Greenscape Environmental Ltd

MR N BARKER

ECOLOGICAL APPRAISAL
& PHASE 2 SURVEYS FOR BATS

CARREG FARM
SELATTYN
OSWESTRY
SY10 7NX

JUNE 2018

1975 002R

Report by Ben Jones BSc (hons) MSc

Greenscape Environmental, Long Acres, Lyth Bank, Shrewsbury, SY3 0BW
01743 872900 **info@greenscapeenvironmental.co.uk**

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Report by:	B. Jones BSc(hons) MSc **Consultant**		April 2018
Reviewed by:	L. Maggs BSc(hons) **Lead Consultant**		April 2018
Updated by:	B. Jones BSc(hons) MSc **Consultant**		June 2018

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The report should be read in its entirety.

Questions arising from the survey report should be directed to the author of this report who will be pleased to clarify any technical issues raised.

Whilst the surveyors make every reasonable effort, Greenscape Environmental Ltd cannot guarantee that all protected species have been identified and survey results are definitive. Many species are cryptic and transitional in habit.

Reports are considered valid for one year for planning purposes after which time further survey information may be required.

Greenscape Environmental Ltd can provide advice and support for recommendations and planning conditions.

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1 Summary

1.1 Purpose of the Report

Greenscape Environmental Ltd was commissioned by Design & Planning Associates Ltd on behalf of the client, Mr N Barker, to conduct a survey determining the presence of protected species and potential for the damage or destruction of valuable, ecologically significant habitats as part of the planning application for the renovation and extension of a storage barn at Carreg Farm.

This document outlines the potential impacts as ascertained from the preliminary ecological assessment, and recommends measures to avoid, reduce or manage negative effects.

1.2 Methodology

The appraisal of the site included a desk study of the area, reviews of other surveys previously conducted in the area by Greenscape Environmental and a phase 1 environmental appraisal.

The phase 1 ecological appraisal was undertaken at the site, OS grid reference SJ2435 3539 on 11th April 2018 by B Jones. A precautionary bat survey was conducted on 15th June 2018 by B Jones and R Wilson.

1.3 Key Issues

No designated sites were found within the vicinity of the site and therefore no negative impact is expected from the development.

Records of protected species within 2km include water vole, otter, badger and hedgehog.

The site comprises a stone building with corrugated metal roof. Evidence of nesting birds was found in the lean-to on the southern gable end. Potential for bats was found amongst the stonework, but no evidence was found. The building is low suitability for bats and so a single precautionary bat activity survey was conducted. No evidence of bats using the building was found.

One pond is found within 250m, but this is only standing water at the end of a field, most likely due to recent heavy rainfall. No aquatic plants were present, and no invertebrates found. No further survey with respect to great crested newts is considered necessary.

1.4 Impacts and Mitigation Measures

It is recommended that the biodiversity is enhanced post-construction with the inclusion of bat and bird boxes.

1.5 Conclusions

A precautionary bat activity survey was conducted and did not find evidence of bats using the building so no negative impact on bats is expected from the development. A method statement outlining reasonable avoidance measures for birds and amphibians/reptiles will be followed.

The client has agreed to install bat and bird boxes around the site.

There are no other ecological constraints to the development as currently proposed.

2 Introduction

This report has been compiled by Ben Jones BSc (hons) MSc who has 3 years' experience conducting ecological appraisals. It has been reviewed in line with Greenscape's Quality Management System.

For details of surveyors and licences please see Appendix A.

Greenscape Environmental Ltd was commissioned by Ms Z Edwards of Design & Planning Associates Ltd on behalf of the client, Mr N Barker, to conduct a survey to determine the presence of protected species and potential for the damage or destruction of habitats of ecological value, as part of the planning application for the proposed development at Carreg Farm.

2.1 Project Background

The project involves the internal renovation and small extension on either side of an old agricultural barn currently used for storage.

2.2 Purpose of the Report

The aim of this survey is to locate and describe, as far as reasonably practicable, evidence of wildlife, including all protected and BAP species, which may be disturbed or lost in the event of development.

The purpose of the report is to:

1. Identify the key ecological constraints to the proposed development
2. Inform planning to allow significant ecological effects to be minimised or avoided wherever possible
3. Allow any necessary mitigation or compensation measures to be developed

The Local Planning Authority (LPA) will require further information regarding bats as it meets at least one of the trigger points set out in section 1.2.3.2 of the Good Practice Guidelines, BCT (2016).

2.3 Planning Policy and Legislation

The relevant planning policy and legislation to the current development is:

The Wildlife and Countryside Act 1981 – as listed in:
Schedule 1. Birds protected by special penalties at all times
Schedule 5. Protected animals
Schedule 8. Protected plants

The Conservation of Habitats and Species Regulations 2017 – as listed in:
Schedule 2. European protected species of animals
Schedule 5. European protected species of plants

Countryside and Rights of Way Act (2000)

Natural Environment and Rural Communities Act 2006 (NERC 2006)

Section 7 of the Environment Act (Wales) 2016

Circular 06/2005: Biodiversity and Geological Conservation

2.4 Site Context and Location

The site is located to the northwest of Selattyn and is on the side of the B4579 road towards Glyn Ceiriog, OS grid reference SJ2435 3539. It is set in a rural environment surrounded by open farmland and scattered dwellings. There is some connectivity to the surrounding countryside via field boundary hedgerows and small pockets of woodland nearby.

