Environmental Statement

Appendix 8.8: Great Crested Newt Survey

Land at Lower Berse Farm, Wrexham

On behalf of Redrow Homes Ltd

July 2024



THE ENVIRONMENT PARTNERSHIP



RUTHIN ROAD

WREXHAM

GREAT CRESTED NEWT SURVEY

TEP Technical Report October 2022

TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

Tel: 01925 844004
Email: tep@tep.uk.com
www.tep.uk.com

Offices in Warrington, Market Harborough, Gateshead, London and Cornwall

Document Title	Great Crested Newt Survey
Prepared for	Redrow Homes
Prepared by	The Environment Partnership (TEP) Ltd
Document Ref	8745.002

Author	Emma Hickson
Date	October 2022
Checked	Anne Pritchard
Approved	Anne Pritchard

Amendment History					
Version	Date	Modified by	Check / Approved by	Reason(s) issue	Status

CONTENTS

1.0 Summary 1
2.0 Method..... 2
3.0 Results 7
4.0 Further Requirements 12

DRAWINGS

G8745.017 Pond Location Plan and GCN Survey Results 2021

1.0 Summary

1.1 Amphibian surveys have been undertaken at three ponds within 500m of the proposed housing development at Ruthin Road, Wrexham.

1.2 Data searches, Habitat Suitability Assessments, eDNA sampling, torch surveys, bottle trapping, and egg searches surveys were carried out. Surveys were undertaken within the appropriate season and under the recommended conditions.

1.3 The surveys have confirmed that no population of GCN are present on the site. While pond P3 was not surveyed due to lack of access, it's isolation from other ponds in the area, all being more than 500m away, makes it unlikely that a population of GCN is present here.

1.4 No common amphibians were recorded within pond P1.

1.5 No further amphibian surveys are required at this time.

2.0 Method

Scope

2.1 The Ruthin Road site is located to the west of Wrexham town centre. Ruthin Road lies to the north of the site and the A483 to the west, with Bersham Road bordering the south of the site. A review of available online Ordnance Survey mapping and aerial imagery has identified nine ponds present within 500m of the site boundary, two of which (P1 and P2) are within the site. which are within 500m of the site. However, Ruthin Road is considered to be a barrier to the movement of great crested newts *Triturus cristatus* (GCN) and therefore the five new waterbodies associated with recent developments to the north of Ruthin Road are excluded from the survey requirement. Of the two ponds to the south of the B5099 on the southern boundary of the site the westernmost pond is isolated from the site by walls along each side of the road and is therefore excluded from survey requirement. The eastern pond (P3) has the potential to be linked and is therefore included within the scope for HSI surveys. The site boundary and the locations of the ponds are illustrated in Figure 1.

Figure 1: Site boundaries, 500m scoping zone and pond locations

2.2 The surveys are designed to determine whether or not GCN are breeding within the site or in ponds within ranging distance of the site. Where GCN are present survey effort is designed to allow population size class to be assessed. This information is required to inform development proposals including the design of any mitigation and consideration of any relevant legislation and policies. Although surveys target GCN, other amphibian species will also be detected by the methods employed, these species if encountered are recorded and the results presented in this report.

2.3 Ponds P1, P2 and P3 have been included in the field survey scope.

Data Search

2.4 A 2021 web-based search confirmed habitat within and adjacent to the site had the potential to support amphibians and that GCN had historically been recorded in the general locality. A data request was submitted to Cofnod in April 2021 to ascertain if any records of GCN are within the influence of the Ruthin Road site. The search zone included the site and within 2km of the site boundaries.

Habitat Suitability Index (HSI) Assessments

2.5 HSI surveys were undertaken at all 3 ponds, with the survey for pond P3 being undertaken from publicly accessible land. Pond P2 was no longer present at the time of survey. HSI surveys were undertaken on 1st April 2021.

