



Report Type: Ecological Appraisal

Client Name: R&R Engineering

Site Address: Land North of
Oak Road
Wrexham Industrial Estate
Wrexham
LL13 9RG

Report Reference: 20-10 290N.1R

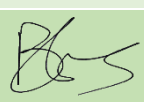
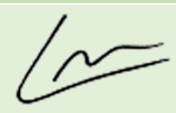
Date of Issue: 20th October 2020

Author: Ben Jones BSc (hons) MSc
ben@greenscape.pm



Report Details	
Classification	Ecological Appraisal
Status	Final
Reference	20-10 290N.1R

Version History	
Report Reference	Date of Revision
20-10 290N.1R	20 th October 2020

Quality Assurance			
	Name	Signature	Date
Author:	B. Jones BSc(hons) MSc Lead Consultant		19 th October 2020
Reviewed by:	L. Maggs BSc(hons) Lead Consultant		20 th October 2020

Greenscape Environmental Ltd.
 Registered Office: Long Acres, Lyth Bank, Shrewsbury, Shropshire, SY3 0BW
 Company Reg number: 5364283

This report is the copyright of Greenscape Environmental Ltd. Any unauthorised reproduction or usage by any person without the specific authority of Greenscape is prohibited.

The report should be read in its entirety

Questions arising from the survey report should be directed to the author of the 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.

The use of this report or survey data for any form of formal submission to an NGO or other authority implicitly implies acceptance of the terms and conditions.

Table of Contents

1 EXECUTIVE SUMMARY.....	1
1.1 Purpose of the Report	1
1.2 Methodology	1
1.3 Key Impacts and Mitigation Measures.....	1
1.4 Conclusion	1
2 INTRODUCTION	2
2.1 Project Background.....	2
2.2 Purpose of the Report	2
2.3 Site Context and Location	2
3 METHODOLOGY.....	3
3.1 Desk Study	3
3.2 Field Survey.....	3
3.3 Species Survey.....	3
3.4 Constraints of the Survey	3
4 BASELINE ECOLOGICAL CONDITIONS.....	4
4.1 Nearby Features of Importance	4
4.2 Habitats on Site.....	5
4.3 Bats.....	7
4.4 Other Mammals.....	8
4.5 Birds	8
4.6 Amphibians.....	9
4.7 Reptiles.....	11
5 DESCRIPTION OF PROPOSED DEVELOPMENT.....	12
6 IMPACTS, ENHANCEMENTS AND MITIGATION	13
6.1 Nearby Features of Importance	13
6.2 Habitats on Site.....	13
6.3 Bats.....	13
6.4 Other Mammals.....	14
6.5 Birds	14
6.6 Amphibians.....	15
6.7 Reptiles	18
7 CONCLUDING REMARKS.....	19
APPENDIX A – SURVEYOR DETAILS.....	20
APPENDIX B – METHODOLOGY	21
APPENDIX C – POLICY	24
APPENDIX D – HSI SCORES.....	27
APPENDIX E – BIBLIOGRAPHY	28

Table of Figures

Figure 4.1. Identifying any designated areas near site, a 1km buffer is shown	4
Figure 4.2. Hardstanding along northern edge of site.....	5
Figure 4.3. Inside storage unit.....	5
Figure 4.4. Inside office unit.....	6
Figure 4.5. Western entrance	6
Figure 4.6. Eastern entrance	7
Figure 4.7. Flat roofs with no cavity.....	7
Figure 4.8. Swallow nest atop beam	8
Figure 4.9. OS Map showing a 250m buffer around site, highlighting ponds.....	9
Figure 4.10. Pond 1 area.....	10
Figure 4.11. Pond 2 – positive eDNA test	10
Figure 4.12. Pond 3 - No standing water	10
Figure 4.13. Pond 4 – Ornamental.....	11
Figure 4.14. No suitable gap around the base of the buildings	11
Figure 5.1. Excerpt of DPA proposed site plans	12
Figure 6.1. Example woodcrete bat box: Schwegler 1FF.....	13
Figure 6.2. Bird boxes	14
Figure 6.3. 50m, 100m and 250m around pond 1	15
Figure 6.4. 50m, 100m and 250m around pond 2	16

Table of Tables

Table 3.1. Survey conditions	3
Table A.1. Details of surveyors' experience and licences held.....	20
Table B.1. Data sources	21
Table B.2. Criteria of ecological values.....	21
Table D.1. HSI score and justification for Pond 1	27
Table D.2. HSI score and justification for Pond 2	27

1 Executive Summary

1.1 Purpose of the Report

Greenscape Environmental Ltd was commissioned by DPA on behalf of the client, R&R Engineering, to undertake a preliminary ecological appraisal of land north of Oak Road, Wrexham Industrial Estate to provide supporting information for a planning application for the demolition of storage and prefab office units and the construction of a new industrial unit.