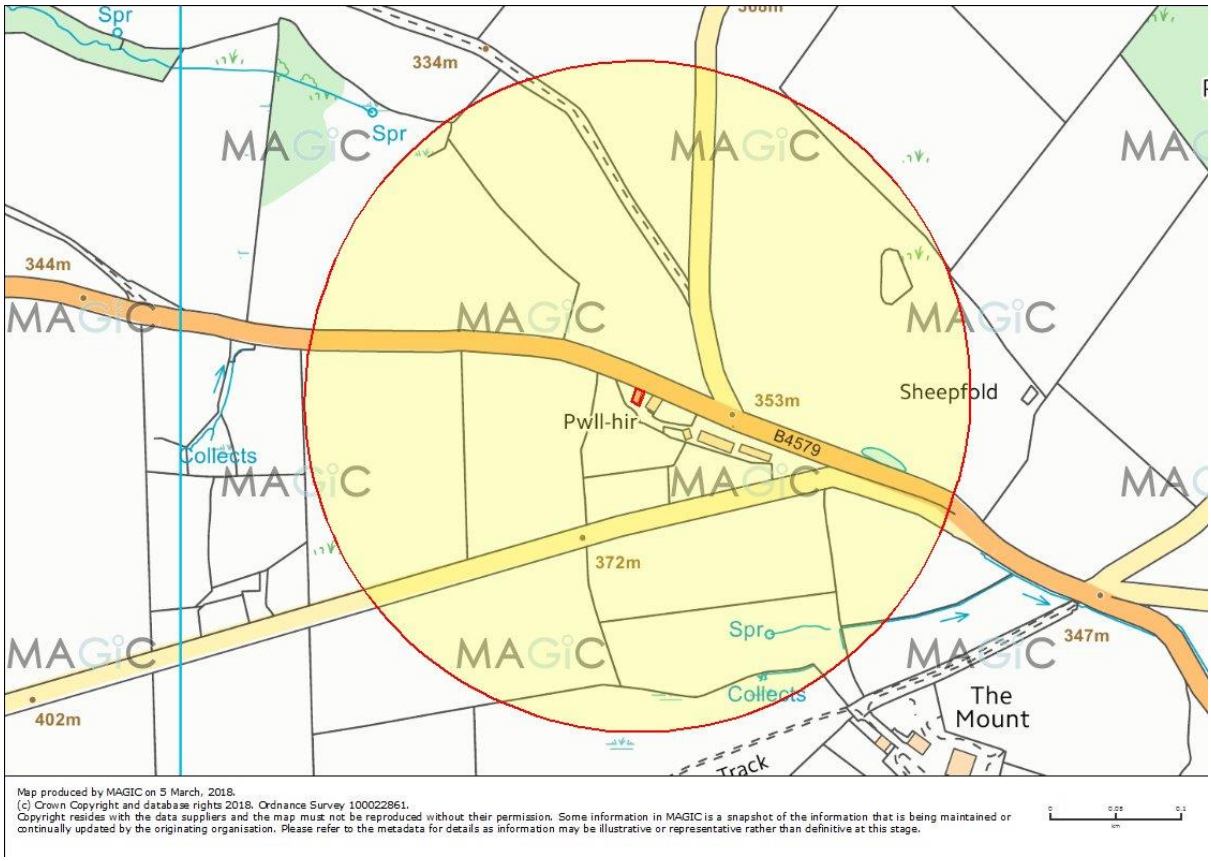

Figure 2.1. An OS map showing the site (centre, highlighted) with 250m buffer

2.4.1 Date and Survey Conditions

The phase 1 ecological appraisal was undertaken at the site on 11th April 2018 by B Jones. The conditions on the survey dates were optimal for the type of survey conducted.

Table 2.1: Survey date and conditions

Date	Time	Temp °C Start-Finish	Sunset / Sunrise	Condition
11/04/18	10:15	6	n/a	Overcast, damp underfoot
15/06/18	03:15-05:00	13-12	04:47	10% cloud, dry underfoot, F0-1 breeze

3 Methodology

3.1 Desk Study

The desk study provides contextual information such as the site's proximity to designated areas and known records of protected/notable species. This assists with the evaluation of the ecological value of the site.

The appraisal of the site included a desk study which took place in April 2018.

3.2 Field Survey

3.2.1 Habitats

An assessment of habitats was conducted following the "Extended Phase 1 Methodology" (Institute of Environmental Assessment 1995) and broadly the JNCC Handbook for Phase 1 Surveys 2010. Target notes were used to identify potential for protected or notable species or habitats, and to give more detailed site descriptions.

The level of survey is aimed to identify field signs of or habitats with the potential to support protected species and therefore assist in the determination for detailed phase 2 surveys.

3.3 Species Survey

The building was assessed for potential for bat roosts, foraging and commuting. In accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins (2016).

The building was assessed for potential for nesting birds.

The assessment of aquatic habitat for GCN is based on the Habitat Suitability Index (HSI).

The terrestrial habitats at the application site were surveyed and assessed regarding their suitability and potential value in supporting GCN.

3.4 Constraints of the Survey

All areas were accessible for both surveys. They were conducted at an optimal time of the year for the type of assessment conducted. Standard techniques were followed, as outlined in Appendix B. No specific constraints have been identified.

4 Site Description

4.1 Desk Study

4.1.1 Designated Sites

The map from Natural England presented in Appendix C indicates that the site is not within 1km of a designated area.

4.1.2 Records

No bats are recorded within 2km according to the NBN Atlas, though this is likely due to a lack of development in the area, rather than a lack of presence.

Full records from the desk study can be found in Appendix C.

4.2 Field Survey-Phase 1 Description and Observations

The site comprises a redundant agricultural building which is currently used for storage. It is immediately surrounded by gravel driveways and disturbed ground. To the south of site are unmanaged grasslands with lots of ruderal growth.

