

Greenscape Environmental Ltd

PROBIN

**PHASE 1 AND PHASE 2 SURVEYS
FOR BATS AND NEWTS**

**DRURY LANE FARM
DRURY LANE
TY BROUGHTON
WHITCHURCH
WREXHAM
SY13 3BD**

JULY 2020

2292 2007R

Report by Chloe Sheil MZool (Conservation)

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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 two years 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 ARH Architectural Design to undertake a preliminary ecological appraisal (PEA) of buildings at Drury Lane Farm to provide supporting information for a planning application for the conversions of three buildings to residential.

The survey report has three principal aims:

- to provide an initial appraisal of the ecological value of the site in local context
- to identify potential ecological constraints relating to the development and recommend measures to avoid, reduce or manage negative effects and to provide a net ecological gain

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 undertaken at the site, OS grid reference SJ47034237 on 26th September 2019 by P Marshall and C Sheil.

Phase 2 surveys for bats and newts were conducted between 6th May 2020 and 26th June 2020 by C Sheil assisted by L Maggs, B Jones, K Love and M Hogg. Three survey methods were used for newts: bottle trapping, torching and egg searching.

1.3 Key Issues

A desktop data search including a search for nearby designated sites, EPS licences and previously recorded protected species was conducted. Of significance for this site is bats, nesting birds and great crested newts.

The site extends to 0.5ha, of which 0.3ha will be developed. The site comprises buildings set around a yard of hardstanding and amenity grassland. Three buildings will be converted, one building and two Dutch barns will be demolished.

During the phase 1 survey evidence of bats was found in buildings 1 and 3. Low roost potential was found in building 2. Phase 2 bat surveys were therefore conducted on these buildings. These surveys found a day roost of common pipistrelle in building 2 and day roosts of brown long-eared bat and common pipistrelles in building 1. Work on building 1 and 2 must be done under an EPS licence. Work on building 3 must be done under a method statement.

Evidence of nesting birds was found in all buildings. The Dutch barns had no evidence of nesting birds but did offer potential habitat. It is therefore recommended that works on the buildings commence outside of the bird nesting season (February to August inclusive). Evidence of tawny owl was found in buildings 1 and 2. A tawny owl box will therefore be erected on a nearby tree.

A network of ponds surrounds the site. Pond 1 scored 0.85 on the HSI assessment and lies directly adjacent to the site. Pond 1 was confirmed to have great crested newts present.

Given that the development involves the demolition of some existing buildings and there is no alternative terrestrial habitat in the area, it is likely that an offense will be committed. Natural Resources Wales were consulted about the terrestrial value of the site and are satisfied that 3 visits were sufficient to confirm presence. Work will be conducted under licence from Natural Resources Wales following a strict method statement.

1.4 Conclusion

It is recommended that the biodiversity is enhanced post-construction with the inclusion of bat and bird boxes. It is also recommended that the landscaping be improved with the inclusion of native species hedgerows and trees.

Work will be conducted under licence from Natural Resources Wales, with suitable enhancements installed and works being done at a suitable time of year there will be no further ecological constraints to the development.

1.5 Timing of Works

To avoid wildlife offences the following timing schedule will be adhered to.

Action	When	Justification
Update survey information	After date 1 year from survey issue date	EPS licences require information to be from within the past 12 months.
Demolish Dutch barns and building 4	September -end of February	To reduce the potential to disturb nesting birds.
Convert building 3	October to March	Bats are least likely to be present at this time
Convert buildings 1 and 2	After EPS licence issued	Day roosts of bats in these buildings.

2 Introduction

This report has been compiled by Chloe Sheil MZool (Conservation) who has 2 years of 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.

2.1 Project Background

Greenscape Environmental Ltd was commissioned by ARH Architectural Design on behalf of the client, Mr Probin, 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 development of land at Drury Lane Farm, Ty Broughton.

The project involves the conversion of three barns and the demolition of one outbuilding and two Dutch barns. Additionally, the development includes the construction of garages and the clearance of an area of hardstanding.

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 UK Post-2010 Biodiversity Framework priority species, which may be disturbed or lost in the event of development.

The purpose of the report is to:

- Identify the key ecological constraints to the proposed development
- Inform planning to allow significant ecological effects to be minimised or avoided wherever possible
- Allow any necessary mitigation or compensation measures to be developed following the Mitigation Hierarchy
- Identify the opportunities offered by a project to deliver ecological enhancement under NPPF Section 15.

2.3 Planning Policy and Legislation

This section provides a brief summary of the key national and local planning policies and legislation with an intention to identify those to be of most relevance to ecology and provide context to the surveys conducted. Survey findings were considered in line with the following.

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

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

Countryside and Rights of Way Act (2000)

Natural Environment and Rural Communities Act 2006 (NERC 2006)

The Nature Recovery Plan for Wales: Setting the course for 2020 and beyond (2015)

Section 7 of the Environment Act (Wales) 2016

ODPM Circular 06/2005: Biodiversity and Geological Conservation-Statutory obligations and their impact within the Planning System

Wrexham Unitary Development Plan – EC6 Biodiversity Conservation

2.4 Site Context and Location

The site is located to the southeast of Ty Broughton, OS grid reference SJ47034237. It is set in a rural environment surrounded by open fields. There is low connectivity to the surrounding countryside via field hedgerows which may provide foraging or commuting opportunities for bat, nesting birds, great crested newts or small mammals.

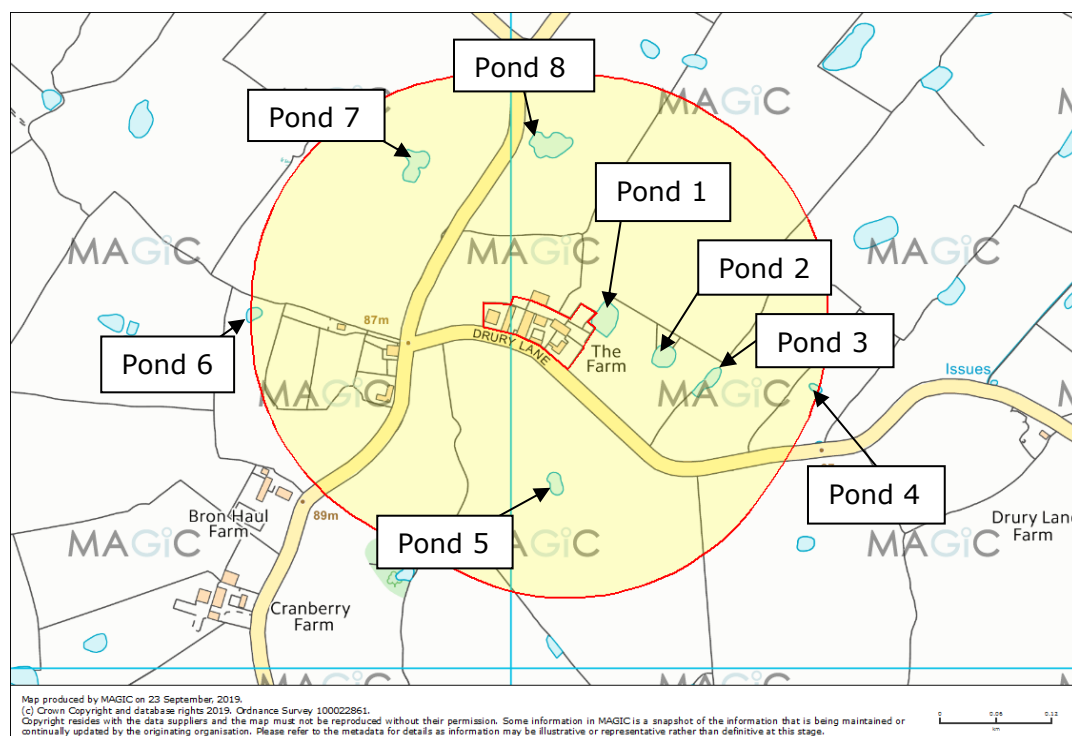


Figure 2.1. An OS map showing the site (centre, highlighted) with a 250m buffer

Scrutiny of the OS map (Fig 2.1) and a walk around the locality showed there are 8 ponds within 250m of the site.

2.4.1 Date and Survey Conditions

The phase 1 ecological appraisal was undertaken at the site on 26th September 2019 by C Sheil and P Marshall. The conditions on the survey dates were optimal for the type of survey conducted.

Phase 2 surveys for bats and newts were conducted throughout May and June 2020 by C Sheil, B Jones, K Love and M Hogg. The conditions were optimal for the type of survey conducted.

Table 2.1: Survey date and conditions

Date	Time	Temp °C Start-Finish	Sunset / Sunrise	Condition
26/09/2019	13:30	15	N/A	Sunny, F1-2 breeze, dry
06/05/2020	19:30- 22:30	12-8	20:48	Dry, no cloud cover, no wind
20/05/2020	19:30- 23:45	19-14	21:11	Dry, no cloud, no wind
04/06/2020	20:00- 21:15	10-9	21:31	Rain, overcast, light wind
26/06/2020	02:50- 04:48	23-22	04:47	F0 wind, no rain, 10% cloud cover

3 Methodology

Broad methodologies for data collection and interpretation were informed by guidance outlined in CIEEM (2017) Guidelines for Preliminary Ecological Appraisal.

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. This was undertaken in September 2019.

A review of other surveys conducted in the area by Greenscape Environmental was also conducted.

This level of desk study is considered adequately proportionate to the development proposals, the low complexity of the site and its surrounding landscape context.

3.2 Field Survey

3.2.1 Habitats

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

Buildings were assessed for potential for bat roosts, foraging and commuting. This was conducted in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, BCT, Collins (ed.) (2016).

Buildings were assessed for potential for nesting birds.

The assessment of aquatic habitat for great crested newts is based on the Habitat Suitability Index (HSI). The terrestrial habitats at the application site were surveyed and assessed with respect to their suitability and potential value in supporting great crested newts.

Activity surveys for bats were conducted at dusk and/or dawn to identify the presence of roosts in the buildings and their nature.

Presence/Absence surveys were conducted for great crested newts.

3.4 Constraints of the Survey

All areas of the site were accessible for these surveys. Not all ponds were accessible as there was significant hedge growth adjacent to pond 2.

The phase 2 surveys for bats were conducted during the peak survey season. Phase 2 surveys for newts were conducted during the optimal survey season and the suboptimal survey period.

The identification of calls and species using sonogram analyses are dependent on the clarity of the sonogram recording, which may be affected by the distance from the bat and background noise. Species of *Myotis* bats are identified to genus level on the basis of the inherent difficulty in distinguishing between species from their echolocation calls.

4 Site Description

4.1 Field Survey

The site comprises several buildings, mostly of red brick and slate tile roofs, set around a yard of hardstanding and amenity grassland.