The survey report has these principal aims:

- To provide an initial assessment 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 included a desktop study, reviews of other surveys previously conducted in the area by Greenscape Environmental, and a site visit undertaken at the site, OS grid reference SJ39124921 on 16th October 2020 by B Jones.

1.3 Key Impacts and Mitigation Measures

The desktop study included a search for nearby designated sites and previously recorded protected species. Considered of potential significance for this site was known populations of great crested newts in nearby ponds.

The site extends to approximately 0.07 ha of hardstanding which is constantly disturbed. The site contains the prefab units which are used as offices, and a track leading towards one of the machining units to the west of site. There are no features of any ecological value on site.

There are four bodies of water shown on the OS map within 250m which have been taken into consideration. An eDNA study has been conducted on one of these ponds in 2019 which came back positive, and Wrexham Council have informed of a medium population in ponds to the south. Further assessment is not required as the populations in the area are long established and understood. There is no suitable habitat for newts either on site or immediately adjacent, and so the likelihood of negatively impacting any newts is negligible. Work will follow a precautionary method statement for groundworks to secure the safety of newts that might cross the site.

The buildings have no value for bat roosts. One of the storage barns contained a swallow nest, so appropriate compensation will be erected on the new building.

1.4 Conclusion

It has been agreed with the client that the biodiversity value of the site will be enhanced post-construction with the inclusion of bird boxes.

The method statements provided in sections 6.3.2, 6.5.2 and 6.6.2 of this report will be followed, and work will be conducted at a suitable time of year to minimise potential impacts. 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 5 years' experience conducting ecological appraisals. It has been reviewed in line with Greenscape's Quality Management System.

For full details of surveyors and licences please see Appendix A.

2.1 Project Background

Greenscape Environmental Ltd was commissioned by DPA on behalf of the client to conduct a survey to determine the presence of protected species and potential for the damage or destruction of habitats of value. This forms part of the planning application for the demolition of storage units and prefab offices north of Oak Road, and subsequent construction of new industrial units on site.

2.2 Purpose of the Report

This report aims to:

- Identify the key ecological constraints to the proposed development.
- Inform planning to allow significant ecological effects to be minimised or avoided where possible.
- Allow any necessary mitigation or compensation measures to be development following the mitigation hierarchy.
- Identify any additional surveys that may be required to inform the assessment.
- Identify the opportunities offered by a project to deliver ecological enhancement under NPPF Section 15.

The Local Planning Authority will require further information regarding great crested newts because of known populations in the area.

2.3 Site Context and Location

The site is located in the eastern periphery of Wrexham Industrial Estate, OS grid reference SJ39124921. It is set in a suburban environment surrounded by the industrial estate to the west and north, and open fields to the east and south. There is poor connectivity to the surrounding countryside. The surrounds are known to support breeding great crested newts.

3 Methodology

Broad methodologies for data collection and interpretation were informed by guidance outlined in CIEEM (2017) – Guidelines for Preliminary Ecological Appraisals. Full details can be found in Appendix B.

3.1 Desk Study

The desk study provides contextual information such as the site's proximity to designated areas and known records of protected or notable species.

3.2 Field Survey

3.2.1 Date and Survey Conditions

Table 3.1. Survey conditions

Date	Time	Equipment Used	Weather
16/10/2020	10:00	Camera, torch	12°C, F0-1 wind, overcast, dry underfoot
Comments	One surveyor used: Ben Jones.		

3.2.2 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 of site value.

3.3 Species Survey

Features on site were assessed for potential for bat roosts, foraging and commuting. These were conducted in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition, BCT, Collins (ed.) (2016).

Badger surveys were conducted using guidance from Scottish Natural Heritage commissioned Report No. 096 (2003).

Features on site were assessed for potential for nesting birds.

The assessment of aquatic habitat for great crested newts is based on the Habitat Suitability Index.

The terrestrial habitats at the application site were surveyed and assessed with respect to suitability and potential value for great crested newts.

3.4 Constraints of the Survey

All areas were accessible for this survey. It was conducted at a suboptimal time of year for the assessment of most fauna, but this was not considered a constraint because typical evidence can be seen year-round and habitat potential will also be evident year-round.

The internal search revealed that the buildings had not been subjected to any form of specific cleaning and was in a natural redundant state.