2.6 HSI[1] is a standard measure of calculating the suitability of a pond to support breeding GCN, based on an assessment of ten characteristics (indices), including size, shading, depth and vegetation profile. The assessment generates a number between 0 and 1 for each of the indices which are combined to provide an overall assessment of a pond's suitability to support GCN on a categorical scale (Table 1). The assessment has not been designed for or tested on other waterbodies such as ditches.

Table 1: Pond habitat suitability index scoring

HSI Score	Suitability	Predicted GCN Occupancy of Ponds in each Category
< 0.5	poor	3%
0.5 to 0.59	below average	20%
0.6 to 0.69	average	55%
0.7 to 0.79	good	79%
> 0.8	excellent	93%

Qualifications

2.7 HSI surveys were undertaken by Angie McEwan who has held a GCN survey licence since 2015 (licence ref: 2015-16877-CLS-CLS).

eDNA

2.8 Environmental DNA (eDNA) sampling was undertaken at pond P1 on 15th April 2021. Pond P2 was no longer present and therefore not included within the survey. Access was not granted to survey pond P3.

2.9 Sample collection was undertaken by TEP. Sample kits and analysis was provided by FERA. Both organisations followed the relevant sections of the method set out in the DEFRA funded study endorsed by Natural England[2]. In summary the sampling protocol is as follows:

- 20 samples were taken from around the entire perimeter of the waterbody.
- The surveyor stayed out of the water while taking the samples (extension poles were used in situations where open/sufficiently deep water was at a distance from the dry banks.
- Survey locations were distributed around the pond perimeter but micro-siting was used to select locations most likely to be used by GCN.
- At each sample location the water column was stirred prior to taking the sample but care was taken to avoid disturbing the sediment on the base of the pond.

1: ARG UK Advice Note 5 (May 2010) Great Crested Newt Habitat Suitability Index
2: Biggs et al 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford

- Once all 20 samples were taken, 15ml of the total sample were pipetted into each of the 6 sampling tubes, whilst ensuring that the water in the sample bag was mixed before taking each 15ml sample and that only one sample tube was opened at any one time.
- At all times the surveyor ensured that the risk of contaminating the sampling equipment was minimised by avoiding the placement of the ladle or pipette on the ground or on any otherwise potentially contaminated surfaces and by changing gloves between the initial sampling stage and the pipetting stages of the method.

Chain of custody

2.10 On receipt from FERA the sampling kits were registered on a central database using the unique bar codes. Immediately prior to survey, sampling kits were issued to surveyors with individual Sample Forms using the unique bar code as identification. The site name and date of issue was also recorded on this form (and on the central database). Once in the field and at the ponds, the surveyor confirmed that the appropriate field survey sheet was being completed by checking the bar code on the box and double checking the corresponding bar codes on the sample tubes. The surveyor then filled in the date of survey and the pond ID number (as well as other information relating to survey conditions) on the Sample Form.

2.11 On returning to the office the Sample Forms were signed to confirm for each sample who received the samples and checked them into the fridge and the temperature of the fridge. The pond IDs on each form were checked against a site map confirming which ponds had been sampled and this map was stored with the Sample Forms. All this information was also recorded on the central database. The sample preserving tubes were stored in a fridge until the morning of collection by the courier. The Sample Forms and the central database were updated to confirm the date of collection by the courier.

2.12 The unique bar codes were used by FERA to report results. All results were recorded in the central database by one member of staff and cross checked by a second member of staff before issuing to the project leader for review.

Qualifications

2.13 TEP Director (Ecology) Elizabeth Seal underwent training on the eDNA sampling method with Dr Jeremy Biggs of the Freshwater Habitats Trust[3] on 11th April 2014. A copy of the certificate of this training can be provided on request. Following this Elizabeth devised a TEP internal training course covering theoretical and field based modules on eDNA sampling method, biosecurity measures and record keeping procedures. Only those TEP ecologists with GCN survey licences who have successfully undertaken this course are tasked with eDNA sampling.

3: Dr Briggs authored the 2014 DEFRA funded report on the eDNA survey method for great crested newts.