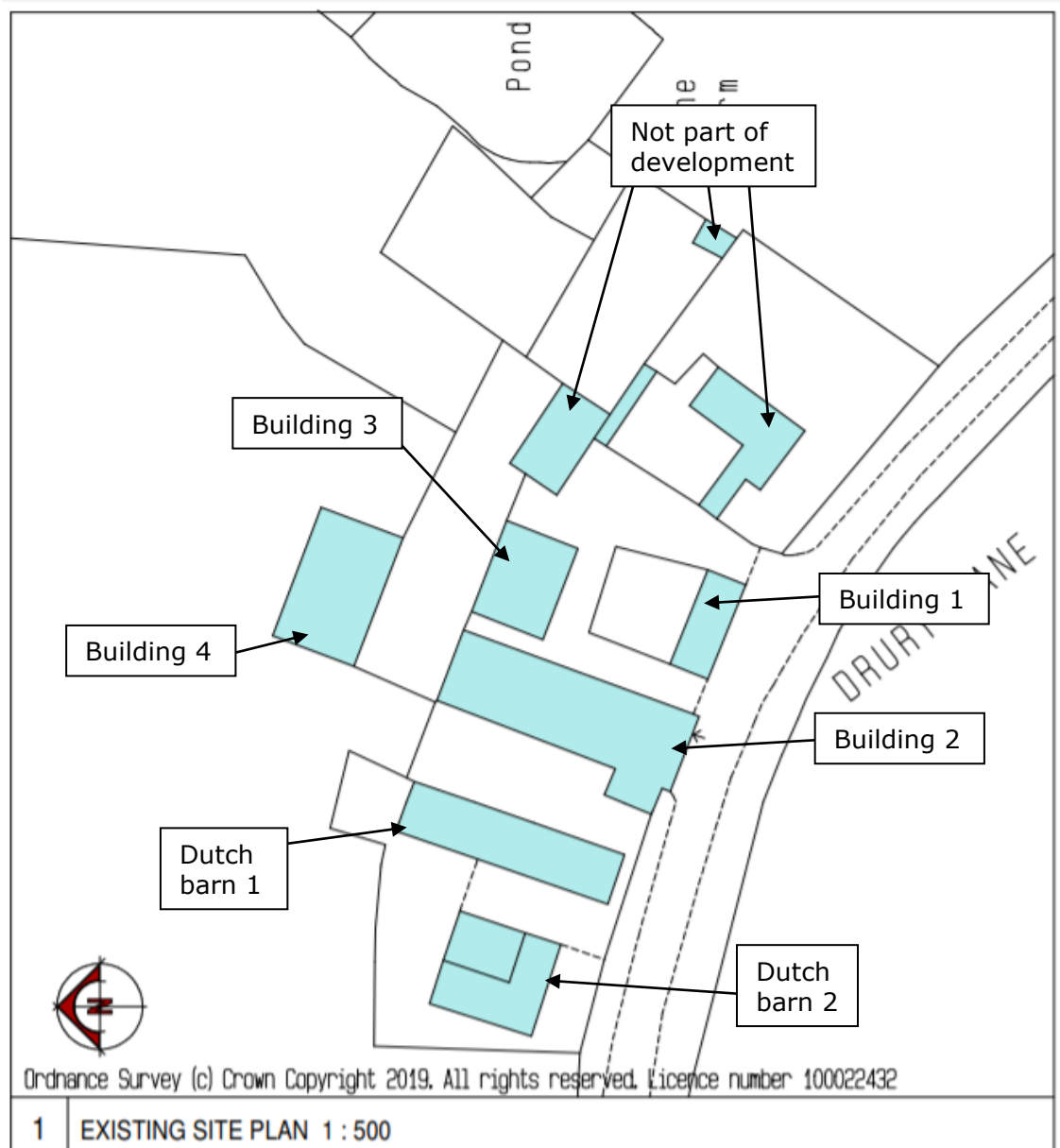


Figure 4.1. Existing site plans showing building locations

A map showing phase 1 habitat codes is not considered necessary for this site due to its lack of complexity and size.

4.1.1 Building 1

Building 1 is a barn constructed of red brick with slate tile roof. The roof has vents on top which offer potential bat access into the building. Potential access was also available through open windows.



Figure 4.2. External view of building 1 from northwest

Internal inspection of building 1 found that the roof is unlined and is supported by wooden beams, including a central ridge beam. The beams are relatively old but have no obvious cracks or crevices. The building is bright inside.



Figure 4.3. Roof space of building 1

Evidence of nesting birds was found inside the building. Nesting material was found on the wall plate of the gable end and swallow nests were seen. A tawny owl pellet was also found on the floor.



Figure 4.4. Bird nest on wall plate



Figure 4.5. Tawny owl pellet

Evidence of bats was found scattered through the building. These were indicative of pipistrelles and brown long-eared bats.



Figure 4.6. Bat dropping found on site

4.1.2 Building 2

Building 2 is a barn constructed of red brick with steel doors. The roof is built of slate tile and cement-bonded fibreboard. Potential access points were found via holes in the roof, open windows and under the steel doors.



Figure 4.7. External view of building 2 from south

Internal inspection of the building found that the roof is not lined and is supported by metal beams including a wooden central beam. Large skylights are in the roof which let in a lot of light.



Figure 4.8. Roof space of building 2

Evidence of tawny owl was found in the form of droppings and pellets. No evidence of bats was found. This building offers low roost potential for bats.



Figure 4.9. Evidence of birds

4.1.3 Building 3

Building 3 is a barn of red brick with roofs of slate tile and profile sheet metal. Potential access points were found in holes in the roof and walls, under eaves and through gaps in doors.



Figure 4.10. External view of front of building 3 from southwest with potential access points



Figure 4.11. External view of building 3 from north

Internal inspection of the building found that the roof is lined with damaged bitumen felt. Potential access points were found via gaps in the roof sheeting and under eaves. The first floor is used as a chicken coop and the ground floor is used for storage.



Figure 4.12. Roof space of building 3



Figure 4.13. Potential access points

Evidence of nesting birds was found on the first floor. Evidence of bats was found in the form of droppings.



Figure 4.14. Birds nest

4.1.4 Building 4

Building 4 is a barn built of breeze block, wooden panels and cement bonded fibreboard. It is open to the elements and the roof is not lined. The roof is supported by metal and wooden beams, none of which have any cracks or crevices. No evidence of roosting bats or nesting birds was found.



Figure 4.15. External view of building 4 from southwest



Figure 4.16. Interior of building 4

4.1.5 Dutch Barn 1 & 2

These are built of corrugated sheet metal and are open to the elements. They are used for storage and offer negligible roost potential for bats. They only offer foraging habitat for bats. No evidence of nesting birds was seen.



Figure 4.17. External view of Dutch barn 1 from southeast



Figure 4.18. External view of Dutch barn 2 from southeast

4.1.6 Site

The buildings are set on a yard of hardstanding with an area of amenity grassland in the centre. No notable species were found in this area and it was mown to a short sward.



Figure 4.19. Area of amenity grassland

Bird species found on site include robin (*Erithacus rubecula*) and pied wagtail (*Motacilla alba*). No evidence of barn owl or badger was found on site during the phase 1 survey.

4.1.7 Surrounds

The site is surrounded by a farmhouse to the east, a country lane along the south, and open fields to the west and north. There is anecdotal evidence of a large roost of approximately 60 bats in the roof of the farmhouse.



Figure 4.20. Farmhouse to east



Figure 4.21. Open field to the northwest



Figure 4.22. Country lane along south

The surroundings up to a distance of 30m+ were examined for potential for badger activity. No setts were observed.

4.1.8 Open Water

Ponds within 250m have been taken into consideration.

Table 4.1. Ponds within 250m

Pond Number	OS Grid Reference	Distance from Site	HSI Score
1	SJ47094238	5m	0.85 – Excellent
2	SJ47164234	70m	0.38 – Poor
3	SJ47214231	130m	Dried up
4	SJ47324230	240m	Dried up
5	SJ47044220	110m	0.65 - Average
6	SJ46724238	240m	0.60 – Average
7	SJ46894255	150m	0.58 – Below Average
8	SJ47044257	155m	0.70 - Good

Each of these ponds was assessed using the Habitat Suitability Index (HSI) unless it was found to be dry or extinct. Access was not gained to ponds 6, 7 or 8.

The results from the HSI calculations and justifications for each value can be seen in Appendix E.

Pond 1



Figure 4.23. Overview of pond 1

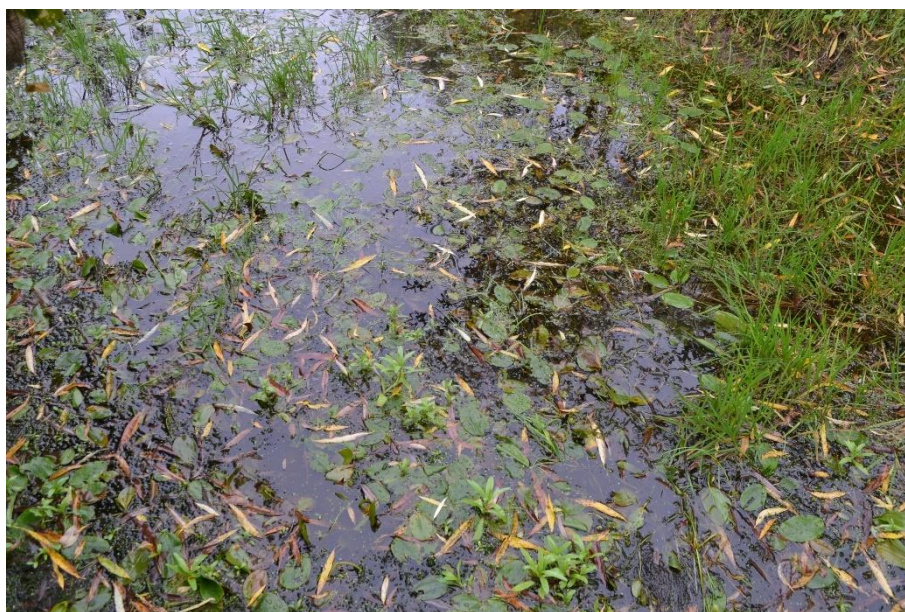


Figure 4.24. Egg laying material



Figure 4.25. Palmate newt eft

Pond 1 is adjacent to the development site and was found to be good habitat for newts on arrival. It was full of pondweed, providing egg laying material for newts, and wasn't too shaded. It was found to be relatively deep and netting revealed invertebrates such as dragonfly larvae and backswimmers as well as a palmate newt eft.

Table 4.2. Details of HSI score for Pond 1

Pond 1 Grid reference: SJ47094238		
Geographic Location	1	Zone A
Pond Area	1	The pond was approximately 750m ²
Permanence	0.9	Never dries
Water Quality	1	Abundant and diverse invertebrate community
Shade	1	There was estimated to be 30% shading of the area within 1m of the perimeter
Waterfowl	1	No waterfowl were observed on the pond
Fish	0.67	No evidence of fish but local conditions suggest they may be present
Pond Count	1	There were 60 ponds within a 1km radius which were not separated by major barriers
Terrestrial Habitat	0.33	The immediate surrounding land is mostly open fields and farmland.
Macrophytes	1	There was a lot of floating or emergent vegetation in this pond, cover was estimated to be 80%
HSI Score	0.85 - Excellent	

Pond 2

This pond was completely shaded by the hedge that runs around the entire pond. It is set in the middle of a field of semi-improved grassland and there is anecdotal evidence that it has carp in it. It is very difficult to access this pond and it appears deep.



Figure 4.26. Pond 2

Table 4.3. Details of HSI score for Pond 2

Pond 2 Grid reference: SJ47164234		
Geographic Location	1	Zone A
Pond Area	1	The pond was approximately 500m ²
Permanence	0.9	Never dries
Water Quality	0.01	No invertebrates found when netting
Shade	0.2	There was estimated to be 100% shading of the area within 1m of the perimeter
Waterfowl	1	No waterfowl were observed on the pond
Fish	0.33	Stocked with carp
Pond Count	1	There were 62 ponds within a 1km radius which were not separated by major barriers
Terrestrial Habitat	0.33	The immediate surrounding land is mostly open fields and farmland
Macrophytes	0.3	There was no floating or emergent vegetation in this pond
HSI Score	0.38 - Poor	

Pond 3

This was found to be completely dried up.



Figure 4.27. Area where pond 3 used to be

Pond 4

This was also found to be dried up. A depression in the ground shows where it once was.



Figure 4.28. Area where pond 4 used to be

Pond 5



Figure 4.29. Pond 5

Table 4.4. Details of HSI score for Pond 5

Pond 5 Grid reference: SJ47044220		
Geographic Location	1	Zone A
Pond Area	0.6	The pond was approximately 300m ²
Permanence	1	Rarely dries
Water Quality	0.33	Low invertebrate diversity, few submerged plants
Shade	1	There was estimated to be 30% shading of the area within 1m of the perimeter
Waterfowl	1	No waterfowl were observed on the pond
Fish	0.67	No evidence of fish but local conditions suggest they may be present
Pond Count	1	There were over 60 ponds within a 1km radius which were not separated by major barriers
Terrestrial Habitat	0.33	The immediate surrounding land is mostly open fields and farmland.
Macrophytes	0.3	There was no floating or emergent vegetation in this pond
HSI Score	0.65 - Average	

Ponds 1, 2 and 5 offer excellent, poor and average suitability, respectively, for great crested newts.

Ponds 6, 7 and 8 were accessed during the phase 2 surveys and the HSI scores could then be calculated.

Pond 6

Pond 6 was located in the middle of a field of grassland and was found to have partly dried up due to the warm weather. This meant that deep sludge remained around the banks and an attempt to get near the water would be unsafe.