4 Baseline Ecological Conditions

4.1 Nearby Features of Importance

4.1.1 Designated Sites

MAGiC

R&R - North of Oak Road

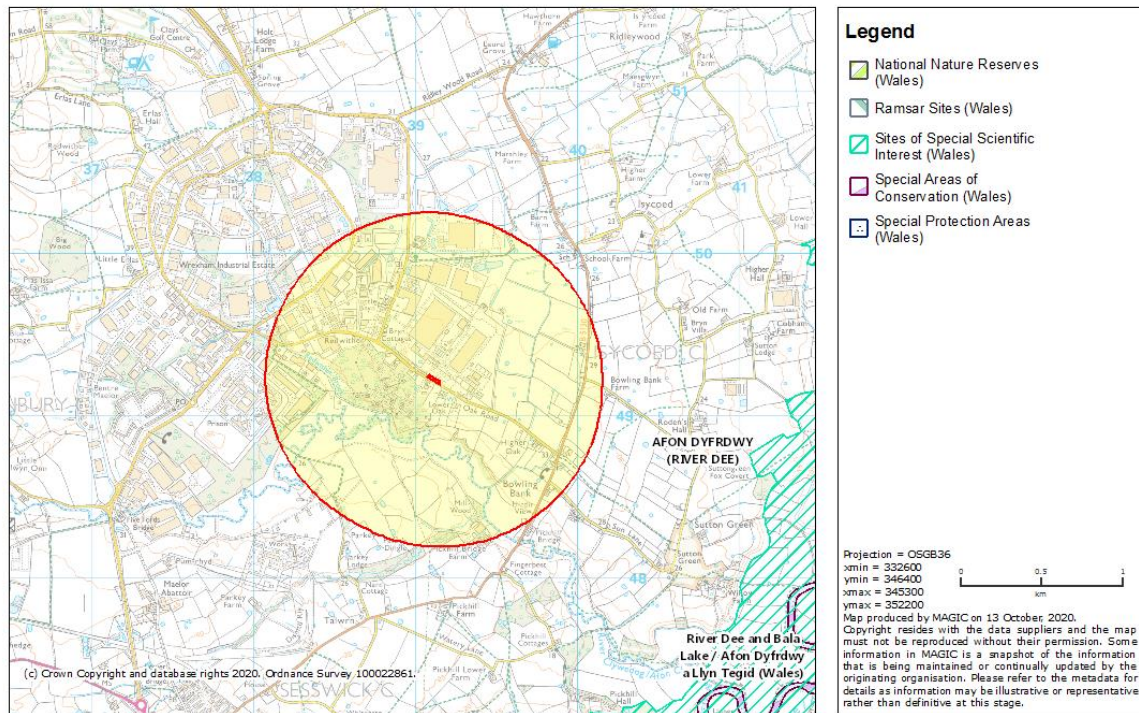


Figure 4.1. Identifying any designated areas near site, a 1km buffer is shown

The map from Natural England presented in Figure 4.1 indicated that the site is not within 1km of any designated areas.

4.2 Habitats on Site

The site comprises hardstanding (J4) and several individual buildings (J3.6) including storage units built of brick and metal, and pre-fab office units. The site is bordered by fencing (J2.4).



Figure 4.2. Hardstanding along northern edge of site



Figure 4.3. Inside storage unit



Figure 4.4. Inside office unit

The buildings on site are all flat-roofed and no hidden loft spaces are present.

The wood and concrete fence along the east and northern boundary will be retained and unmodified as part of this development. The existing accesses off Oak Road will be utilised but may be improved.



Figure 4.5. Western entrance



Figure 4.6. Eastern entrance

4.3 Bats

4.3.1 Records

Records of bats within 2km include whiskered bat (*Myotis mystacinus*), noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*P. pygmaeus*).

The nearest records are of noctule, common and soprano pipistrelle approximately 600m away from 2016. Whiskered bats have also been recorded 600m away but in 1999.

4.3.2 Field Observations

The site had no features suitable for roosting bats. The buildings lack cavities which might be used by bats and are all made of suboptimal materials. No evidence of bats was found in the storage areas which are less frequently used than the office rooms.



Figure 4.7. Flat roofs with no cavity

4.4 Other Mammals

4.4.1 Records

Records of other mammals within 2km include hare (*Lepus europaea*), otter (*Lutra lutra*) and badger (*Meles meles*).

The nearest records are historic badger records from 1983 at a site 400m away. Hare have been recorded 800m away in 2005.

4.4.2 Field Observations

The site had no features for, or evidence of use by, badgers or other non-bat mammals.

4.5 Birds

4.5.1 Records

Records of birds within 2km include Kestrel (*Falco tinnunculus*) and barn owl (*Tyto alba*).

The nearest records are kestrel 500m away in 2008. Barn owls have most recently been recorded in 2005 at a site 800m away.

