerows and vegetation could provide nesting opportunities for common birds.

Incidental records of birds whilst on site included: carrion crow, blackbird, wood pigeon and pheasant.

Great Crested Newt

No ponds were identified within 250m of the proposed development site. The closest pond which is mapped on OS lies 320m away, separated by intensively managed arable land and residential gardens.

NRW have reported that there is a record of GCN some 125m from the proposed development boundary. Looking on all OS maps available and high resolution aerial imagery, no additional ponds have been identified. It is therefore possible that the record originates from an individual which has been identified whilst travelling terrestrially after leaving its breeding pond. Around 50% of the land which lies 125m from the development boundary is intensively managed arable which provides poor quality terrestrial opportunities for GCN.

Otter

The terrestrial habitats present on site do not provide suitable opportunities for this species. No evidence of otter was recorded on site and up to 50m from the site and there are no historic records of this species within 1km of the site boundary.

5 POTENTIAL ECOLOGICAL IMPACT

5.1 HABITAT ASSESSMENT

Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses sits approximately 0.85km from the site. Expansive arable land, residential properties and agricultural grassland sit between the proposed site and the designated area with no direct link between the two. The proposed development will have no effect upon hydrological or atmospheric conditions which may be connected to the designated site and no impact is predicted.

The arable land to be development provides low quality habitat and is of negligible concern. Its loss will have no impact upon important or priority habitats.

The hedgerows which lie at the boundaries of the site are well-established and provide valuable wildlife corridors and food/nectar resources. These features will not be lost as a result of the development but the extent of this habitat type will be increased on site following development.

5.2 PROTECTED SPECIES ASSESSMENT

Badger

The survey revealed no signs of use by badger and there are no historic records of badger at the site. The proposals will have no impact on this species.

Bats

The proposals will impact arable land which is of little value to bat species. There will be no direct impact on potential roosting sites and therefore no further survey work will be required.

Given the rural location of the proposed development, it is likely that commoner bat species are present within the landscape. The construction of nine dwellings will ultimately result in an increase in artificial lighting and therefore could potentially disrupt established flight lines or foraging areas. In order to reduce the impact of artificial lighting, a Wildlife Sensitive Lighting Plan will be designed and implemented.

Breeding birds

The proposed development will not result in the removal of hedgerow features which might be used by breeding birds and therefore it is unlikely that the proposals will have any impact.

If works take place within 5m of the hedgerows it is possible that construction could disturb/disrupt breeding birds. Mitigation will be required to reduce this possibility.

Great crested newt

The development site itself provides very limited terrestrial opportunities for GCN and the only features which may be of value would be the native roadside hedgerow and rough field boundary which will remain undisturbed by the proposals.

The development area does not contain any potential breeding sites or resting and foraging opportunities for this species. Given that the nearest pond sits at 320m south west of the development boundary it is highly unlikely that any GCN dispersing from a breeding site would be moving north east, toward extensive arable fields which extends to 16ha of intermittently bare ground.

The proposed development during its construction phase is very unlikely to cause an offence under the relevant legislation due to the development area providing no suitable terrestrial prospects for GCN. Once the project is complete, it has the potential to provide habitat heterogeneity and therefore valuable foraging and resting sites for GCN in the form of residential gardens. Furthermore, the proposed hedgerow planting in Section 6.3 would provide 200m of high quality terrestrial habitat opportunities to include shelter, foraging and brumation.

In order to remove any residual risk to GCN during the construction phase of the project a Reasonable Avoidance Measures Method Statement will be implemented throughout the construction process on site. This can be found in Appendix 2.

Otter

There is no evidence to suggest that otter are present within the vicinity of the site and the proposed development will have no impact upon terrestrial habitats which would be used by this species. Overall, the development will have no impact upon otter.

6 AVOIDANCE, MITIGATION AND ENHANCEMENT

6.1 HABITAT MITIGATION

The proposed development will have no impact upon habitats of ecological value nor designated sites within 1km. No mitigation will be required in this instance.

6.2 PROTECTED SPECIES MITIGATION

Bats

Any artificial lighting will be designed with nocturnal wildlife in mind both internally and externally. 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.
- 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

A thorough ground and internal inspection should be completed prior to works commencing on site if works start between 1st March and 31st 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.

Protective barrier fencing will be installed between the site boundary and the hedgerows on site. This will ensure that the hedgerows remain free from physical disturbance throughout the construction process.

6.3 ECOLOGICAL ENHANCEMENT

The new east boundary of the arable field will be planted with a species-rich native hedgerow which will include: hawthorn, hazel, holly, elder, oak, blackthorn, dog rose, wild privet and guelder rose. The planting will include at least 7 of these. This will result in the creation of approximately 200m of new hedgerow.

Each new house on site will incorporate built-in wildlife features as follows:

- Each of the nine houses will include a built-in sparrow terrace which will sit beneath the eaves of the property within the external wall. The structures will be Schwegler 1SP or a similar approved make and model.
- Four of the properties will include a built-in bat box which will face out onto mature vegetation at the north and south end of the development. The structures will be Schwegler 1FR bat tube or a similar approved make and model.

7 SUMMARY

Planning permission will be sought for the construction of nine residential dwellings on a plot of land at Cadney Lane in Bettisfield. 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.

Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses sits approximately 0.85km from the site. Expansive arable land, residential properties and agricultural grassland sit between the proposed site and the designated area with no direct link between the two. The proposed development will have no effect upon hydrological or atmospheric conditions which may be connected to the designated site and no impact is predicted.

The arable land to be development provides low quality habitat and is of negligible concern. Its loss will have no impact upon important or priority habitats.

The hedgerows which lie at the boundaries of the site are well-established and provide valuable wildlife corridors and food/nectar resources. These features will not be lost as a result of the development but this habitat type will be increased on site following development.

The survey revealed no signs of use by badger and there are no historic records of badger at the site. The proposals will have no impact on this species.

The proposals will impact arable land which is of little value to bat species. There will be no direct impact on potential roosting sites and therefore no further survey work will be required.

The construction of nine dwellings will ultimately result in an increase in artificial lighting and therefore could potentially disrupt established flight lines or foraging areas. In order to reduce the impact of artificial lighting, a Wildlife Sensitive Lighting Plan will be designed and implemented.

If works take place within 5m of the hedgerows it is possible that construction could disturb/disrupt breeding birds. Mitigation will be required to reduce this possibility.

The proposed development during its construction phase is very unlikely to cause an offence under the relevant legislation due to the development area providing no suitable terrestrial prospects for GCN. In order to remove any residual risk to GCN during the construction phase of the project a Reasonable Avoidance Measures Method Statement will be implemented throughout the construction process on site.

There is no evidence to suggest that otter are present within the vicinity of the site and the proposed development will have no impact upon terrestrial habitats which would be used by this species. Overall, the development will have no impact upon otter.

Ecological enhancement will include:

- The new east boundary of the arable field will be planted with a species-rich native hedgerow which will result in the creation of approximately 200m of new hedgerow.
- Each of the nine houses will include a built-in sparrow terrace which will sit beneath the eaves of the property within the external wall.
- Four of the properties will include a built-in bat box which will face out onto mature vegetation at the north and south end of the development.

8 REFERENCES

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FIGURE 1 LOCATION. 1:50,000



FIGURE 2 AERIAL PHOTOGRAPH



APPENDIX 1 PHOTOGRAPHS



The site looking northwest.



The site looking southeast.



Hedgerow and trees at west boundary





Row of sycamore at south boundary.



Existing access to the site.



APPENDIX 2 REASONABLE AVOIDANCE MEASURES METHOD STATEMENT

Great Crested Newts (GCN) are a European Protected Species (EPS) and they and their habitats are fully protected under national (Wildlife & Countryside Act 1981 (as amended)) and European law (The Habitats and Species Regulations 2017 (as amended)). The combined legislation makes it illegal to:

- deliberately capture, kill or injure a great crested newt;
- damage or destroy a breeding site or resting place;
- intentionally or recklessly obstruct access to any place used for shelter and protection including resting and breeding places, whether occupied or not;
- deliberately, intentionally or recklessly disturb a great crested newt when in a place of shelter;
- possess a great crested newt, or any part of it, unless acquired lawfully;
- sell, barter, exchange or transport or offer for sale great crested newts or parts of them.

Induction of contractors

- A toolbox talk will be given to all site personnel in order to make them aware of the unlikely presence of GCN, how to identify this species and the avoidance measures to be used on site.
- A paper copy of the avoidance measures will be retained on site together with the contact details of the GCN licensed ecologist.

Timing

- All works will take place during daylight hours when GCN are unlikely to be moving around the area.
- The ground works can proceed at any time throughout the year given that the land to be disturbed is an intensively managed arable field.

Protective fencing

- The hedgerow along the west boundary of the site will be protected during construction works by Heras fencing. This will be installed at least 1m from the spread of the hedge and before any work on site begins. This will ensure that the base of the hedgerow remains free from any disturbance throughout the project.
- The same type of fencing will also be installed between the north and south boundary of the site to protect the vegetation found here.



Site clearance

- The area within the site boundary will remain as bare ground for at least 2 weeks before works begin on site.
- Any stored materials will be removed from site during the GCN active season- this is from March until October or when night time temperatures are 5°C or above. This will aim to remove any materials which could act as a refuge for GCN.

Site compound

- The site compound will be situated on a designated area of bare ground to avoid creating GCN resting places beneath stored materials etc.
- All site materials will be stored on pallets or other raised objects to avoid creating resting places/refuges for GCN.
- Any toxic or poisonous materials will be safely stored within a locked container.

Construction methods and special precautions

- All excavations on site will be covered at night or ramps will be provided to allow amphibians to exit excavations. All excavations will be checked for amphibians each morning prior to the re-commencement of works.
- All exposed new pipework and drains will be capped at night so as to avoid trapping amphibians.
- All excavated materials/waste will be stored in skips or similar and not on the ground where it could be used as a refuge/resting area by amphibians. Alternatively, all waste will be removed from site daily.
- All stored building materials that might be used as temporary resting places by amphibians will be stored off the ground on pallets or similar.

If GCN are found at any point during the development or activities outlined above, works must stop and an appropriately qualified ecologist will be contacted for advice, as well as Natural Resources Wales.

Contractors are prohibited from handling GCN.