The habitats on and around the site can be summarised as follows:

Table 4.1: Summary of habitats on and around site

	Habitat	JNCC code
i.	Buildings	J3.6
ii.	Hardstanding	J4
iii.	Disturbed land	J1.3
iv.	Ruderal vegetation	C3.1
v.	Wall	J2.5

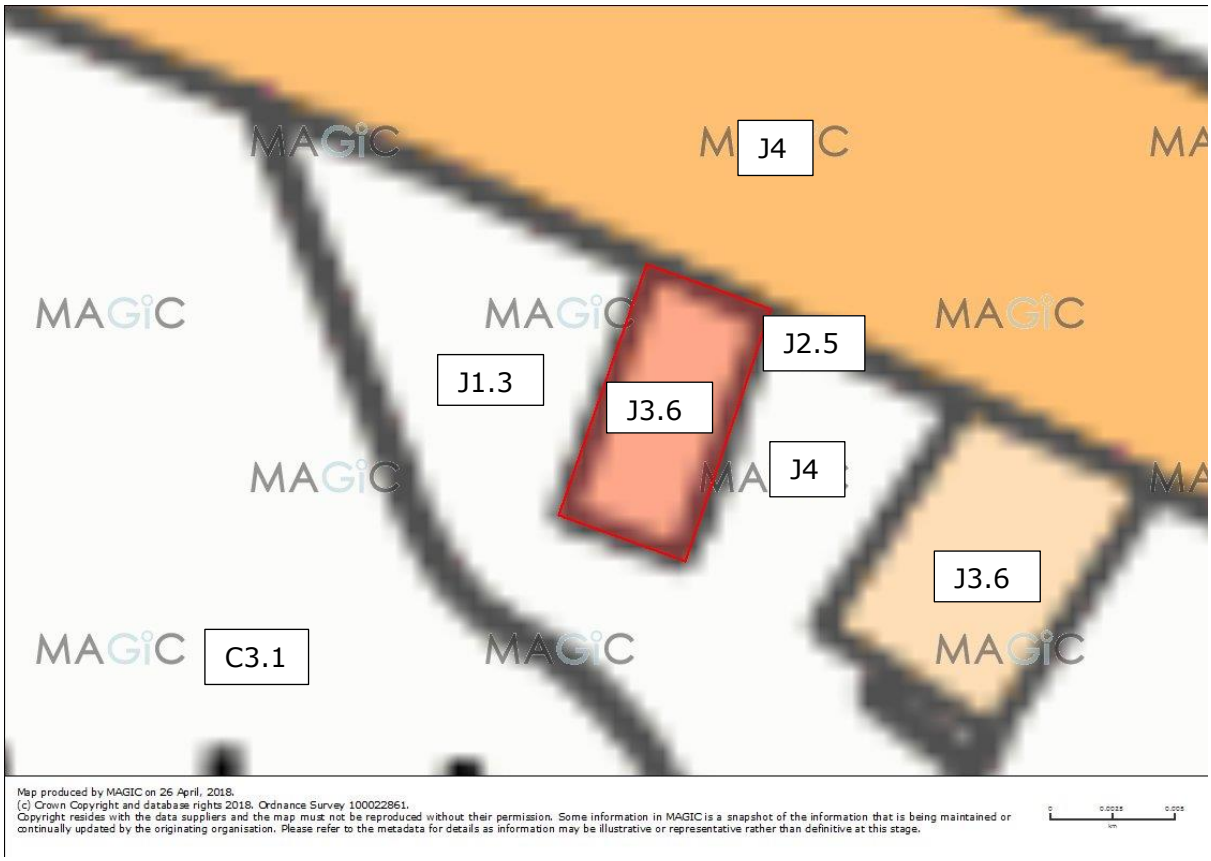

Figure 4.1. A map showing the JNCC phase 1 habitat classification codes for the site

4.2.1 Building

The building has previously been used for agricultural purposes, though is currently used for domestic storage. It is constructed of local stone bonded with lime mortar, as is typical of the buildings in the area. The roof is corrugated sheet metal supported on a timber frame. The roof over the northern end of the building has been lined with wood and insulated with fibreglass, whilst the other end of the roof is unlined.

Figure 4.2. Southern gable end

Figure 4.3. Roof over southern room

Figure 4.4. Wooden lining under northern roof

The whole building was thoroughly searched for evidence of bats such as droppings or staining, but none was found. Several droppings were seen on window ledges on the western face of the building but closer inspection revealed them to be mouse droppings.

Figure 4.5. Mouse droppings

Whilst no direct evidence was observed, there were potential roost features for individual bats on the inside of the southern room where the mortar was failing and creating gaps between the stones. Whilst the doors to this room are typically closed, they are not airtight and left a gap which might be used by individual bats.

Figure 4.6. Crack above doorway large enough for bats

The southern gable end has a small lean-to attached to it which will be removed as part of this development. Inside there were at least two bird nests.

Figure 4.7. Bird nest in lean-to

There is a gravelled area on the eastern side of the building which is currently used as a rockery and flowerpot display. It is raised from ground level by a small stone wall no more than 30cm high. This will all be removed to make way for the extension. No evidence of protected species was found in this area, but the gaps in the stone wall might provide suitable habitat for amphibians in their terrestrial phase.

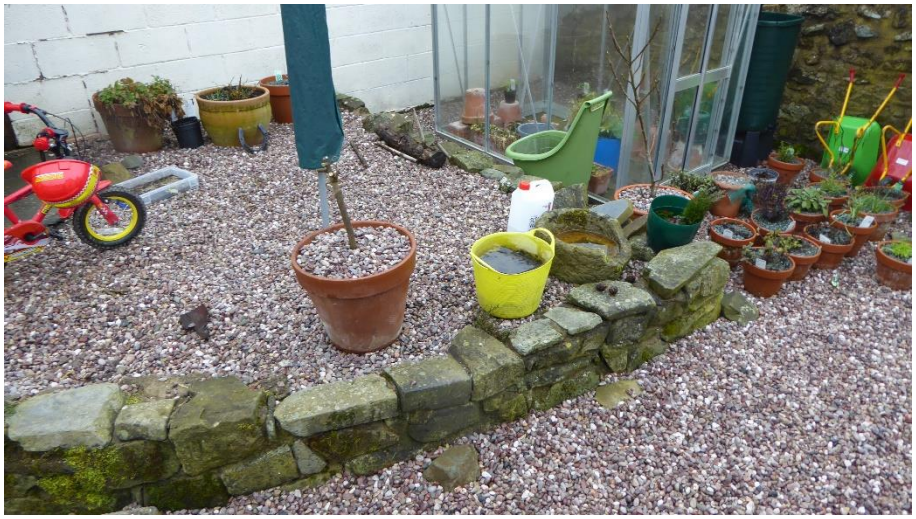

Figure 4.8. Raised area

4.2.2 Boundaries

Along the roadside and planned to form one wall of a proposed extension, is a stone wall. This was checked for evidence of protected species, but none found.