4.5.2 Field Observations

One of the storage units searched had a swallow (*Hirundo daurica*) nest inside, which will be lost when the buildings are removed.



Figure 4.8. Swallow nest atop beam

4.6 Amphibians

4.6.1 Records

Records of amphibians within 2km include common toad (*Bufo bufo*), smooth newt (*Lissotriton vulgaris*), common frog (*Rana temporaria*) and great crested newt (*Triturus cristatus*).

The nearest records are of great crested newts approximately 100m northwest at Prysmian Cables & systems. This is from the pond which tested positive in 2019. This same pond was shown to support smooth newts in 1992. Common frog and toad have been recorded 500m northwest in 2016.

It is understood that pond 1 supports great crested newts based on information from Wrexham Council, but this data was not present in the latest data search.

4.6.2 Field Observations

There are four ponds shown on the OS map within 250m. These have all been assessed in 2019 and there are known to be great crested newts throughout Wrexham Industrial Estate.

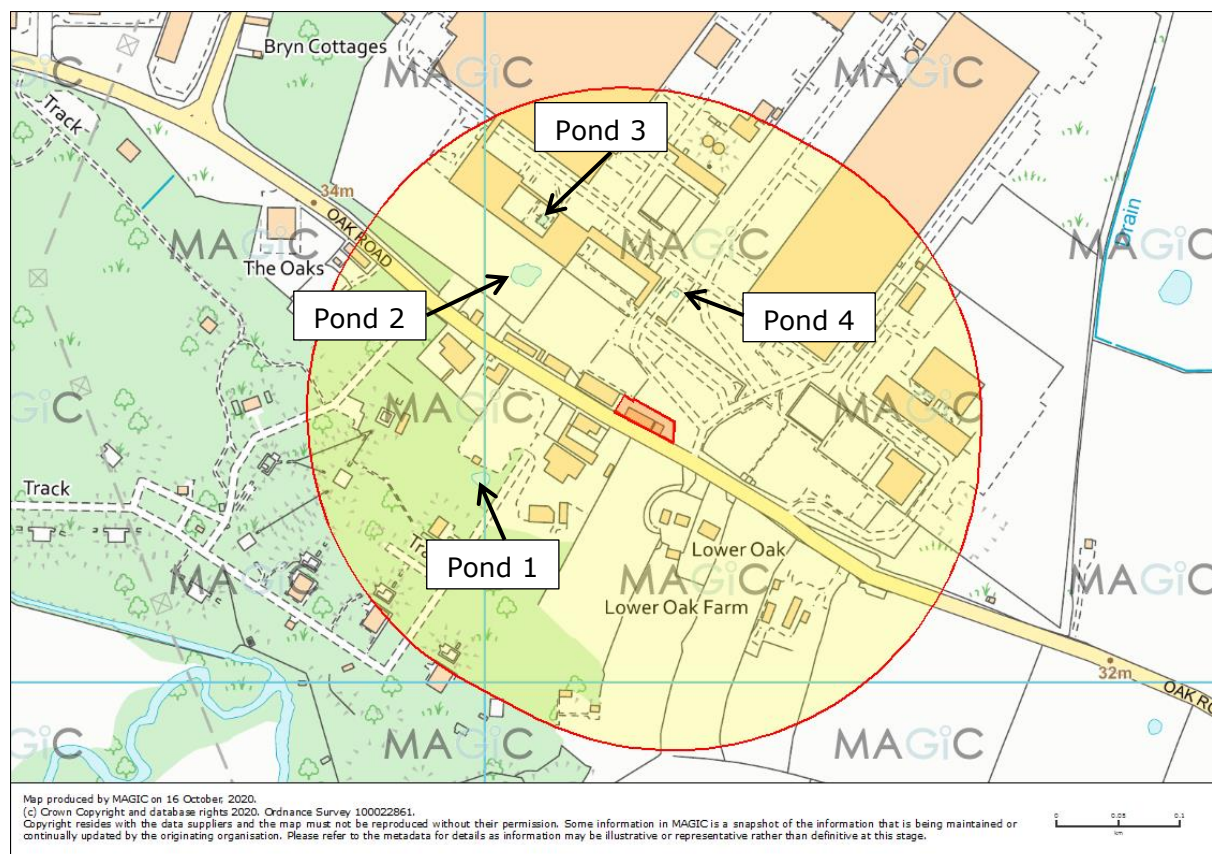


Figure 4.9. OS Map showing a 250m buffer around site, highlighting ponds

Pond 1 is on land immediately adjacent to that owned by R&R Engineering. Wrexham council have informed that a medium population of newts should be assumed in this area. Pond 1 scored 0.57 on the HSI assessment.