Figure 4.30. Pond 6



Figure 4.31. Deep sludge

Table 4.5. Details of HSI score for Pond 6

Pond 5 Grid reference: SJ47044220		
Geographic Location	1	Zone A
Pond Area	0.4	The pond was approximately 200m ²
Permanence	0.5	Sometimes dries
Water Quality	0.33	Could not be netted but few submerged plants seen
Shade	1	There was estimated to be 5% shading of the area within 1m of the perimeter
Waterfowl	1	No waterfowl were observed on the pond
Fish	0.67	No evidence of fish but local conditions suggest they may be present
Pond Count	1	There were over 60 ponds within a 1km radius which were not separated by major barriers
Terrestrial Habitat	0.33	The immediate surrounding land is mostly open fields and farmland.
Macrophytes	0.45	There was ~ 15% macrophyte cover
HSI Score	0.60 - Average	

Pond 7

Pond 7 could not be accessed for the first newt survey as young cattle were seen in the field and it was considered unsafe to enter. The remaining surveys found that it was completely shaded by trees and hedgerows and had no macrophyte cover or egg laying material. The water level appeared deep and the pond had steep sides.

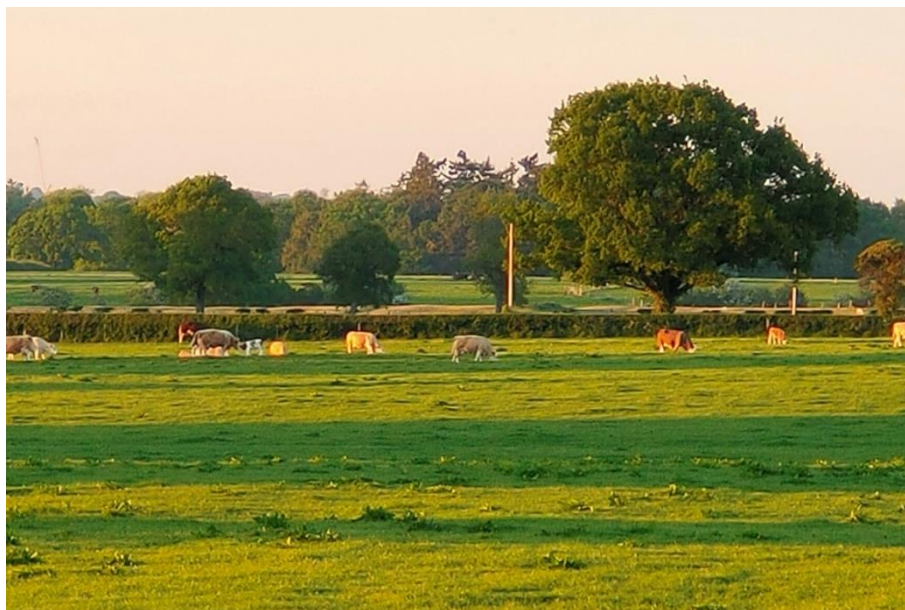
**Figure 4.32. Cattle in field**

Table 4.6. Details of HSI score for Pond 7

Pond 5 Grid reference: SJ47044220		
Geographic Location	1	Zone A
Pond Area	1	The pond was approximately 700m ²
Permanence	1	Rarely dries
Water Quality	0.33	Few submerged plants seen
Shade	0.2	There was 100% shading of the area within 1m of the perimeter
Waterfowl	1	No waterfowl were observed on the pond
Fish	0.67	No evidence of fish but local conditions suggest they may be present
Pond Count	1	There were over 60 ponds within a 1km radius which were not separated by major barriers
Terrestrial Habitat	0.33	The immediate surrounding land is mostly open fields and farmland.
Macrophytes	0.3	There was no floating or emergent vegetation in this pond
HSI Score	0.58 – Below Average	

Pond 8

Pond 8 is located in the middle of a field of grassland. The banks were unsafe due to thick sludge around the banks.

**Figure 4.33. Pond 8**

Table 4.7. Details of HSI score for Pond 8

Pond 5 Grid reference: SJ47044220		
Geographic Location	1	Zone A
Pond Area	0.955	The pond was approximately 1000m ²
Permanence	0.5	Sometimes dries
Water Quality	0.33	Few submerged plants seen
Shade	1	There was estimated to be 60% shading of the area within 1m of the perimeter
Waterfowl	1	No waterfowl were observed on the pond
Fish	0.67	No evidence of fish but local conditions suggest they may be present
Pond Count	1	There were over 60 ponds within a 1km radius which were not separated by major barriers
Terrestrial Habitat	0.33	The immediate surrounding land is mostly open fields and farmland.
Macrophytes	0.85	There was approximately 50% macrophyte cover
HSI Score	0.70 - Good	

5 Phase 2 Surveys

5.1 Bats

One common pipistrelle was seen entering a roost on the southern gable end of building 2. One brown long-eared bat and two common pipistrelles were seen emerging from the open window of building 2. Myotis bats, soprano pipistrelles and noctules were seen foraging around the site.



Figure 5.1. Roost locations

Details can be found in Appendix D.

Two tawny owls were found when inspecting building 2 on the first survey.

5.2 Newts

Ponds 1 and 7 were the only ponds surveyed as others were not safe or could not be accessed. No egg laying material could be found in pond 7.

Natural Resources Wales were consulted about the terrestrial value of the site and are satisfied that 3 visits were sufficient to confirm presence. This information is to be used to inform RAMMS.

Table 5.1. Great crested newt survey summary

Pond	GCN Peak Adult Count	Population Size Class	HSI	Eggs Present?	Peak Count Visit Number	Other Species
1	5	Small	0.85 - Excellent	N	2	Smooth newt, common toad
7	0	-	-	N	-	-

Details can be found in Appendix D.

6 Evaluation of Results

6.1 Potential Impacts on Designated Sites and Recorded Species

6.1.1 Designated Area or Priority Habitat

Figure C.1 shows that there are no SSSIs within 1km. The nearest SSSI is approximately 3km away. This is Llyn Bedydd and is a series of open water bodies and peatland.

6.1.2 Habitats on Site

Table 6.1: Summary of habitats on site

Habitat type	Is the habitat capable of supporting protected species	Impact without consideration
Hardstanding	Concrete pad of no ecological value	No negative impact
Amenity grassland	Of no ecological value	No negative impact
Buildings	Buildings 1 and 2 were found to be used by roosting bats. Building 3 had evidence of bats during phase 1 but no evidence of use during phase 2 surveys. All 3 buildings to be converted had evidence of nesting birds. Tawny owls building 2. Building 4 and Dutch barns had no evidence of protected species and negligible roost potential for bats	High negative impact on bats Low potential impact on bats Negative impact on nesting birds No negative impact

The main habitats of value on site are buildings 1 and 2. These were found to have small numbers of bats roosting in them. Building 3 had evidence of bats but the phase 2 surveys did not find any bats roosting in it. All three of these buildings had evidence of nesting birds. Building 4 had no evidence of protected species but offers potential habitat to nesting birds.

6.2 Ecologically Important Species

The following species of relevance to the proposed development area were identified in the data search (full details in Appendix C): Whiskered/ Brandt's bat, common pipistrelle, soprano pipistrelle and brown long-eared bat within 600m, hare within 700m, hedgehog within 800m, badger within 900m, barn owl within 1km and great crested newts within 600m

The potential for the site to support bats, nesting birds and great crested newts was therefore taken into consideration.

Table 6.2. Summary of protected species on site with recommendations

Species	Observations	Impact without consideration	Recommendations
Mammals			
Bats	Bats roosting in buildings 1 and 2.	High negative impact	Works on these buildings to be done under a licence from NRW.
	No bat roosts in building 3	Low potential impact	Work on this building to be done under a method statement
Badgers	No evidence found around site	No negative impact	No action required
Birds			
Barn Owl	No evidence on site	No negative impact	No action required
Nesting birds	Evidence in buildings 1, 2 and 3. Evidence of tawny owl in buildings 1 and 2.	Potential negative impact	All clearance to be undertaken outside nesting period Feb-Aug inclusive. New nest box provision and barn owl to be erected
Herpetofauna			
Reptiles	No suitable habitat around site	No negative impact	No action required
Great Crested Newts	8 ponds found within 250m. Pond 1 adjacent to site scored 0.85 – Excellent on HSI assessment. Small population of newts in pond 1. Negligible value terrestrial habitat on site.	Low negative impact	Mitigation licence required from NRW

6.2.1 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 European Protected Species.
- 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 European Protected Species, 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 Resources Wales 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 Resources Wales) 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."

Recommendations are made in line with the mitigation hierarchy as outlined in the NPPF (2012). The intention is to first avoid, then mitigate or compensate for any potential breaches in legislation as outlined in the Habitats Directive. Recommendations for proportional enhancement measures as required under section II of the NPPF and section 40 of the NERC Act 2006 are also provided.

Low numbers of common species were found using buildings 1 and 2 as day roosts. Old evidence of bats was found in building 3, but no evidence of roosting was seen during the surveys.

These buildings are of low conservation significance and work will need to be conducted under licence from Natural Resources Wales.

6.2.2 Other Mammals

Badgers

Badgers and their setts are specifically protected under the Protection of Badgers Act 1992. The act was primarily brought into force to prevent the deliberate injury to or death of badgers. Some aspects of the act affect developers. It is important that developers are aware of any badger setts located on the land they intend to develop.

All personnel working on sites where there are badgers should be aware of the Protection of Badgers Act 1992. Under this legislation it is an offence to:

- Damage a badger sett or any part of it.
- Destroy a badger sett.
- Obstruct access to, or any entrance of a badger sett.
- Causing a dog to enter a badger sett.
- Disturbing a badger when it is occupying a badger sett.

A badger sett is defined by the Act as "any structure or place, which displays signs indicating current (within the last 12 months) use by a badger".

No evidence of badgers was found on or around the site. No negative impact is expected.

6.2.3 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.

Work at this site will include the demolition and conversion of buildings which may have a negative impact on nesting birds. It will therefore be recommended that these works will be conducted out of the bird nesting season (February to August inclusive). It will be recommended that nesting boxes are erected post-construction to provide a minor enhancement.

Evidence of tawny owl was found in building 1 and 2. It is therefore recommended that a tawny owl box is erected on site.

Barn Owls

Barn owls are listed on Schedule 1 which gives them special protection.

It is an offence to:

- Intentionally kill, injure or handle any wild barn owl.
- Intentionally take, damage or destroy any wild barn owl nest whilst in use or being 'built'.
- Intentionally take or destroy a wild barn owl egg.
- Have in one's possession or control a wild barn owl (dead or alive) or egg (unless one can show it was obtained legally).
- Intentionally or recklessly disturb any wild barn owl whilst 'building' a nest or whilst in, on, or near a nest containing young.
- Intentionally or recklessly disturb any dependent young of wild barn owls.

It is not an offence to:

- Take a disabled wild barn owl solely for the purpose of tending it until fully recovered and then returning it to the wild.
- Kill, injure, take or disturb barn owls if these were incidental results of a lawful operation and could not reasonably have been avoided.

No evidence of barn owl was found in any of the buildings on site. No negative impact is expected.

6.2.4 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 an 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

Great crested newts 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 European Protected Species.
- 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 European Protected Species, or any part of, or anything derived from such a wild animal or plant.

Great crested newts are listed as a priority species on the UK 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.

Work can be conducted under derogation licence from Natural Resources Wales 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 Resources Wales) 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."

The site offers negligible value terrestrial habitat for GCN. The yard of hardstanding and amenity grassland offers no foraging or shelter. There are no features on site of any value for newts in their terrestrial phase. The total area of the site is approximately 0.5ha.

Eight ponds were found within 250m of the site. Pond 1 is adjacent to the site and scored 0.85 – Excellent on the HSI assessment and a palmate newt eft was found when netting it. Pond 2 scored 0.38 – Poor on the HSI assessment and pond 5 scored 0.65 – Average. Ponds 3 and 4 were dried up. Ponds 6, 7 and 8 were assessed during the phase 2 surveys as access had been granted. These scored 0.60 – Average, 0.58 – Below average and 0.70 – Good on the HSI assessment.

Approximately 0.03ha of the site falls within 50m of pond 1. This area is very sensitive to newts as they may easily travel this distance to forage or shelter. There is no good terrestrial habitat nearby for newts to travel to for foraging or shelter and there are few ecological corridors so it is likely that great crested newts will cross the site.