Figure 4.9. Wall seen extending from building

The southern boundary is a bank raising the ground level up to match the fields. This will not be altered by the proposed development.

Figure 4.10. Bank

4.2.3 Open Water

Scrutiny of the OS map (Fig 2.1) showed one pond within 250m of the site.

Table 4.2: Ponds within 250m

Pond Number	OS Grid Reference	Distance from Site
1.	SJ24533535	180m

When the pond was examined it was found to be a large expanse of surface water at the lower edge of a field. The lack of aquatic vegetation and continuation of terrestrial species throughout the water body suggests that the pond is either extremely ephemeral or no longer present and the water present was as a result of recent heavy rainfall. The pond was seen to be completely dry during other commutes undertaken by the surveyor in the time since the initial survey.

Figure 4.11. The "pond"

No further survey with respect to great crested newts is considered necessary.

4.3 Phase 2 Survey for Bats

A precautionary survey was conducted on 15th June 2018. It was a dawn survey conducted by two surveyors, stood either side of the building on opposite corners so that all sides of the building could be assessed at once.

The first bat seen was a common pipistrelle at 03:26, approximately 1 hour 21 minutes before sunrise. The bat was foraging up and down the road to the north of the building, following the tree line.

At 03:39 a lesser horseshoe bat foraged along the road, flying to the east. This bat did not enter the building or show any interest at all.

All activity was foraging until 03:50 when 9 common pipistrelles were seen swarming and entering the neighbouring building at the peak of the gable end on the southern side of the building.

No bats were seen re-entering the building proposed for conversion. This reinforces the findings of the initial phase 1 survey where no evidence of bats was found.

It is not considered likely that this development will have any negative impact on the local bat species. With the erection of bat boxes around site it is likely that the development will result in a positive enhancement for bats compared to the current opportunities.

5 Evaluation of Results

5.1 Potential Impacts on Designated Sites and Recorded Species

5.1.1 Designated Areas

The nearest SSSI is approximately 2.5km away. This is the Afon Dyfrdwy (River Dee) SSSI and is designated for geographical reasons, saltmarsh transition habitats, flora such as floating water plantain and fauna such as otter and salmon.

Given the type of works planned and the distance to the site no impact is expected from this development.

5.2 Habitats on Site

Table 5.1: Summary of habitats on site

Habitat type	Is the habitat capable of supporting protected species	Impact without consideration
Building	Some mortar gaps with potential access for bats. Bird nests seen in lean-to	Low negative impact
Hardstanding	Gravelled area raised by small stone wall – to be removed. Potential for sheltering amphibians	Low negative impact
Wall	Stone wall to be incorporated into new extension. No gaps in stonework evident.	No negative impact

5.3 Ecologically Important Species

Table 5.2: Summary of protected species on site with recommendations

Species	Observations	Impact without consideration	Recommendations
Mammals			
Bats	Potential habitat for individual bats, no evidence of usage seen during activity survey	Low negative impact	Enhancement by erection of bat box.
Birds			
Nesting birds	Nests seen in lean-to on southern gable end	Low negative impact	All clearance to be undertaken outside nesting period Feb-Aug inclusive. New nest box provision
Herpetofauna			
Reptiles	Some suitable shelter in small stone wall	Low negative impact	Stone wall removed under method statement
Great Crested Newts	Some suitable shelter in small stone wall	Low negative impact	Stone wall removed under method statement

5.3.1 Bats

All bat species are protected under the Conservation of Habitats and Species Regulations 2017 which implements the EC Directive 92/43/EEC in the United Kingdom. It is an offence, with certain exceptions, to:

- deliberately capture or kill any wild animal of a EPS.
- deliberately disturb any such animal.
- damage or destroy a breeding site or resting place of such a wild animal.
- keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a EPS, or any part of, or anything derived from such a wild animal or plant.

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to an unlimited fine or to both.

To allow a development that might result in an offence, a derogation licence can be sought via the implementation of a European Protected Species Licence. This is provided by Natural Resources Wales.

Work can be conducted under a derogation licence from Natural England providing suitable compensation and mitigation is provided and the "three tests" can be met. These are:

1. Regulation 55(2)(e) states: a licence can be granted for the purposes of "preserving public health or public safety" or other imperative reason of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

2. Regulation 55(9)(a) States: the appropriate authority (Natural England) shall not grant a licence unless they are satisfied "that there is no satisfactory alternative"

3. Regulation 55(9)(b) states that the appropriate authority shall not grant a licence unless they are satisfied "that the action licensed will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in its natural range."

A single precautionary bat activity survey was conducted to determine usage of the building. This was considered sufficient as the building is of low value and a single survey is recommended in table 7.1 of the Good Practice Guidelines, BCT (2016).

All activity seen on the bat survey was foraging along the road until 9 common pipistrelles entered a roost space in the neighbouring building. No swarming or activity was seen around the building to be converted. The building was periodically checked inside and no bats were seen inside, nor was any evidence – matching the findings of the initial survey.