Torch, Bottle Trap and Eggs Searches

2.14 In line with Natural Resources Wales (NRW) guidance a combination of three survey techniques were used to assess population size class; bottle trapping, torch surveys and egg searches were primary survey techniques and hand netting or terrestrial searches were used in the event that primary techniques were not appropriate (i.e. too shallow to bottle trap or floating vegetation obscuring torch surveys). Surveyors worked in pairs with at least one Natural Resources Wales licensed surveyor in each team. Surveys were undertaken between mid-March and mid-June with at least two visits in the core period of mid-April to mid-May. To ensure effective detection rates torch and bottle surveys were undertaken when nighttime air temperatures were >5oC and when rain and wind conditions did not affect visibility (only relevant to torch surveys). Dates and surveyor details are provided at Tables 2 and 3.

Torch survey

2.15 Torch surveys were undertaken at Pond 1. Ponds were surveyed by walking the perimeter. Torch surveys were carried out after dusk with a powerful torch (one million candle power). The number, species and (where possible) sex and age class of amphibians seen were recorded. It is not always possible to achieve 100% coverage along pond margins using the torch surveys because of access difficulties, for example dense vegetation or boggy banks. Access was only taken where it was safe to do so. Estimates of the percentage of shoreline of each waterbody surveyed and other factors affecting torching were recorded.

Bottle trap survey

2.16 Bottle trapping surveys were undertaken at Pond 1 The bottle trap used was a standard two litre plastic bottle with the funnel inverted. The traps are secured in the water at the pond margins using a flagged cane. Bottle traps were generally set at an average spacing of 2 metres along accessible shorelines (to allow estimation of population size), but micro-siting was employed to increase capture efficiency. If local conditions required different spacing this was recorded at the time of survey. It is not always possible to achieve 100% coverage along pond margins to set bottle traps because of access difficulties. Access was only taken where it was safe to do so. Estimates of the percentage of shoreline of each waterbody surveyed were recorded.

2.17 Traps were set in the evening and operated overnight, emptying the traps early the following morning. Newts are particularly at risk on warm sunny days in shallow water traps. The traps were operated well within the maximum time limits in the NE guidance; traps with an air bubble up to 17 hours and traps without an air bubble, 12 hours in March-April, 10 hours in May and 8 hours in June.

Egg search

2.18 Egg searches were undertaken at pond 1. GCN lay their eggs on the leaves of submerged (live or dead) vegetation, folding the vegetation over the egg to form a protective ‘purse’. Aquatic vegetation was searched by walking or wading the shoreline of a waterbody and looking for the characteristic shape of folded leaves.

Unwrapping eggs (to identify the species) increases larval failure rates therefore egg searching in any waterbody was ceased as soon as a GCN egg was found.

Qualifications and survey dates

2.19 Table 3 summarises the timing of the surveys and the qualifications of the lead surveyors.

Table 2: Survey details

Pond ID	Lead Surveyor and Survey Date					
	Visit One	Visit Two	Visit Three	Visit Four	Visit Five	Visit Six
P1	08/04/21	19/04/21	11/05/21	17/05/21	24/05/2021	-
	J.Crowder	J.Crowder	J.Crowder	J.Crowder	J.Crowder	-

Table 3: Lead surveyor details

Surveyor	Current Licence	Licence held since
J.Crowder	56679:OTH:SA:2014	2014

Summary

2.20 On overview of the survey methods employed at each pond is presented in Table 4.

Table 4: Summary of field survey methods

Pond ID	Survey method used at pond and number of survey visits						
	eDNA Survey	Torch Survey	Bottle Survey	Netting Survey	Egg Survey	Terrestrial Searches	Larval Surveys
P1	Yes	Yes	Yes	No	Yes	No	No
P2	Dry						
P3	Access not permitted						

Limitations

2.21 Although access was not permitted to pond P3 for eDNA survey this was not seen to be a limitation to the overall survey effort for GCN and amphibians within and adjacent to the site.

3.0 Results

Data Search

3.1 The desktop data search returned 23 records for GCN within 2km of the site. The closest being 290m northeast of the site on the far side of Ruthin Road which is considered to be a barrier to amphibian movement. Full details and maps are provided in TEP Document 8745.001 (Ecology Desk Study).