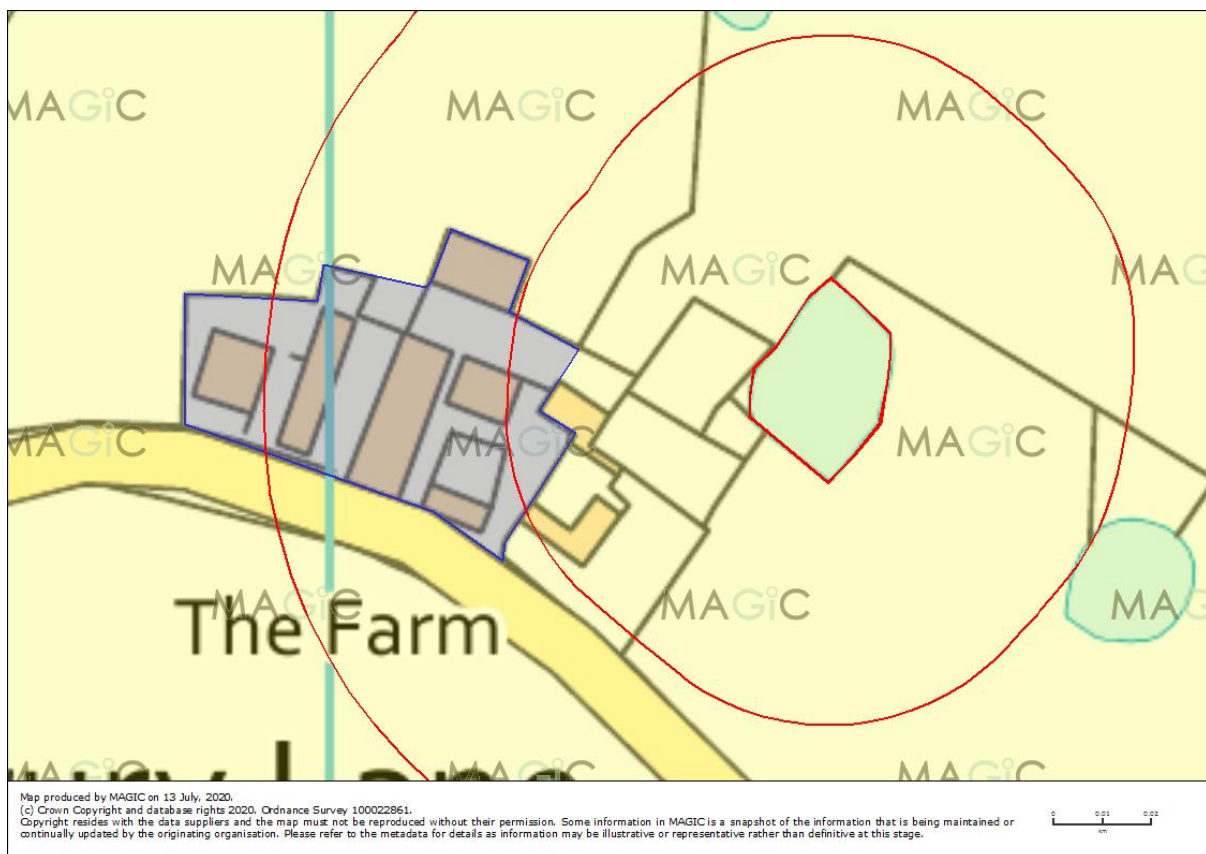


Figure 6.1. 50 and 100m buffers around the nearest pond

The proposed development would see the demolition of existing buildings on site which could kill or individual newts. With newts in a pond so close to the site and records of a dead newt found on a different site within 600m (by Greenscape Environmental Ltd in 2015), it is likely that the development would lead to an offense.

Natural Resources Wales were consulted about the level of survey effort required given the low value of habitats on site. It was agreed that presence/absence surveys were sufficient, and this was established in Pond 1 with low numbers of great crested newts being recorded. Work will be conducted under licence from Natural Resources Wales following a Reasonable Avoidance Measures Method Statement.

7 Impacts and Mitigation Measures

To reduce or minimise negative impact on biodiversity, the following recommendations have been made.

7.1 Landscaping

1. It is recommended that the landscaping around the new buildings will include some hedging and tree planting to enhance the area for biodiversity.
2. Plants to use for landscaping will include locally sourced native species. These will be planted in accordance with BS3936 (part 1, 1992, Nursery Stock, Specifications for trees and shrubs). Planting will occur between November and April of the following year depending on timing of development.

Table 7.1: Recommended plants for landscaping

Plant	Latin Name
Blackthorn	<i>Prunus spinosa</i>
Crab apple	<i>Malus sylvestris</i>
Field rose	<i>Rosa arvensis</i>
Field maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Spindle	<i>Euonymus europaeus</i>
Wild cherry	<i>Prunus avium</i>
Wild pear	<i>Pyrus communis</i>
Wild service tree	<i>Sorbus torminalis</i>

3. Trees to be used should be from the list below. Oak should particularly be encouraged as it is the dominant species in the vicinity and it supports a large diversity of invertebrates.

Table 7.2: Recommended trees for landscaping

Common Name	Latin Name
English oak	<i>Quercus robur</i>
Sessile oak	<i>Quercus petraea</i>
Lime	<i>Tilia cordata</i>
Rowan	<i>Sorbus aucuparia</i>
Silver birch	<i>Betula pendula</i>

7.2 Bats

The demolition of building 4 and the Dutch barns can be conducted immediately once planning permission has been granted.

The conversion of building 3 must be done under the method statement outlined below but does not require a licence from Natural Resources Wales.

The conversion of buildings 1 and 2 cannot commence until a licence has been granted from NRW.

EPS Method Statement

1. Work on the development will need to follow a rigid method statement. It will need to be conducted under European Protected Species Licence.
2. A suitably licensed ecologist will be employed as an Ecological Clerk of Works (ECoW) to oversee works in areas sensitive to bats and provide expert advice.
3. The licence can only be applied for when there is full planning permission for the works.
4. The developer and contractors will be made aware that there is a possibility that bats may be found during works and will be advised to work in a way to ensure bats are not harmed during the soft demolition of the roof, and around the southern gable end of building 2. They will be provided with a simple emergency procedure to follow if bats are found at any stage of the work on site. It will be ensured the method statement is on site.
5. A pre-commencement check will be conducted by the ECoW using a strong torch and borescope where appropriate.
6. The work around the bat roost area will occur when bats are least likely to be present, from October to March.
7. The ECoW will be present on site when work is being conducted in the area of the bat roost, particularly the ridges and around gables and timber cladding.
8. If a bat is found when the ECoW is not present then work will stop in that area IMMEDIATELY and the ECoW contacted for advice.
9. The bat can only be handled by the ECoW or authorised person unless it is in immediate danger. The bat must be carefully placed in a well ventilated lidded box with a small container (preferably a plastic bottle lid) with water in it. The container must be kept in a quiet and safe place.
10. Care should be taken to avoid rousing the bat whilst transferring to a suitable location, this may be a suitable hibernation box or alternative roost. This must provide a safe, quiet environment with stable cool temperature with relatively high humidity which is safe from disturbance.
11. If the bat is underweight or injured it will be cared for by an experienced bat carer until such times that it is strong enough to be released into a suitable alternative replacement roost on site.
12. The bat compensation will be created following the instructions in the method statement and the client will agree that any bat box erected must stay in place for a minimum of 5 years post-development.

13. The removal of the roof will not take place if the temperature has been below 6°C for 4 consecutive days and nights.
14. Once the building has been re-roofed bat access will be limited by sealing all doors and windows, thus reducing the potential for bats to re-enter where they are not expected.

7.2.1 Enhancements for Bats

1. It is recommended that provision will be made for roosting opportunities for bats with the erection of at least one woodcrete bat box suitable for day roosts 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 7.1. Example woodcrete bat box: Schwegler 1FF

2. It is recommended that permanent provision will be made for roosting opportunities for bats with the inclusion of an integral bat box in the garage block. This will be erected at a height of 3-4m and in a southerly, westerly or easterly facing direction.



Figure 7.2. Example integral bat box

Enclosed Bat Box (B and C)

- Designed specifically for the pipistrelle bat
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work



Bat Box B



Bat Box C

Eco Habitats for Bats	Sizes (mm)	Durability
Bat Box Type A	215 x 65	F2 S2 – Fully Frost Resistant
Bat Box Type B	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant

Figure 7.3. Bat Boxes from Ibstock Bricks Ltd**7.2.2 Lighting**

1. A lighting scheme will be drawn up in line with ILP and BCT Guidance Note 08/18.
2. All of the newly proposed external lighting will be directed away from any vegetated boundary features to retain dark corridors for commuting bats across the site.
3. There will be no direct illumination of any of the enhancements erected for bats.
4. There will be no illumination of the trees to the west of the site.
5. All domestic external lighting will be below 10 lux, orientated towards the ground and set on a short timer, controlled by PIR (Passive Infra-Red).

7.3 Birds

7.3.1 Reasonable Avoidance Measures

1. Any building demolition or conversion will commence 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.
3. Once work has commenced on the building, and it is confirmed that there are no nesting birds the building can be sealed to prevent birds gaining access during works.

7.3.2 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.



Figure 7.4. Provision for bird boxes

7.4 Tawny Owl

7.4.1 Enhancement for Tawny Owl

1. A tawny owl box will be erected near the site to provide an enhancement for tawny owls.
2. This can be positioned on a large tree, preferably facing open countryside and near a woodland.
3. The nest box should be located at least 3m off the floor.
4. The entrance should be no less than 200mm² and will be kept clear and visible.
5. The box should have a large drainage hole at the bottom no less than 12mm in diameter.

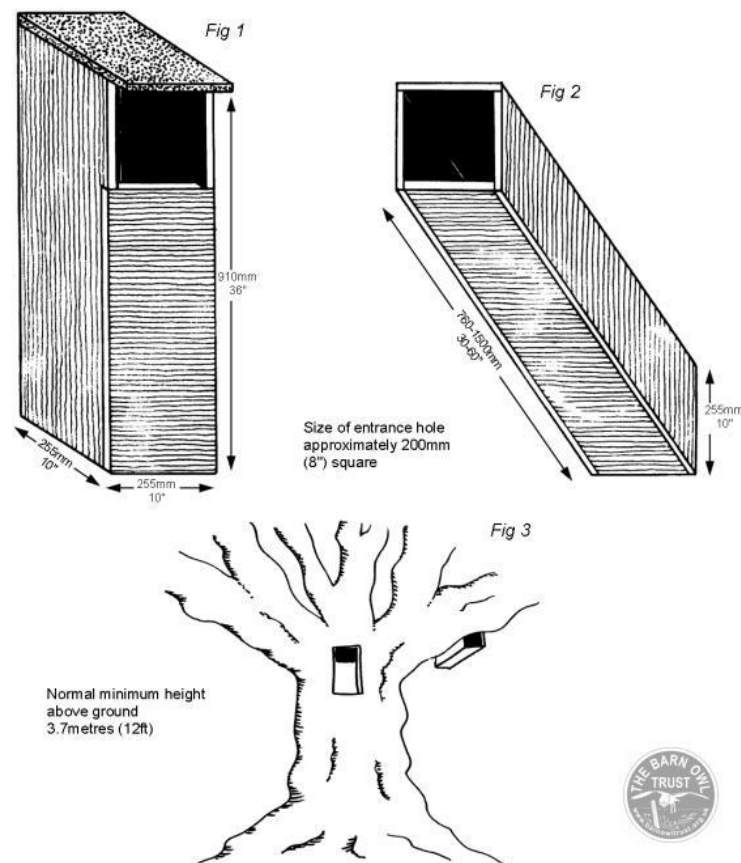


Figure 7.5. Tawny owl box example

Details on tawny owl box design can be found on the Barn Owl Trust's website - <https://www.barnowltrust.org.uk/>

7.5 Invertebrates

1. Invertebrate bricks or (bug houses) will be erected in the new gardens to enhance the area for nesting bees.



Figure 7.6. Invertebrate brick and bug house

7.6 Amphibians

Phase 2 surveys for newts found a small population in pond 1. Work is to be done under a mitigation licence from NRW and RAMMS will be followed prior to and during the development.