The site will be enhanced post-construction with the erection of at least one artificial bat roost box.

5.3.2 Birds

Under Section 1 of the Wildlife and Countryside Act 1981 (as amended), birds, their nests and young are all protected from damage, particularly during the breeding season. The Act allows for fines or prison sentences for every bird, egg or nest destroyed. It makes it an offence to:

- Intentionally kill, injure or take any wild bird.
- Take, damage or destroy the nest of any wild bird whilst it is in use or being built.
- Take damage or destroy the egg of any wild bird.

- To have in one's possession or control any wild bird, dead or alive or egg or any part of a wild bird or egg.

Nests were seen in the lean-to on the southern gable end. It will therefore be recommended that the necessary works to seal the building and remove this lean-to be conducted out of the bird nesting season (February to August inclusive) and there will be enhancements in the form of the erection of nesting boxes post-construction.

5.3.3 Amphibian and Reptiles

All species of amphibians receive a measure of protection under legislation.

The Wildlife and Countryside Act 1981 has been amended by the Countryside and Rights of Way Act (CRoW) 2000. This applies to England and Wales only. The key relevant fact is:

- Section 9(4) is amended to create and additional offence of reckless damage to, destruction of, or obstruction of access to, any structure or place used for shelter or protection; and reckless disturbance while occupying such a structure or place.

This means that any application for planning permission has to offer mitigation to the planners to alleviate any potential damage (i.e. provide reasonable avoidance).

Great Crested Newts

GCN are protected under the Conservation of Habitats and Species Regulations 2017 which implements the EC Directed 92/43/EEC in the United Kingdom. It is an offence, with certain exceptions, to:

- Deliberately capture or kill any wild animal of an EPS.
- Deliberately disturb any such animal.
- Deliberately take or destroy eggs of any such wild animal.
- Damage or destroy a breeding site or resting place of such a wild animal.
- Keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of an EPS, or any part of, or anything derived from such a wild animal or plant.

GCN are listed as a priority species on the UK Biodiversity Action Plan (BAP) and Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to an unlimited fine, or to both.

The OS maps only showed one pond within 250m. This is not a traditional pond, instead it is standing water at the edge of a field. It was netted over the fence where possible without trespassing on the field itself and no invertebrates were seen. There are no aquatic plants in the water, suggesting it is highly ephemeral or the presence of water is only due to recent heavy rainfall.

No further survey with respect to great crested newts is considered necessary. The small stone wall may provide shelter for newts and so will be removed according to a method statement. This method statement will also outline good working practices to protect newts and other amphibians or reptiles in the area.

6 Impacts and Mitigation Measures

To reduce or minimise negative impact on biodiversity, the following recommendations have been made. The client has agreed to install bat and bird boxes around the site.

6.1 Bats

Work can begin as soon as planning permission has been granted.

6.1.1 Enhancements for Bats

1. It is recommended that provisions will be made for increasing roosting opportunities for bats, via the erection of at least one Kent-style bat box in the nearby trees or the new building. These will be erected at a height of 3-4m and in a southerly, westerly or easterly facing direction.

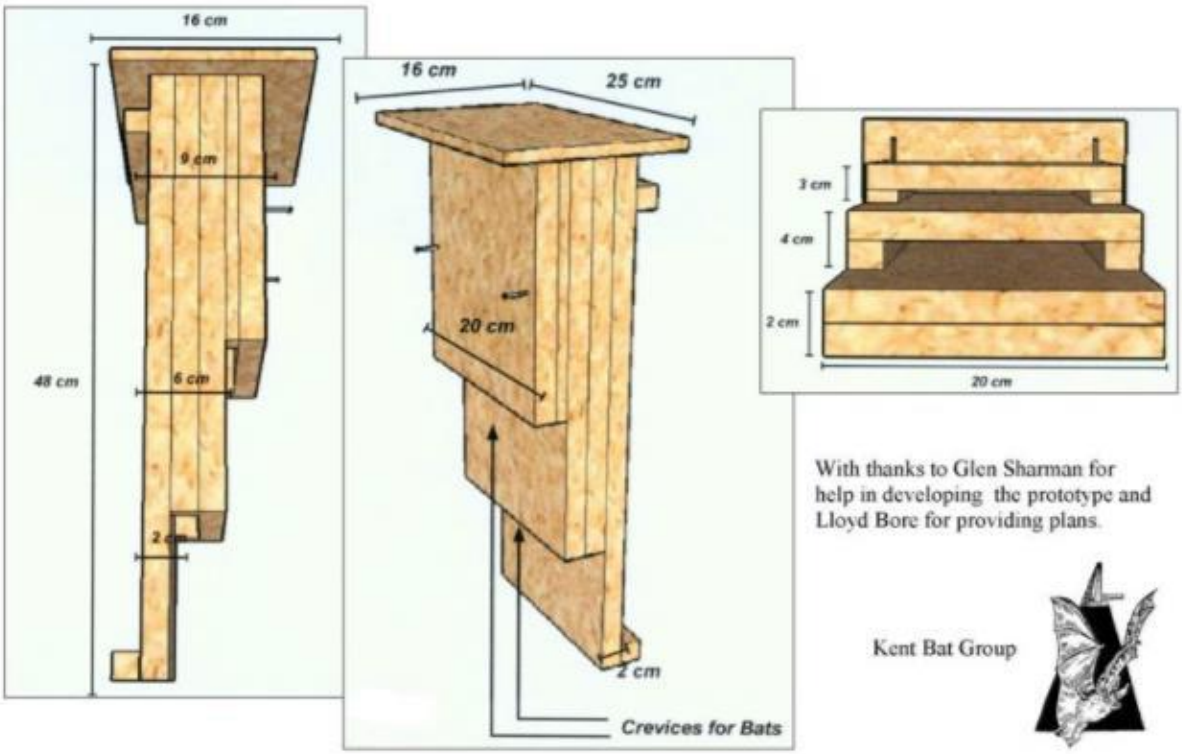

Figure 6.1: Designs for a Kent-style bat box

6.2 Birds

6.2.1 Reasonable Avoidance Measures

1. Any building removal or sealing will occur out of the bird nesting season, which is February to August inclusive. If this is not possible, a suitably experienced ecologist will conduct a check within the 24 hours prior to work commencement to ensure no nesting birds will be affected.