Pond 2 had samples taken in 2019 which were sent for eDNA assessment, which returned a positive result. Pond 3 is dry, and pond 4 is a small ornamental pond set below ground level with vertical concrete edges.



Figure 4.10. Pond 1 area



Figure 4.11. Pond 2 – positive eDNA test



Figure 4.12. Pond 3 - No standing water



Figure 4.13. Pond 4 – Ornamental

The land to be lost is of no value for newts, being hardstanding and buildings with no gap around the base. The open areas of site are in constant use and materials are frequently moved.



Figure 4.14. No suitable gap around the base of the buildings

4.7 Reptiles

4.7.1 Records

Records of reptiles within 2km include slow-worm (*Anguis fragilis*) and adder (*Vipera berus*).

The nearest records of both species are 600m away from 1999, and 1000m away in 2009.

4.7.2 Field Observations

The site had no features suitable for basking reptiles.

5 Description of Proposed Development

The current plans are for the demolition of the existing storage and office units, and construction of new industrial units. The accesses will remain the same off Oak road.



Figure 5.1. Excerpt of DPA proposed site plans

6 Impacts, Enhancements and Mitigation

6.1 Nearby Features of Importance

Figure 4.1 shows that the nearest SSSI is over 1km away, no negative impact is expected.

6.2 Habitats on Site

The development as proposed will not see the loss of any habitats of inherent value. Any mitigation or enhancement will be delivered on a species level.

6.3 Bats

6.3.1 Impacts

There is unlikely to be any negative impact on any bats in the area as the buildings to be demolished are of no value to roosting bats. Any bats in the area may visit for foraging purposes only, which will be possible throughout and after development. The site will be enhanced by erecting an artificial bat box on the exterior of the building when complete.

6.3.2 Mitigation / Enhancements

Work can be conducted immediately once planning permission has been granted.

Artificial Habitats

It is recommended that provision be made for roosting opportunities for bats with the erection of one woodcrete bat box suitable for a day roost on the site of the new building. These will be erected at a minimum height of 3-4 m and in a southerly, westerly or easterly facing direction.



Figure 6.1. Example woodcrete bat box: Schwegler 1FF

Lighting

Lighting needs to be designed to have minimal impact on bats and their commuting and foraging areas. This results in the recommended use of downlights and the horizontal spread of lighting to be kept to a minimum.

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

6.4 Other Mammals

No negative impact on any non-bat mammals is expected from the development as proposed. No evidence or habitat was found of value.

6.5 Birds

6.5.1 Impacts

Work at this site will include the demolition of buildings on site, at least one of which contains a swallow nest. This means the demolition work could affect nesting birds if conducted during the nesting season.

6.5.2 Mitigation / Enhancements

1. The demolition of the buildings will be done outside 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. Should an actively nesting bird be found, a 4m buffer will be left around the nest, and no further disturbance conducted until the young have fledged.
3. It is recommended that a range of woodcrete boxes are erected around the site to provide an enhancement for passerine birds, and a selection of the following would be appropriate.



Figure 6.2. Bird boxes

6.6 Amphibians

6.6.1 Impacts

Populations of great crested newts are known to be present throughout Wrexham Industrial Estate. Pond 2 tested positive for great crested newts in 2019.

The potential impact from the development has been assessed based on the quality of land to be impacted and the distance from nearby ponds. The site is approximately 820m² in total, which is 0.082 ha. The nearest corner of the site is ~115m away from both ponds 1 and 2.