Working Method Statement

Pre-Construction

1. The site will be kept under management prior to construction. This will reduce the potential for newts to cross the land and reduce the potential for the terrestrial features to improve. All plants will be kept short (<10cm) to ensure there is no shelter for great crested newts on the site

Site Setup

2. A consultant will be employed as the ECoW to oversee the work in areas sensitive to great crested newts on site. This person will need to be licensed and an experienced surveyor for great crested newts.
3. The ECoW will provide contractors with a toolbox talk prior to work commencing. This will include information about the legal status of newts and responsibilities of the construction company to ensure no offence is committed. A document to assist with the identification of newts will be left on site.
4. The site will be checked thoroughly by the ECoW prior to construction commencing. This will confirm there are no newts present and that there are no potential places of shelter.
5. Soil and vegetation will be stripped prior to setting up the site compound to ensure the compound contains no vegetation which could potentially attract great crested newts

6. All cabins and equipment will be located on firm compacted ground, preferably a stone or concrete base.
7. Contractors are advised not to handle newts at any time.

Construction Phase

8. The site foreman will be responsible for ensuring all contractors are aware of the potential to find newts, and that they are familiar with the appearance of newts. If in doubt the ECoW will be contacted.
9. Contractors are advised to avoid handle newts at any time.
10. Stored subsoil must not be tipped onto any tall vegetation. The location of the storage area will be checked by the ECoW immediately before use.
11. Any plants around the site will be kept short to stop the development of an area of terrestrial habitat more suitable for newts.
12. All groundwork will be conducted during daylight hours as newts are least likely to move during this time.
13. 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 then checked the following morning. This is particularly important when newts are most active, between March and November.
14. If necessary, a ramp will be placed in trenches to allow newts and small mammals to escape.
15. Any heavy machinery will be stored on an area of hardstanding to avoid refugia being created.
16. 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.
17. All waste will be placed straight into skips to reduce the potential of creating refugia.
18. If a newt is found, then work will stop immediately and the ECoW contacted for advice.
19. Great crested newts will not be handled or moved without express permission from Natural Resources Wales as this would constitute an offence.
20. It is recommended that regular site visits are carried out by the ECoW to ensure compliance with the legislation and the Method Statement. A record of these visits will be made as part of the audit trail.

8 Concluding Remarks

The survey has focused on habitats to be damaged or destroyed as part of this development and the potential for disturbance or damage of protected species.

Evidence of bats was found in buildings 1 and 3. Low roost potential was found in building 2 due to there being several access points and a wooden central ridge beam. Building 4 and the Dutch barns had negligible roost potential for bats and work on these can commence without bat activity surveys being done.

Phase 2 surveys for bats found a day roost of common pipistrelle in the southern gable end of building 2 and day roosts of brown long-eared bats and common pipistrelles in building 1. Work on these buildings cannot commence until a licence has been granted by NRW. No bats were found roosting in building 3. Work on this building is to be done under a method statement. It is recommended that the site is enhanced with the erection of bat boxes.

Evidence of nesting birds was found in buildings 1, 2 and 3 and building 4 and the Dutch barns offer potential habitat for nesting birds. It is therefore recommended that works on the buildings commence outside of the bird nesting season (February to August inclusive) and bird boxes are erected to provide an enhancement. Evidence of tawny owl was found in buildings 1 and 2. A tawny owl box will therefore be erected on a nearby tree, facing the open countryside.

Great crested newts have been recorded in Pond 1. Natural Resources Wales advised that given the low value of the site for newts in their terrestrial phase that presence/absence surveys would be sufficient for a licence to be granted.

Given that the development involves the demolition of some buildings and there is no alternative habitat in the area to provide foraging and shelter away from the site, it is likely that an offence will be committed. Work will therefore follow a strict Reasonable Avoidance Measures Method Statement under licence from Natural Resources Wales.

Appendices

- A** **Details of Surveyors**
 Sheet(s): 1
- B** **Detailed Methodology**
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- C** **Desktop Study**
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- D** **Phase 2 Survey Details**
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- E** **Site Plans**
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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 <u>England:</u> Bats - 2015-12200-CLS-CLS BMCL - RC084 GCN - 2015-18939-CLS-CLS Dormice - 2017-29225-CLS-CLS <u>Wales:</u> 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 10 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. <u>England:</u> Bats - 2016-24901-CLS-CLS GCN - 2017-29218-CLS-CLS <u>Wales:</u> Bats - S086874/1 Newts - 79665:OTH:SA:2018
Ben Jones BSc(hons) MSc	Lead Consultant Ben has a degree in Marine and Freshwater biology and a Master's degree in "Managing the Environment". He has 4 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. <u>England:</u> Bats - 2017-29112-CLS-CLS GCN - 2016-25209-CLS-CLS <u>Wales:</u> Bats - S085098/1 GCN - 78716:OTH:SA:2018
Chloe Sheil MZool (Conservation)	Chloe has a master's degree in Zoology with Conservation from Bangor University. She has one years' experience assisting with surveys.	
Marcus Hogg BSc(hons) MSc	Marcus has been assisting with bat activity surveys during the 2020 season	
Kieran Love BSc(hons)	Kieran has been assisting with bat activity surveys during the 2020 season	

B Detailed Methodology

Desk Study

Table A: Data sources

Organisation/Resource	Information Assessed
COFNOD	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)

A data search was purchased from the COFNOD on the 25th September 2019.

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

A review of other surveys conducted in the area by Greenscape Environmental was also conducted.

Survey reports include:

Phase 1 & 2 Surveys – Ty Broughton Hall, 2016 (Ref: 1448 002R) (EPS licence 75785:OTH:EPS:2017)

Phase 1 & 2 Surveys at Kiln Green (EPS licence 68440:OTH:EPS:2015)

Phase 1 & 2 Surveys at Iscoyd Park

Field Survey

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.

Determination of Ecological Value is based on the general criteria provided by IEEM (IEEM 2006).

Table B.1 Criteria of ecological values

Ecological Value	Description and Examples
High	Habitats or features that have high importance for nature conservation, such as statutory designated nature conservation sites of international or national importance or sites maintaining viable populations of species of international or national importance (e.g. Red Data Book species; European protected species).
Medium	Sites designated at a county or district level, e.g. Local Wildlife Site (LWS), ancient woodland site, ecologically 'important' hedgerows or ecological features that are notable within the context of a region, county or district (e.g. a viable area of a Priority Habitat on the county BAP or a site that supports a viable population of a county BAP species).
Low	Sites of nature conservation value within the context of a parish or neighbourhood, low-grade common habitats, such as arable fields and improved grasslands and sites supporting common, widespread species.

Species Surveys

Bats

Buildings were assessed for potential for bat roosts and feeding perches.

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. 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 or presence of droppings in a cobweb.
- 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 SD1 and 2, Anabat Walkabout, Wildlife Acoustics Echo Meter Touch), and a Sony FDR-AX33 night-sight camera with a pair of IRLamp6 illuminators. The footage was analysed by an experienced bat ecologist. Anabats were left within the buildings to reinforce findings.

Surveys were conducted when the weather conditions were suitable for bat activity, i.e. when the ambient temperature exceeded 10°C at sunset and when there was little or no rain. Dusk surveys were begun approximately 15mins prior to sunset and continued for 90-120mins following sunset depending on visibility and site conditions. Dawn surveys were begun approximately 90-120mins before sunrise, depending on the species expected, to 15 minutes after sunrise. Dawn surveys were only conducted if the temperature at the previous sunset were over 10°C.

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.

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

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

Birds

Evidence of nesting birds, including barn owls using a building, hedge or tree 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
- Listening for bird song
- Recording bird activity

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.

Nets were used to look for the presence of efts.

Up to four surveys are conducted for GCN to determine presence/absence. Surveys were halted once presence was recorded. At least three methods were used on each occasion from the following; egg searching, netting, torching and bottle trapping.

C Desktop Study

Designated Sites

MAGiC

Drury Lane Farm

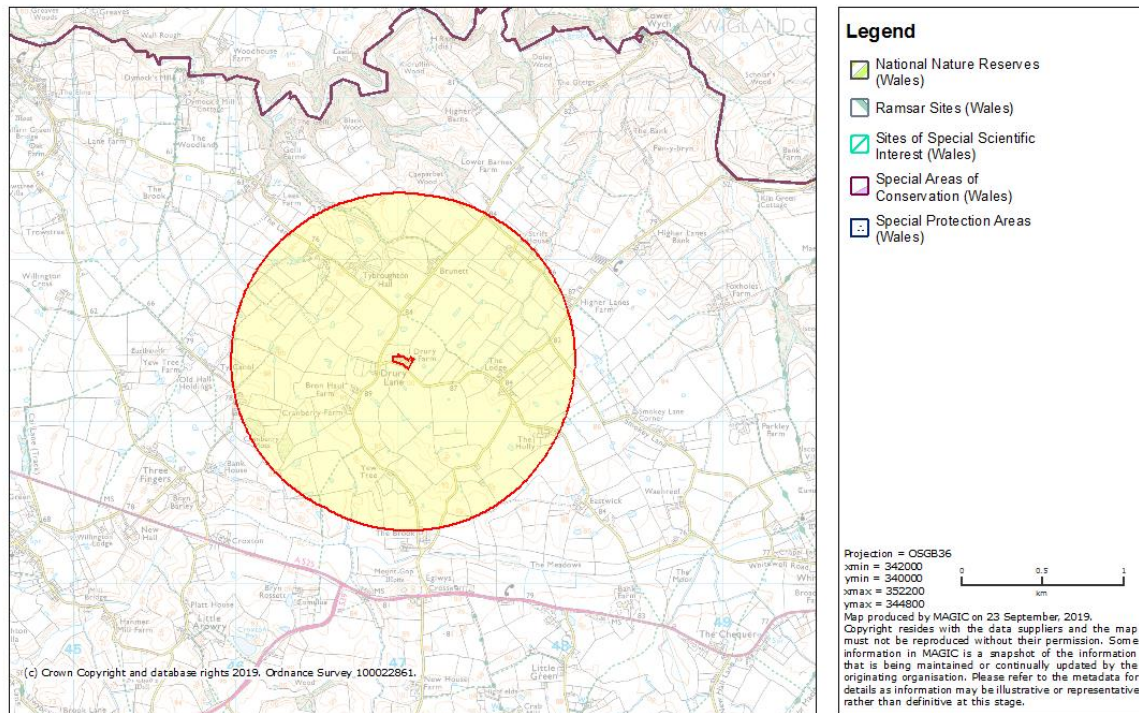


Figure C.1: Designated sites within 1km of Drury Lane Farm, Ty Broughton

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 3km south of the site. This is Llyn Bedydd and is a series of open water bodies and peatland. The site overlaps with the Ramsar site Midland Meres & Mosses Phase 2 (Wales).

Records

A desk search was conducted focussing on the area within 2km of the site. The following species have official records in that area:

Bat species:

- Common pipistrelle (*Pipistrellus pipistrellus*)
- Unknown bat (Chiroptera spp.)

The nearest records of unknown bats and common pipistrelles are approximately 1.2km away and are from 2005.

Previous surveys done by Greenscape Environmental in 2015 (Ref:1448 002R) found the following species using a site approximately 600m to the northwest.

- Whiskered/ Brandt's bat (*Myotis mystacinus/ M. brandti*)
- Noctule (*Nyctalus noctula*)
- Common pipistrelle
- Soprano pipistrelle (*Pipistrellus pygmaeus*)
- Brown long-eared (*Plecotus auritus*)

Other mammals:

- Water vole (*Arvicola amphibius*)
- Hedgehog (*Erinaceus europaeus*)
- Hare (*Lepus europaeus*)
- Otter (*Lutra lutra*)
- Badgers (*Meles meles*)
- Hazel dormouse (*Muscardinus avellanarius*)
- Polecat (*Mustela putorius*)

The nearest records of hare are approximately 700m to the southeast and are from 2015. The nearest records of hedgehog are approximately 800m away and are from 2018. The nearest records of badger are approximately 900m away and are from 2005.

Birds

- House martin (*Delichon urbicum*)
- Kestrel (*Falco tinnunculus*)
- Swallow (*Hirundo rustica*)
- House sparrow (*Passer domesticus*)
- Starling (*Sturnus vulgaris*)
- Barn owl (*Tyto alba*)

The nearest records are of house sparrow and starling are approximately 500m away and are from 2008. The nearest record of barn owl are within 1km and are from 2012. The nearest records of house martin are within 1.5km and are from 2009.