2. All nesting birds will be left undisturbed until young have fledged. A 4m buffer will be left.

6.2.2 Enhancements for Birds

1. It is recommended that a range of artificial woodcrete boxes are erected around the site to provide an enhancement for passerine birds. A selection of the following nest boxes is recommended.

Cedarwood Sparrow Terrace

Schwegler 1b Bird Box

Swallow Nest Cup

Figure 6.2: Provision for bird boxes

6.3 Amphibians and Reptiles

6.3.1 Reasonable Avoidance Measures

1. The low stone wall to the east of the building will be carefully removed by hand.

2. All cabins and equipment will be located on firm compacted ground, preferably a stone or concrete base.

3. All work will be conducted during daylight hours as newts are least likely to move during this time.

4. Trenches will be dug and filled in on the day created or will be covered over with close fitting boards at the end of each working day and checked the following morning. This is particularly important when newts are most active, between March and November.

5. If necessary, a ramp will be placed in trenches to allow newts and small mammals to escape.

6. Stored material will be raised on pallets to reduce the potential they might act as a temporary resting place. This reduces the potential for damage or destruction of

individual newts.

7. All waste will be placed straight into skips to reduce the potential of creating refugia.

8. If a newt is found, then work WILL stop immediately, and the ecologist contacted for advice.

9. Great crested newts will not be handled or moved without express permission from Natural Resources Wales as this would constitute an offence.

7 Concluding Remarks

The survey has focused on bats, birds and amphibians/reptiles.

The stone walls inside the southern room of the building had some potential roost features suitable for individual bats. Whilst no direct evidence was found, the building is considered to have low suitability, and so a precautionary bat activity survey was conducted as recommended in the guidelines. This was conducted on 15th June 2018 and found no evidence of bats using the building. No negative impact on local bats is expected from this conversion. The site will be enhanced for bats with the inclusion of at least one artificial roost box around site which will result in a net positive enhancement for local bat species.

Bird nests were seen in the lean-to on the southern gable end. This is planned for removal, and the rest of the building will be sealed as part of the development. This work will be conducted outside of bird nesting season to avoid disturbance of birds on the nest which would constitute an offence. Artificial nest boxes will be erected around site to provide replacement habitat.

There is one body of water within 250m, but this is standing water at the end of a field and is not a typical pond. There are no suitable egg laying features in the area and it is separated from nearby ponds by highly unsuitable land. It is not considered likely to be used by great crested newts or any other amphibians. There is a small stone wall to be removed to make way for an extension of the building. Gaps in this stonework may provide suitable shelter for amphibians in their terrestrial phase or reptiles at any other time. It will be removed according to the method statement provided in this report to ensure no damage or destruction of individual amphibians or reptiles.

The method statements provided in this report will be followed, and works will be done at a suitable time of year. This will result in there being no further ecological constraints to the development.

Appendices

A **Details of Surveyors**
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B **Detailed Methodology**
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C **Desktop Study**
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D **Site Plans**
Sheet(s): 1

E **Bibliography**
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A Details of Surveyors

Table A.1: Surveyor experience and licences

Name	Membership of associations/ experience	Licenses
Peta Marshall BSc(hons)MA	**Principal Consultant** MCIEEM PIEMA Peta has a degree in Applied Biology and has been working in commercial environmental assessment for over 10 years. She has 10+ years' experience surveying for protected species. As a member of the CIEEM she is bound by professional conduct.	Holder of survey licenses for bats and newts in England and Wales. Registered Consultant for Low Impact Class Licence for Bats England: 2015-12200-CLS-CLS Bats RC084 BLICL 2015-18939-CLS-CLS GCN Dormice-2017-29225-CLS-CLS Wales: Bats-77554:OTH:CSAB:2017 GCN-77574:OTH:SA:2017
Logan Maggs BSc(hons)	**Lead Consultant** Logan has a degree in Conservation and Land Management. He has 9 years' experience conducting environmental appraisals and phase 2 surveys for bats and newts in England and Wales.	Holder of survey licenses for bats and newts in England and Wales. England: Bats - 2016-24901-CLS-CLS GCN - 2017-29218-CLS-CLS Wales: Bats - 75748:OTH:CSAB:2017 Newts - 75963:OTH:SA:2017
Ben Jones BSc(hons) MSc	**Consultant** Ben has a degree in Marine and Freshwater biology and a Master's degree in "Managing the Environment". He has 3 years' experience conducting environmental appraisals and phase 2 surveys for bats and newts in England and Wales.	Holder of survey licenses for bats and newts in England and Wales. England: Bats - 2017-29112-CLS-CLS GCN - 2016-25209-CLS-CLS Wales: Bats – 76324:OTH:CSAB:2017 GCN - 78716:OTH:SA:2018
Brian Marshall	**Technical Director** CEnv PEA MIEMA Consultant with over 30 years in the Environmental Sector	

B Detailed Methodology

Desk Study

Table B.1: Data sources

Organisation/Resource	Information Assessed
Freely available online species datasets (NBN Atlas)	Statutory Designation (2km) Non-statutory designations (2km) • Local Nature Reserves Protected/UK BAP Species records (2km)
MAGIC website	International statutory designations (1km) • Special Protection areas (SPA) • Special Areas of Conservation (SAC) • RAMSAR sites National statutory designations (1km) • Sites of Special Scientific Interest (SSSI) • National Nature Reserves (NNR) EPS Licenses for protected species (2km)
Local Records Centre	Protected/UK BAP Species records (2km)

The National Biodiversity Network (NBN) Atlas was checked to ascertain whether a full data search from Shropshire Environmental Data Network (SEDN) was proportionate to the size of the development. This would identify the protected species that have formally been recorded in the area.