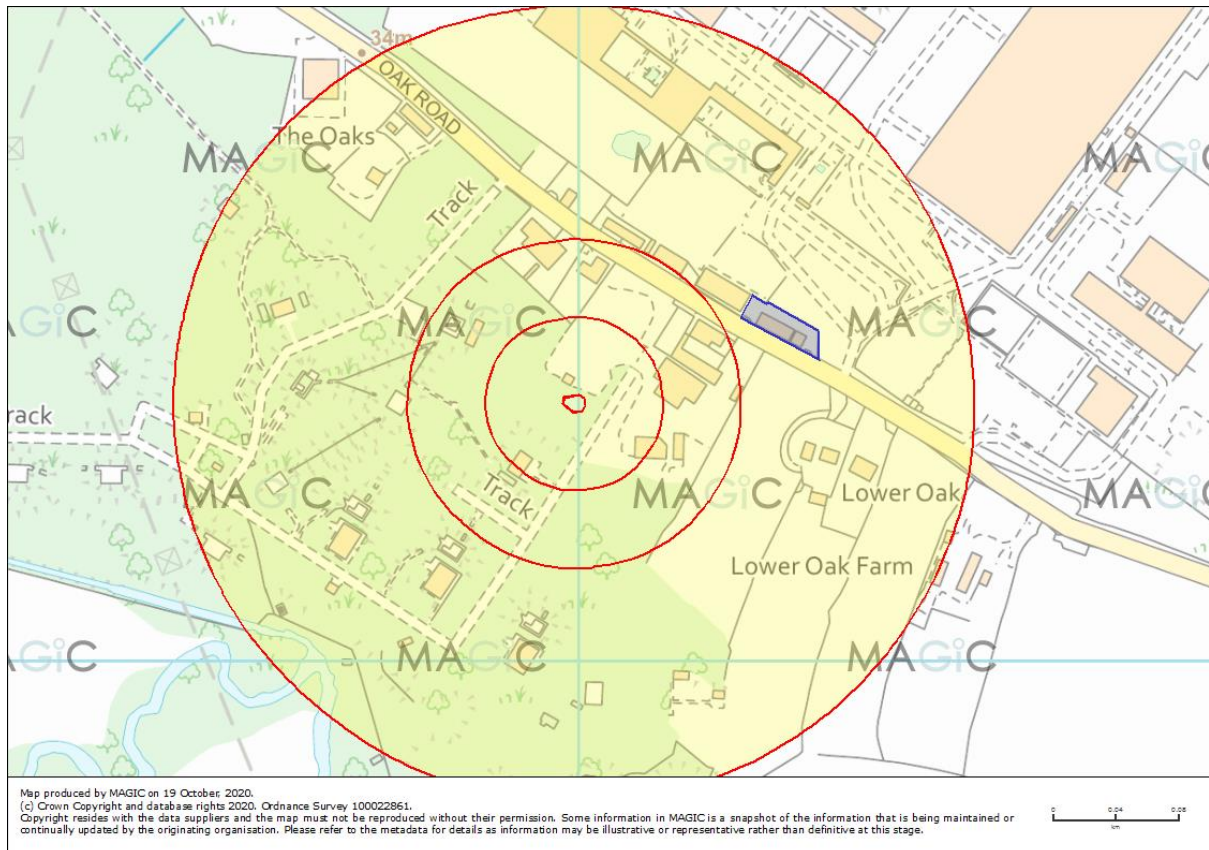


Figure 6.3. 50m, 100m and 250m around pond 1

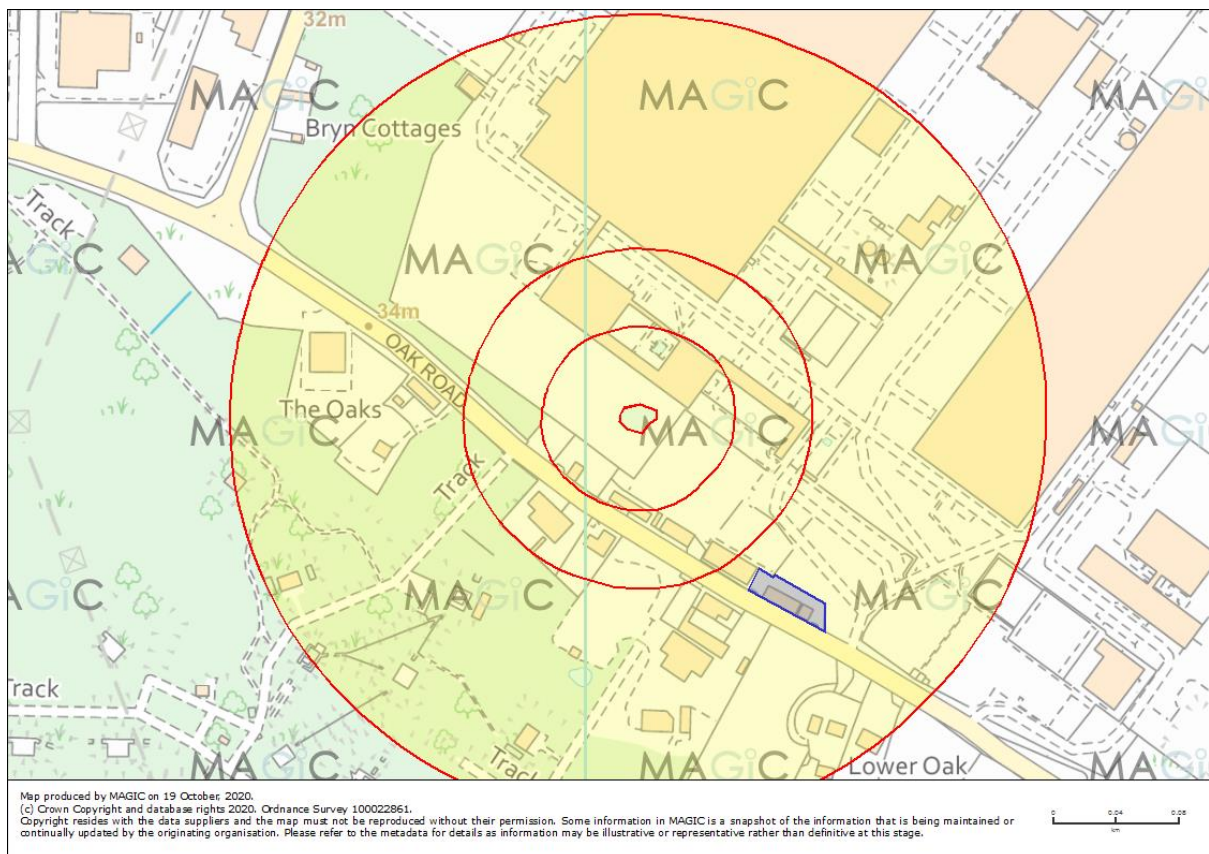


Figure 6.4. 50m, 100m and 250m around pond 2

The risk of an offence is highly unlikely, as the land to be lost is of no value and the ponds are over 100m away. This does not preclude the presence of newts on site, however, and so a precautionary method statement will be followed to ensure the safety of any newts or other amphibians found on site.

6.6.2 Mitigation

Working Method Statement

Pre-Construction

1. The site will be managed and maintained to the same level as currently, allowing no plants to grow on site. No rubble or material piles will be permitted on site unless raised on a pallet, as is currently the practise on site. This will prevent the potential shelter value of site from increasing.

Site Setup

2. A consultant will be retained as the Ecological Clerk of Works (ECow) to oversee the work in areas sensitive to great crested newts on site.
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. All groundwork will be conducted during daylight hours as newts are least likely to move during this time.
11. 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.
12. If necessary, a ramp will be placed in trenches to allow newts and small mammals to escape.
13. Any heavy machinery will be stored on an area of hardstanding to avoid refugia being created.
14. 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.
15. All waste will be placed straight into skips to reduce the potential of creating refugia.
16. If a newt is found, then work will stop immediately and the ECoW contacted for advice.
17. Great crested newts will not be handled or moved without express permission from Natural Resources Wales as this would constitute an offence.
18. 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.

6.7 Reptiles

No negative impact on reptiles would be expected from the development due to the lack of suitable habitat on site. The method statement provided for great crested newts will also protect any reptiles that do happen to be in the area.

7 Concluding Remarks

The survey has focussed on the potential habitats or protected species to be damaged or destroyed as part of this development.

There are four ponds within 250m, one of which (pond 2) has tested positive for great crested newts via an eDNA test conducted in 2019. Wrexham Council has also suggested that pond 1 contained great crested newts in previous years. Both ponds are over 100m from the proposed development site. The site comprises hardstanding which is frequently disturbed, and buildings which are of no value to great crested newts. As the proposed development is considered unlikely to have any negative impact, no further surveys are considered necessary. A precautionary method statement has been provided which outlines working practices to further reduce the likelihood of a negative impact on local GCN populations.