Previous surveys done by Greenscape Environmental in 2015 (Ref:1448 002R) found the following species using a site approximately 600m to the northwest.

- Swallow

Amphibians and Reptiles

- Common toad (*Bufo bufo*)
- Palmate newt (*Lissotriton helveticus*)
- Smooth newt (*Lissotriton vulgaris*)
- Common frog (*Rana temporaria*)
- Great crested newt (*Triturus cristatus*)

The nearest records are of great crested newt approximately 1km to the southeast, near the Hully, and are from 2004. The nearest records of smooth newt are approximately 1.7km to the southeast, near Eastwick, and are from 2008.

Previous surveys done by Greenscape Environmental in 2015 (Ref:1448 002R) found the following species at a site approximately 600m to the northwest.

- Great crested newt
- Common frog

Invasive species

- Himalayan balsam (*Impatiens glandulifera*)
- Rhododendron (*Rhododendron ponticum*)

The nearest records of rhododendron approximately 1km to the northeast and are from 2015. The nearest records of Himalayan balsam are approximately 1.6km to the north, near the Gelli, and are from 2014.

D Phase 2 Survey Details

Bats

Surveyors were located so that every aspect of buildings 1 to 3 could be seen.

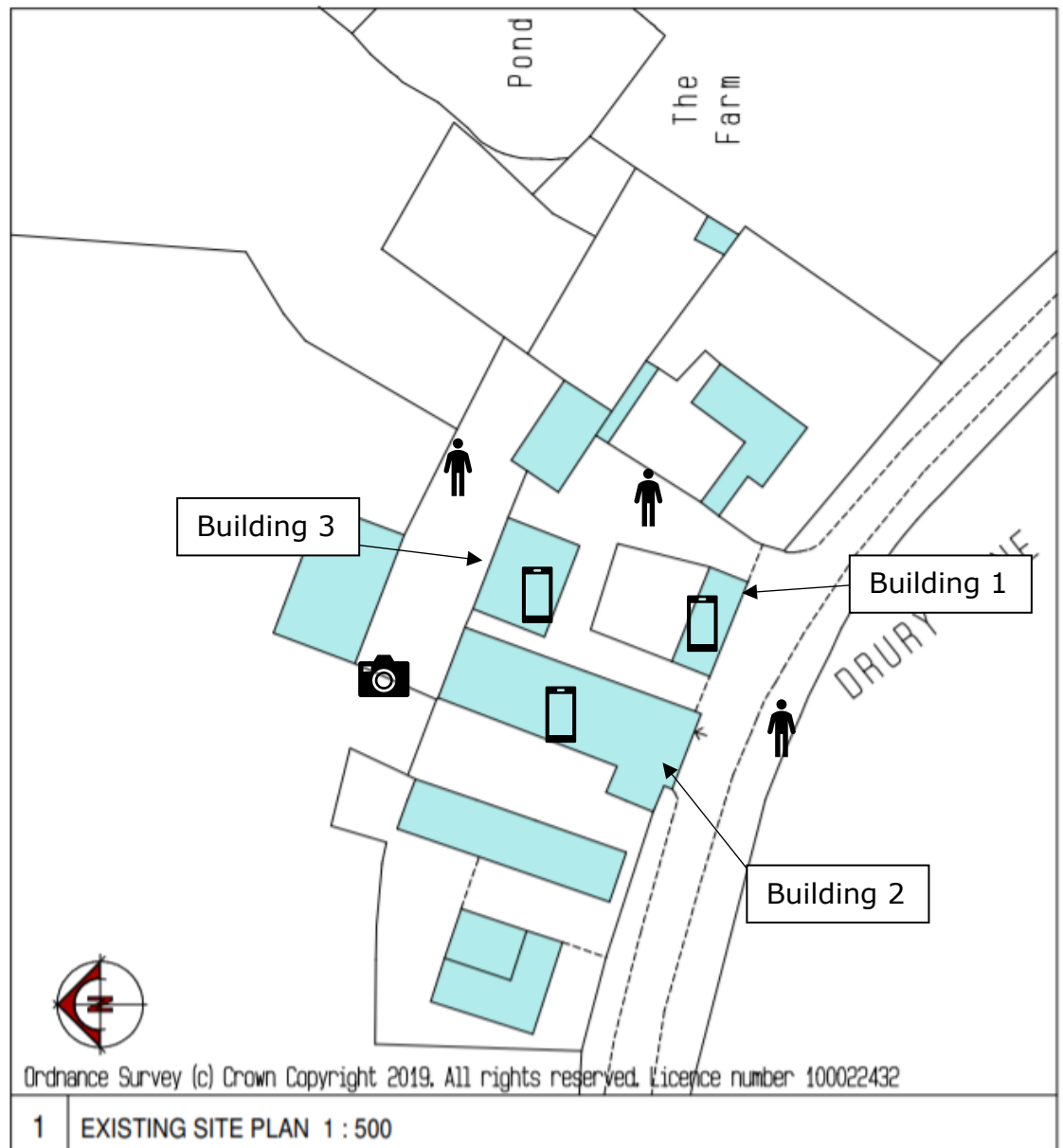


Figure D.1. Surveyor, detector and camera locations

Dusk Survey 6th May 2020

Two brown long-eared bats and two common pipistrelles were recorded roosting in building 1.

The first bat recorded was at 21:10, approximately 22 minutes after sunset. This was a brown long-eared bat which was identified visually. The bat was seen inside building 1 and was flying near the ridge and the gable end. A total of 2 brown long-eared bats were recorded flying in this building. Only one was seen emerging.

The first common pipistrelle was recorded visually at 21:23. This was seen flying from the direction of the farmhouse. At 21:26 a common pipistrelle was recorded visually and was

seen emerging from the western gable end of building 1 via the open window. The first recording of a common pipistrelle was at 21:41. A total of two common pipistrelles were seen emerging from here.

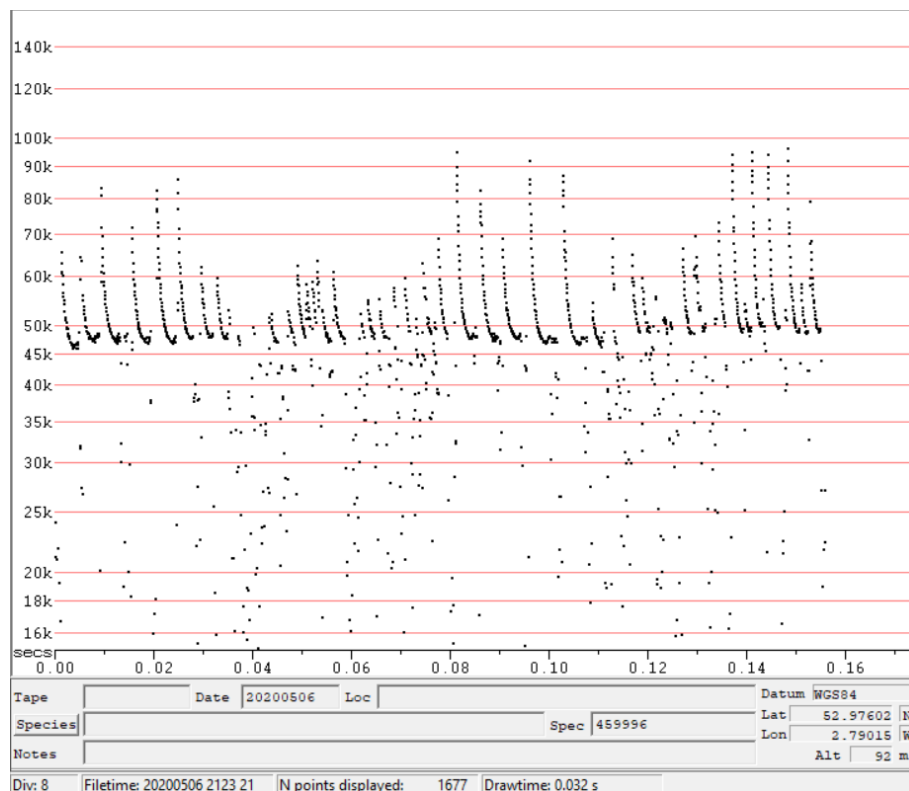


Figure 2. Common pipistrelle at 21:23 (F7, compressed)

A soprano pipistrelle was recorded at 21:48 but was not seen.

A noctule was recorded at 21:24. This was seen flying from north to south over the site.

At 22:12 a Myotis bat was recorded but not seen. This is either a Whiskered bat or Brandt's bat.

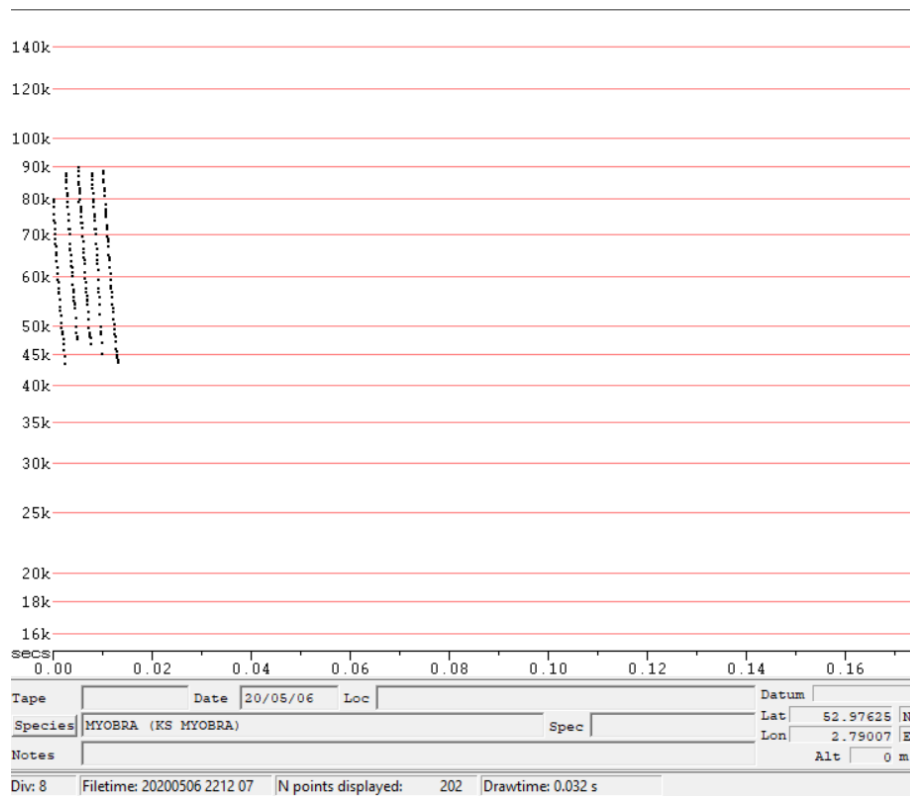


Figure 3. Myotis bat at 22:12 (F7, compressed)

Dusk Survey 20th May 2020

No bats were observed roosting during this survey, but activity was recorded in building 1.

The first bat recorded was a noctule, approximately 14 minutes after sunset. This was at 21:25 and was seen commuting over the site from southwest to northeast. Two noctules were later seen foraging over the site.

The first common pipistrelle was recorded at 21:42. This was a very faint call. The bat could not be seen. At 21:47 a common pipistrelle was seen flying in and out of building 1. Common pipistrelles were seen foraging over the site throughout the survey.