A search on Multi Agency Geographic Information for the Countryside (Magic Maps) determined nearby designated areas. The map is presented in Appendix A.

Species Survey

Bats

Buildings were assessed for potential for bat roosts, foraging and commuting.

An external assessment of all structures on site was undertaken to determine potential roost features (PRF) The potential suitability of the structures assessed was assigned a rating of low to high in accordance with table 4.1 of Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins (2016).

An internal assessment of all structures was undertaken by a Natural Resources Wales licensed surveyor for evidence of roosting bats such as droppings, feeding remains and staining.

Daytime surveys were conducted with the aid of a strong torch and a pair of Pentax Papilio 8.5x21 close focus binoculars. Bat species may leave little evidence of their presence. Evidence for the presence of bats includes:

- Holes, cracks and rot holes used as roosts, marked by streaks of urine and faeces.
- Smoothed, darkened edges where bats have rubbed and left natural body oils when entering and exiting a space.
- Faeces under a roof access point, a well-used feeding point or a resting spot.
- Feeding signs such as discarded insect wings under a feeding point.
- Lack of cobwebs around eaves, roof spaces, beams or ceilings where routes are kept clear by bats.
- Presence of roosting or dead bats in or behind any object.

Phase 2 bat activity surveys were conducted to reinforce the findings using heterodyne and frequency division bat detectors (Anabat Walkabout, Wildlife Acoustics Echo Meter Touch). Activity surveys are conducted to establish the presence of bats within a structure, what species they are, approximately how many are present, and if possible, where they are exiting a roost.

Methodology used is in accordance with recommendations by BCT, Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Collins (2016).

Bats were identified from the characteristic echolocation calls using appropriate computer sonogram analysis software.

Birds

Evidence of nesting birds, including barn owls using a building involved looking for:

- Presence of nests
- Collections of droppings and/or feathers
- Highly distinctive droppings or splats under roosting points.
- Presence of owl pellets/feathers

Amphibians and Reptiles

The assessment of aquatic habitat is based on the Habitat Suitability Index (HSI) and is applied according to guidance set out by the Oldham 2000, superseded by ARG in 2010, ARG UK Advice note 5. The HSI is a quantitative method of assessing the potential quality of a body of water in terms of its ability to sustain a population of great crested newts.

The terrestrial habitats at the application site were surveyed and assessed for their suitability and potential value for the support of GCN. The general topography, ground conditions and presence or absence of vegetation were recorded. A refugia search was conducted for amphibians and reptiles by looking under any logs, large stones and other debris.

C Desktop Study

Designated Sites

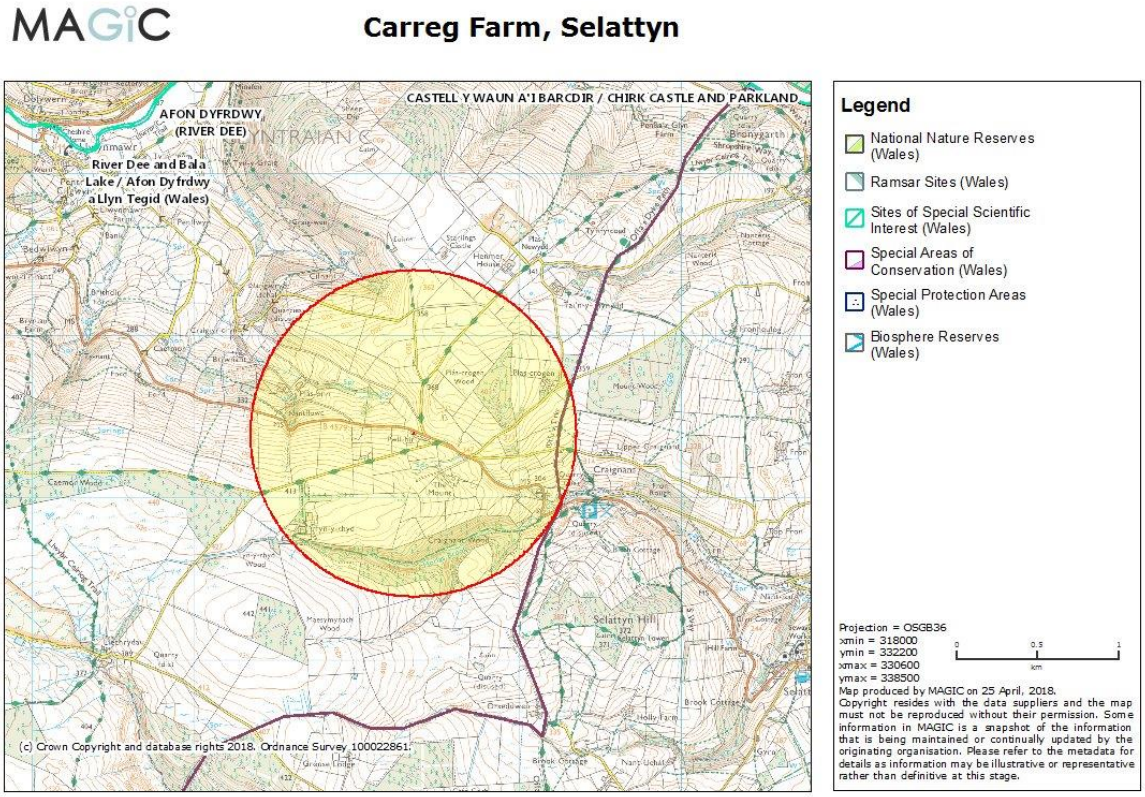


Figure C.1: An Environmental map for Carreg Farm taken from - Nature on the Map- Magic Maps. © Natural England copyright. Contains Ordnance Survey data © Crown copyright and database right 2018.