One of the storage buildings on site supported at least one swallow nest. Work will therefore be timed to take place over winter, when nesting birds are least likely to be present. Replacement nesting opportunities will be provided by erecting artificial nest cups and boxes.

The site is of no value for bat species, and no evidence of bats was found on site. The site will be enhanced for roosting bats by erecting at least one bat box on the side of the new building once complete.

No evidence of non-bat mammals was found on site and none would be expected to be disturbed by the development as proposed.

The method statements provided in sections 6.3.2, 6.5.2 and 6.6.2 of this report will be followed, and works will be done at a suitable time of year. Other than those listed above, there are no ecological constraints to the development as currently proposed.

Appendix A – Surveyor Details

Table A.1. Details of surveyors' experience and licences held

Name	Membership of associations/ experience	Licenses
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 5 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 - S085098/2 GCN - S087992/1
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

Appendix B – Methodology

Desk Study

Table B.1. Data sources

Organisation/Resource	Information Assessed
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)

Records of species previously surveyed in the area was obtained from previous surveys on site and in the area by Greenscape Environmental Ltd.

A search on Multi Agency Geographic Information for the Countryside (Magic Maps) determined nearby designated areas. The map is presented in Section 4.1.

A review of other surveys conducted in the area by Greenscape Environmental was also conducted. Survey reports include 2206 2001R, a site to the southwest also owned by R&R Engineering.

Field Survey

An assessment of habitats was conducted broadly following the JNCC Handbook for Phase 1 Surveys 2010.

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.2. 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

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

Features on site 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 suitably 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.