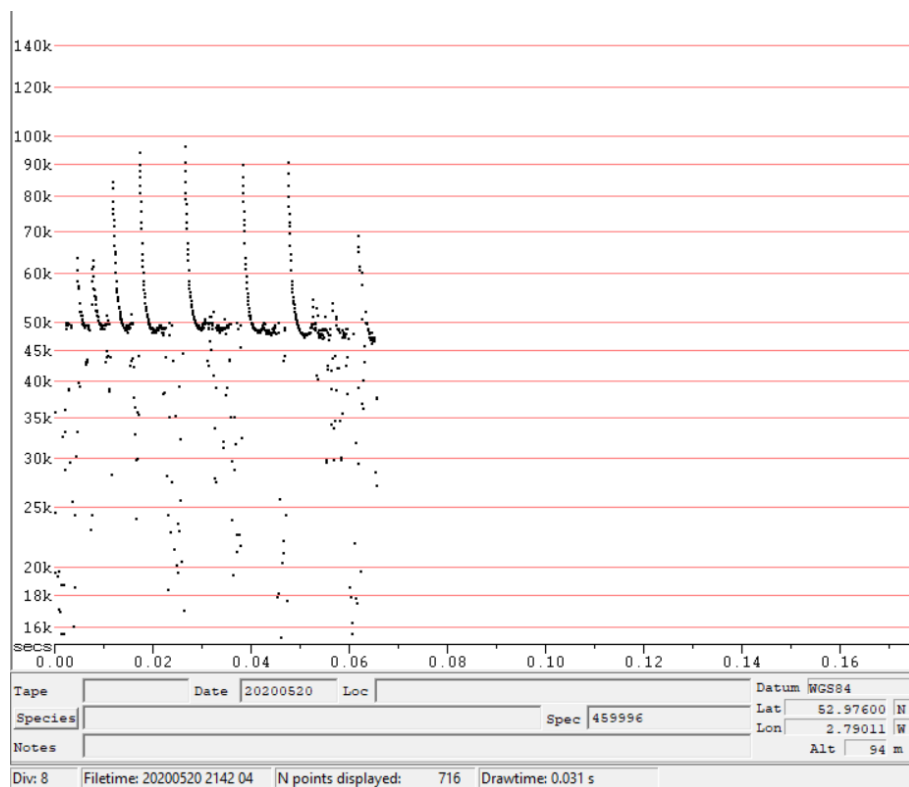


Figure 4. Common pipistrelle at 21:42 (F7, compressed)

The first soprano pipistrelle was recorded at 21:48 and was not seen.

A Myotis bat was recorded at 21:45 but this could not be seen.

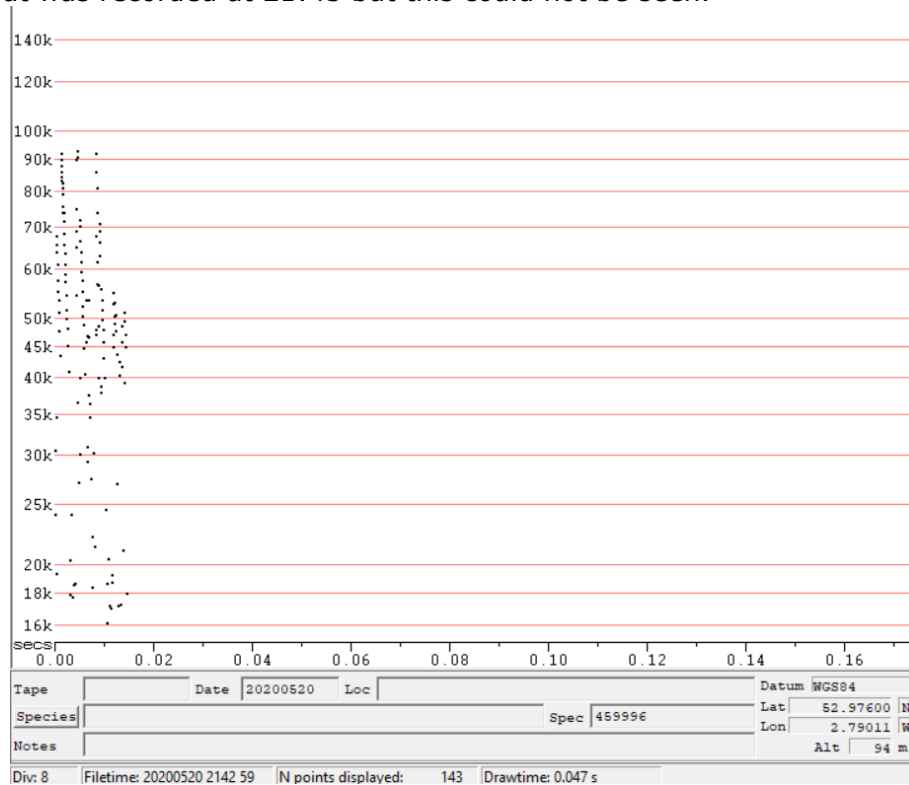


Figure 5. Myotis bat at 21:42 (F7, compressed)

The first brown long-eared bat was recorded at 22:13 but was not seen. At 22:19 a brown long-eared bat was seen emerging from the open window on the western gable end of building 1.

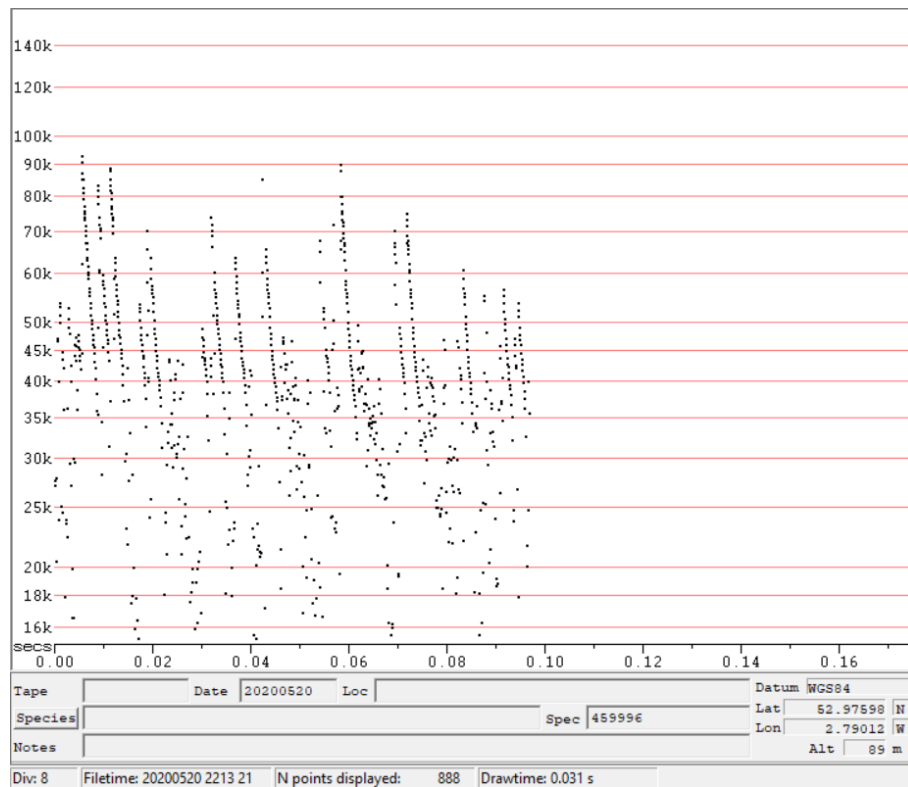


Figure 6. Brown long-eared bat at 22:13 (F7, compressed)

At 22:25 a Daubenton's bat was recorded. This was not seen.

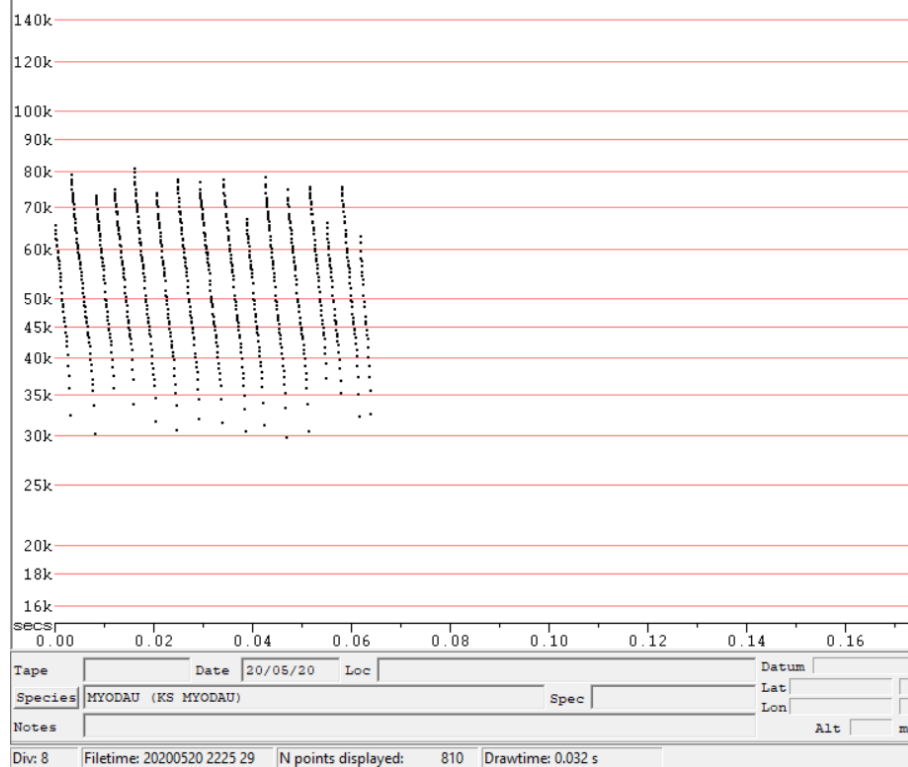


Figure 7. Daubenton's bat at 22:25 (F7, compressed)

Dawn Survey 26th June 2020

A brown long-eared bat was recorded inside building 1, it was not seen entering a roost but it did not leave the building. Two common pipistrelles were seen swarming in building 1, they were not seen to enter a roost space but were last seen inside the building. One common pipistrelle was observed roosting in the southern gable end of building 2.

The first bat seen was a brown long-eared bat at 02:57, approximately 1hr 55mins before sunrise. This was seen flying around inside building 1 but was not seen to enter a roost. The last brown long-eared bat was seen at 03:35 but no roost entries were seen throughout the survey.

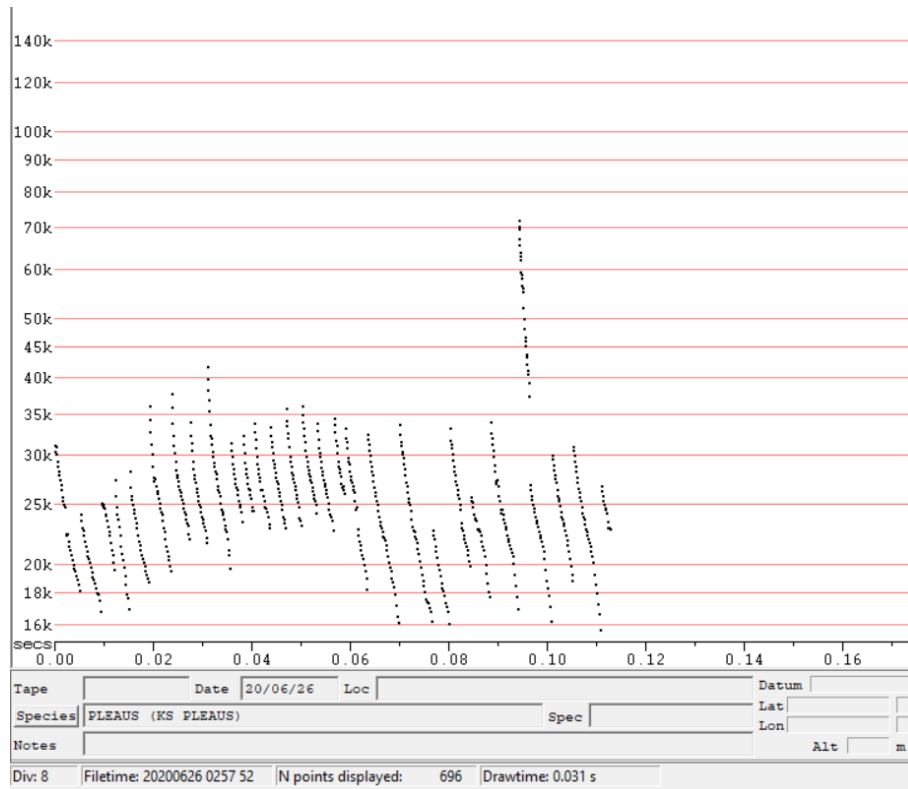


Figure 8. Brown long-eared bat at 02:57(F7, compressed)

The first common pipistrelle was recorded at 03:01. Common pipistrelles were seen swarming inside building 1 but were not seen to enter a roost space. At 04:01 a common pipistrelle was seen entering the southern gable end of building 2, under the fascia.