The map from Natural England presented in Figure C.1 indicates that the site is not within 1km of a designated area.

The nearest SSSI is approximately 2.5km northwest of the site. This is the Afon Dyfrdwy (River Dee) SSSI and is designated for geographical reasons, saltmarsh transition habitats, flora such as floating water plantain and fauna such as otter and salmon.

Records

A desk search was conducted focussing on the area within 2km of the site. Unless stated otherwise, all records were provided to the NBN Atlas under the Creative Commons licence: CC-BY. The following species have official records in that area:

Bat species:

The NBN Atlas does not hold any records for bats in the area. This is most likely due to the lack of developed land within 2km.

Other mammals:

Water vole (*Arvicola amphibius*)
Hedgehog (*Erinaceus europaeus*)
Otter (*Lutra lutra*)
Badger (*Meles meles*)

The NBN Atlas holds historic records of water vole, hedgehog, otter and badger at a site approximately 760m to the southeast. The water vole and badger records are from 1974 and the hedgehog and otter records are from 1973.

Other mammal data was provided to the NBN Atlas by The Atlas of Mammals (1993).

Amphibians and Reptiles

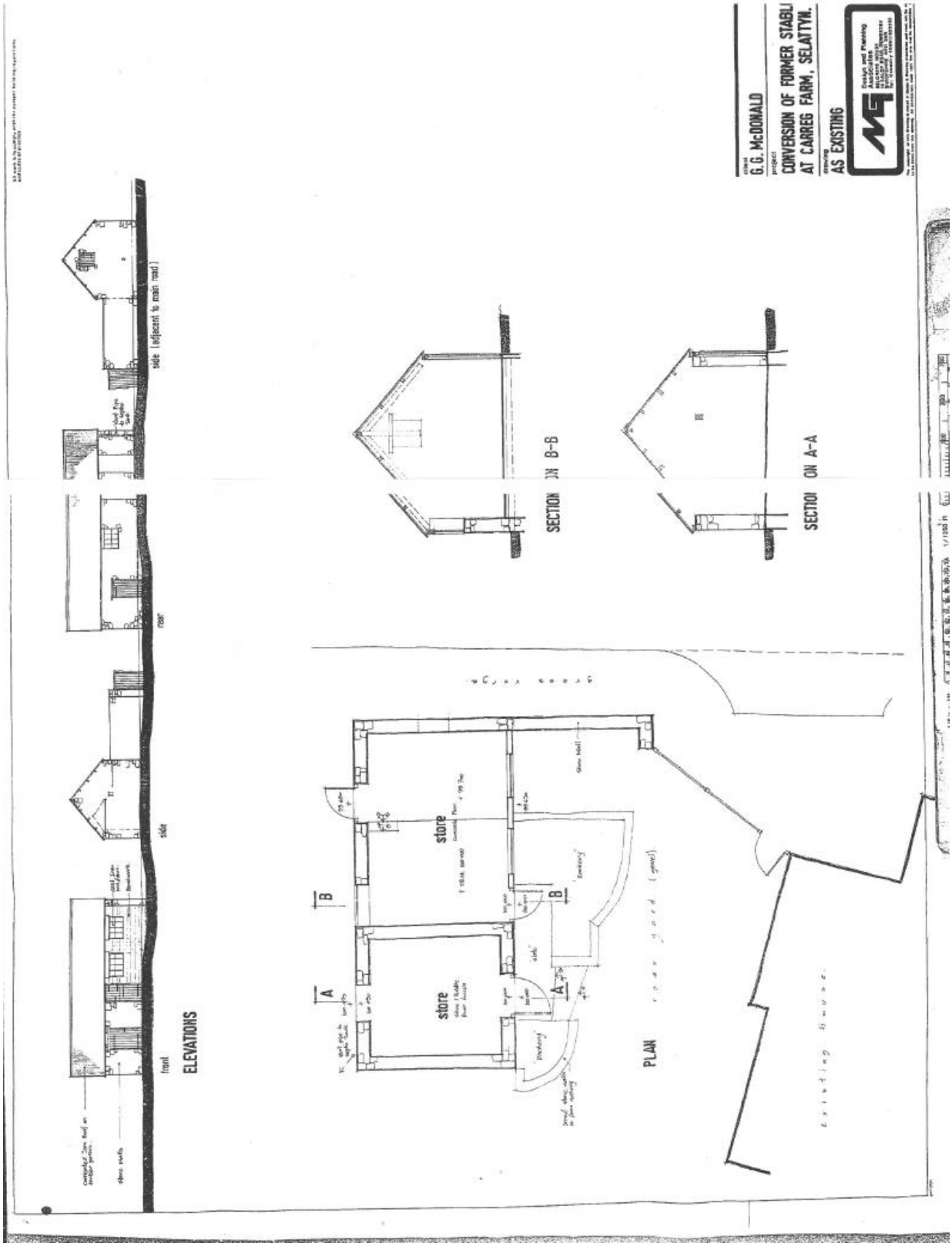
The NBN Atlas does not hold any records for GCN within 2km.

Invasive species

Japanese knotweed (*Fallopia japonica*)

The nearest records of Japanese knotweed are over the England/Wales border and were recorded in 1982. This data was provided to the NBN Atlas by the Shropshire Environmental Data Network (SEDN).

D Site Plans


G.G. McDONALD
CONVERSION OF FORMER STABL
AT CARREG FARM, SELATTYN.
AS EXISTING
ELEVATIONS
front
side
rear
side (adjacent to main road)
PLAN
store
store
SECTION ON B-B
SECTION ON A-A

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