Badgers

Surveys were conducted using guidance from Scottish Natural Heritage commissioned Report No 096 (2003).

Daytime surveys for badgers involved looking for:

- Scrapings where badgers have dug for food or used as latrines.
- Signs of a sett, including signs of use such as presence of badger hair
- Tracks and prints.

Birds

Searching for evidence of nesting birds, including barn owls, 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.

An eDNA test for great crested newts was conducted in accordance with the protocol set out in the Natural England technical advice note WC1067 (Biggs, J. *et al.*, 2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

Appendix C – Policy

The following areas of policy and legislation are of relevance to ecology and provide context to the surveys conducted. Findings presented in this report are 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)

The Protection of Badgers Act (1992)

Natural Environment and Rural Communities (NERC) Act (2006)

Planning Policy Wales 2002, updated Dec 2018

Section 6.4 – Biodiversity and Ecological Networks

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

Environment Act (Wales) (2016)

Section 7

Wrexham Unitary Development Plan – EC6 Biodiversity Conservation

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.

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.

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.

Some bird species are included in the UK and local BAPS and are recognised as species of principal importance for nature conservation in accordance with section 41 of the NERC Act 2006. Such species and their habitats receive protection through the provisions of the NPPF.

Amphibians 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.

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 a 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. The National Planning Policy Framework (NPPF) states that to minimise impacts on biodiversity and geodiversity, *"planning policies should... promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations"*.

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:

- 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.
- 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"
- 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."

Appendix D – HSI Scores

Table D.1. HSI score and justification for Pond 1

Pond 1 Grid reference: SJ38994916		
Geographic Location	1	Zone A
Pond Area	0.1	The pond is routinely less than 100m ²
Permanence	0.9	Never dries
Water Quality	0.33	The pond is almost completely blocked by emergent vegetation. Netting was not possible
Shade	0.3	There was estimated to be 90% shading of the area within 1m of the perimeter
Waterfowl	1	No evidence of waterfowl impact
Fish	0.67	No evidence of fish but local conditions suggest they may be present
Pond Count	1	There are over 30 ponds within a 1km radius
Terrestrial Habitat	0.67	The immediate surrounding land to the southwest is a woodland area, however this made up about 30% of the 250m radius area. The rest is hardstanding.
Macrophytes	0.95	There was well over 60% floating or emergent vegetation in this pond
HSI Score	0.57 – Below Average	

Table D.2. HSI score and justification for Pond 2

Pond 2 Grid reference: SJ39034933		
Geographic Location	1	Zone A
Pond Area	0.4	The pond is approximately 200m ²
Permanence	0.9	Never dries
Water Quality	0.67	Moderate invertebrate diversity
Shade	0.4	There was estimated to be 90% shading of the area within 1m of the perimeter
Waterfowl	1	No evidence of waterfowl impact
Fish	1	No records of fish stocking and no fish revealed during survey
Pond Count	1	There are over 30 ponds within a 1km radius
Terrestrial Habitat	0.33	Aside from the trees bordering the pond, the surrounding land is hardstanding and amenity grassland.
Macrophytes	0.6	There was very little floating or emergent vegetation in this pond, cover was estimated to be <30%
HSI Score	0.67 - Average	

Appendix E – Bibliography

ARG UK (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom.

Chartered Institute of Ecology and Environmental Management (CIEEM), (2006). *EcIA Guidance (Terrestrial, Freshwater and Coastal 2006)*.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust

Conservation of Habitats and Species Regulations 2017:
http://www.opsi.gov.uk/si/si2010/uksi_20100490_en_1

English Nature (2001) *Great crested newt mitigation guidelines* - English Nature

HMSO (2000) *Countryside and Rights of Way Act 2000* - HMSO, London
<http://www.legislation.gov.uk/ukpga/2000/37/contents>

HMSO (1981) *Wildlife and Countryside Act 1981* - HMSO, London
<http://www.legislation.gov.uk/ukpga/1981/69>

HMSO (1992) *The Protection of Badgers Act* - HMSO, London
<http://www.legislation.gov.uk/ukpga/1992/51/contents>

ILP (2018) Guidance Note 08/18 Bats and artificial lighting in the UK, The Institute of Lighting Professionals

Mitchell-Jones A.J. (2004) Bat Mitigation guidelines, English Nature

National Planning Policy Framework 2018:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf

Natural England – Nature on the Map, Magic Maps. Copyright Natural England, containing Ordnance Survey data, crown copyright and database right 2018:
<http://magic.defra.gov.uk/magicmap.aspx>

Natural Environment and Rural Communities Act 2006:
<http://www.legislation.gov.uk/ukpga/2006/16/contents>