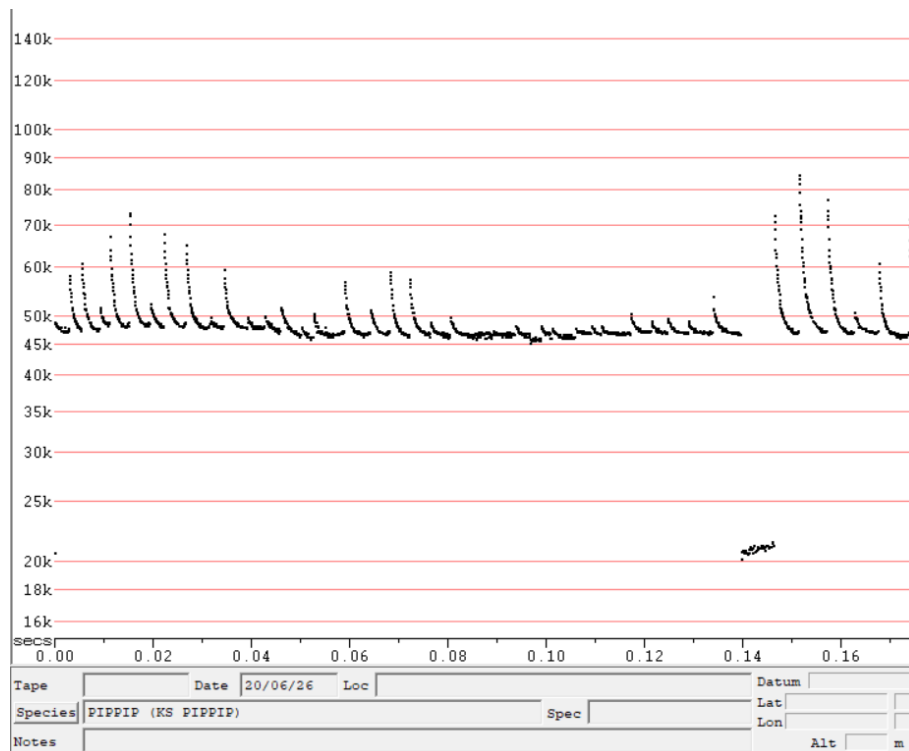


Figure 9. Common pipistrelle at 03:01 (F7, compressed)

The first Myotis bat was recorded at 03:20. This was not seen.

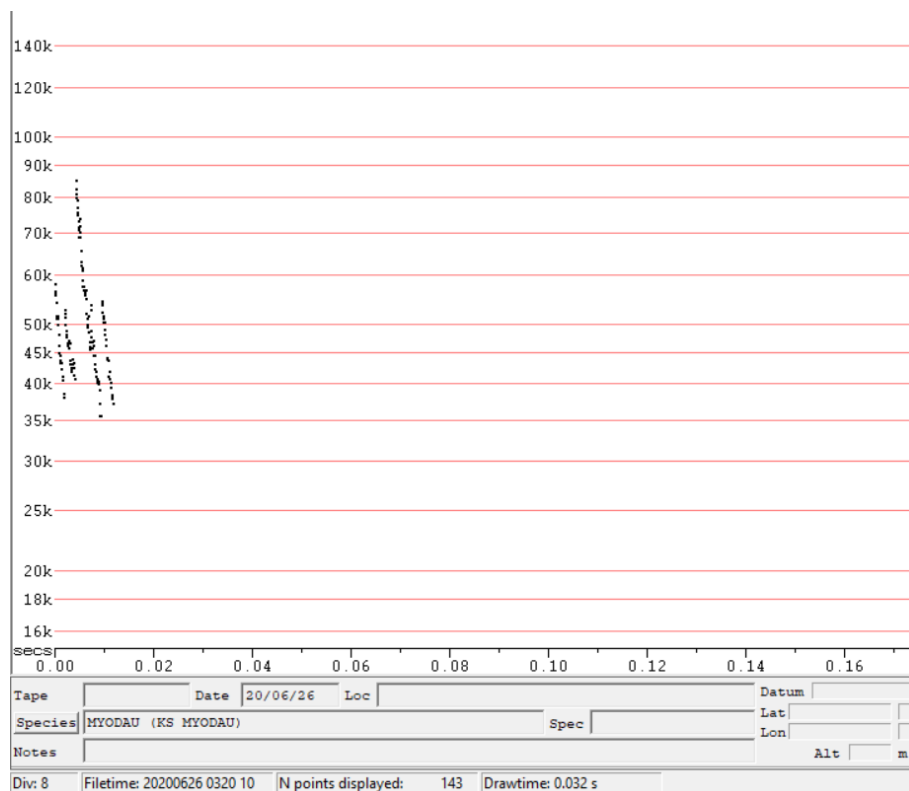


Figure 10. Myotis bat at 03:20 (F7, compressed)

The first soprano pipistrelle was recorded at 03:46. This was foraging around the yard.

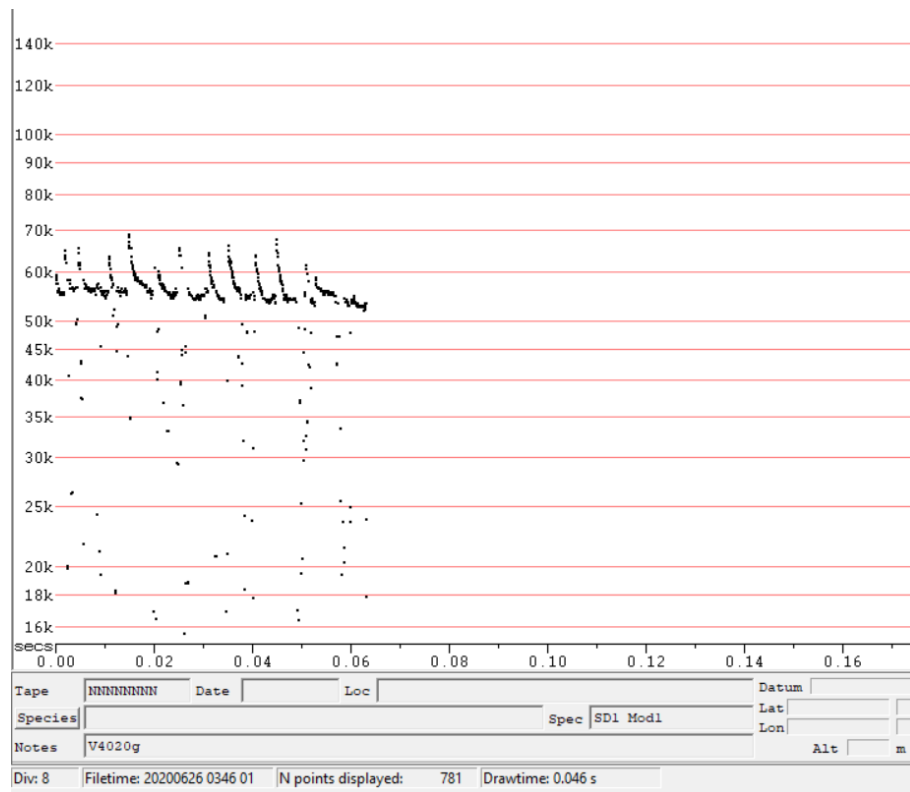
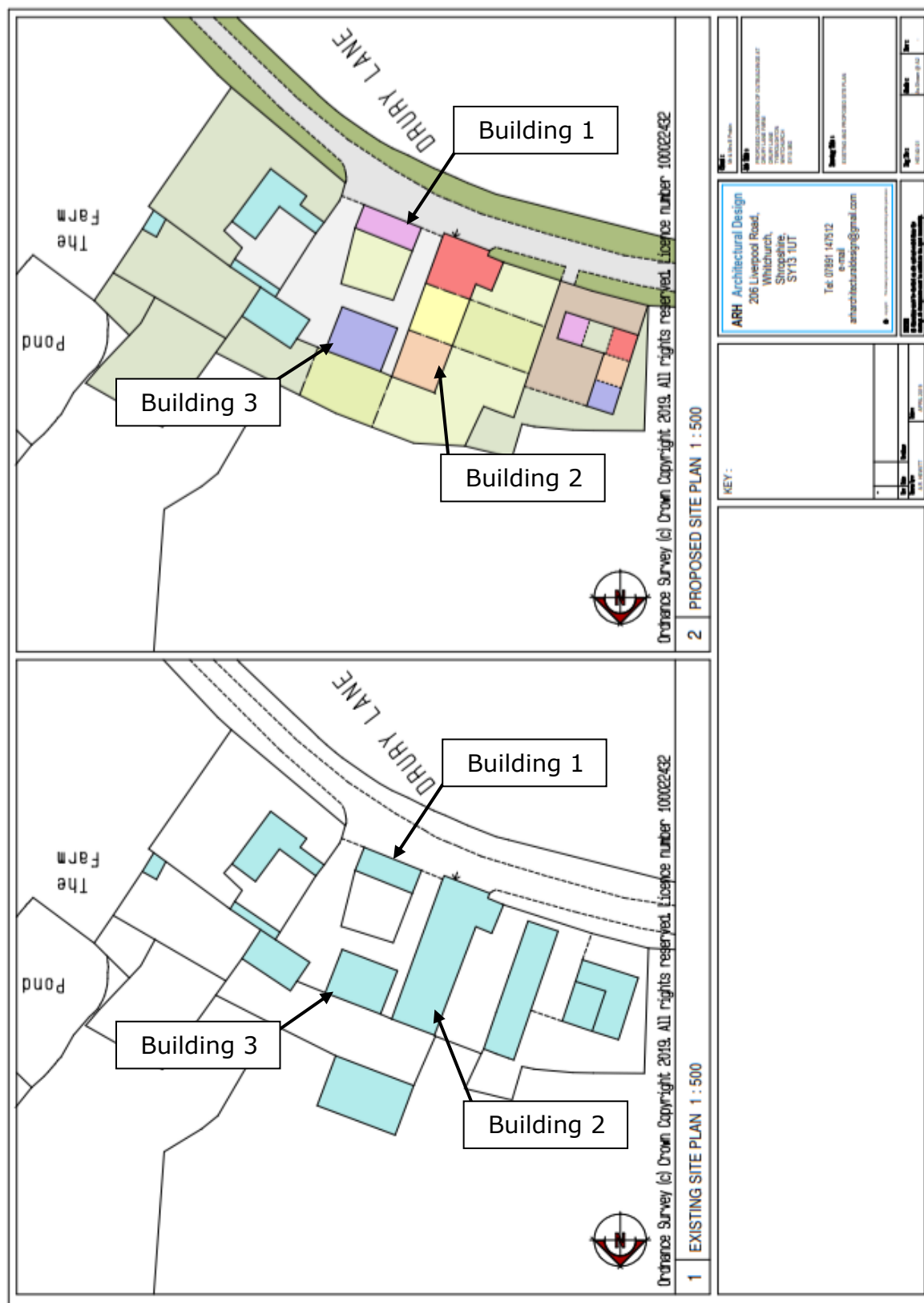


Figure 11. Soprano pipistrelle at 03:46 (F7, compressed)

Great Crested Newts

Pond 1 - GR: SJ47094238															
Visit No	Date	Turbidity	GCN Results							SN		PN		C F	C T
			Torch			Bottle trap			Egg						
			M	F	J	M	F	J		M	F	M	F		
1	06/05/2020	3/5	0	0	0	0	0	0	N	1	4	0	0	0	1
2	20/05/2020	3/5	0	0	0	0	5	0	N	1	0	0	0	0	0
3	04/06/2020	3/5	0	0	0	0	0	0	N	0	0	0	0	0	0
Bottles	06/05/2020 - 19 places around the southern, eastern and north eastern sides. Rest were too steep and sloppy 20/05/2020 - 7 around eastern sides as the pond can dried considerably 04/06/2020 - 9 bottle traps placed on eastern side														
Veg cover/5	1/5														

Pond 7 - GR: SJ46894255															
Visit No	Date	Turbidity	GCN Results							SN		PN		C F	C T
			Torch			Bottle trap			Egg						
			M	F	J	M	F	J		M	F	M	F		
1	06/05/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	20/05/2020	2/5	0	0	0	0	0	0	N	0	0	0	0	0	0
3	04/06/2020	2/5	0	0	0	0	0	0	N	0	0	0	0	0	0
Bottles	5 places around the southern sides. Rest were too steep or surrounded by hedgerows														
Veg cover/5	1/5														

E Site Plans**Figure E.1: Existing and proposed plans with building numbers**

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