3.2 25 records for other common amphibians including common frog, common toad, palmate newt and smooth newt were also returned within 2km of the site. The closest was a common frog record, 400m south of the site and on the far side of the River Clywedog, which would constitute a barrier to amphibian movement.

Habitat Suitability Index (HSI) Assessments

3.3 Pond descriptions and photographs are provided in Table 5 and the results of the HSI surveys are presented in Table 6.

3.4 The suitability of ponds within the site to support GCN ranged from Poor to Below Average. The suitability of ponds offsite site to support GCN ranged from Poor to Good.

3.5 Pond P1 suitability was Poor, in part due to water pollution as a result of slurry run-off from the adjacent farmyard. However, presence/absence surveys were still undertaken on a precautionary basis. Pond P3 suitability was Below Average; lack of access prevented further survey.

Table 5: Pond descriptions and photos

Pond	Description & grid reference	Photograph
P1	Pond P1 is a farmyard slurry/drainage pond. It houses waterfowl and is turbid and algae ridden	
P2	Pond P2 is no longer a pond. Now arable farmland.	
P3	Pond P3 is a small, fenced off pond within a short, grazed grassland field.	

HSI Assessment Results

Table 6: HSI survey results

Pond ID		1	2	3
SI	**Measure**			
SI1	Location	1	-	1
SI2	Area	15m2	-	10m2
SI3	Permanence	Sometimes	-	Rarely
SI4	Water Quality	Bad	-	Moderate
SI5	Shade	0%	-	50%
SI6	Waterfowl	Minor	-	Absent
SI7	Fish	Absent	-	Possible
SI8	Density	1	-	1
SI9	Terrestrial Habitat	Moderate	-	Poor
SI10	Macrophyte	0%	-	30%
Overall HSI Score:		**0.33**	**N/A**	**0.54**
Suitability		**Poor**	**-**	**Below Average**

eDNA

3.6 The results of the eDNA surveys are presented in Table 7. No GCN positive results were returned. However, the results were indeterminate and so traditional surveys were carried out.

Table 7: eDNA survey results

Pond Ref	Survey Date	Surveyor	Score	GCN Present? (Y/N)
P1	15/04/2021	Angie McEwan	Indeterminate	Indeterminate

Torch, Bottle Trap and Eggs Searches Summary

3.7 The results of the torch and bottle trap surveys are presented in Table 8 and the egg searches in Table 9. These results are also included on Drawing G8745.017.

3.8 No GCN or other common amphibians were identified in pond P1 during these surveys.

Table 8: Torch survey and bottle trap survey results

Pond Ref	Date	Air Temp ºC	Water Temp °C	Turbidity (0-5)	Vegetation Cover (0-5)	Shoreline covered % Torching	GCN adult	Smooth/ Palmate newt adult	Toad	Frog	Fish?	Weather Conditions/ Comments
P1	08/04/21	10	11	5	2	100	0	0	N	N	N	Clear and dry, not bottled on first survey
	19/04/21	10	12	5	2	100	0	0	N	N	N	Clear and dry, 25 bottles @ 1m spacing (80% shoreline covered)
	11/05/21	8	10	5	2	100	0	0	N	N	N	Overcast and rain, 25 bottles @1m spacing (80% shoreline covered)
	17/05/21	10	12.5	5	2	100	0	0	N	N	N	Dry and cool, 40 bottles @ 1m spacing (90% shoreline covered)
	24/05/21	8	11	5	2	100	0	0	N	N	N	Dry and cool, 45 bottles @ 1m spacing (100% shoreline covered), water beetle presence

Table 9: Egg search results

Pond Ref	Great crested newt	Smooth/ Palmate newt	Toad	Frog
P1	No	No	No	No

Results Summary

3.9 No GCN have been found within influence of the site by any method of survey.

3.10 No other common amphibians were recorded in pond P1.

4.0 Further Requirements

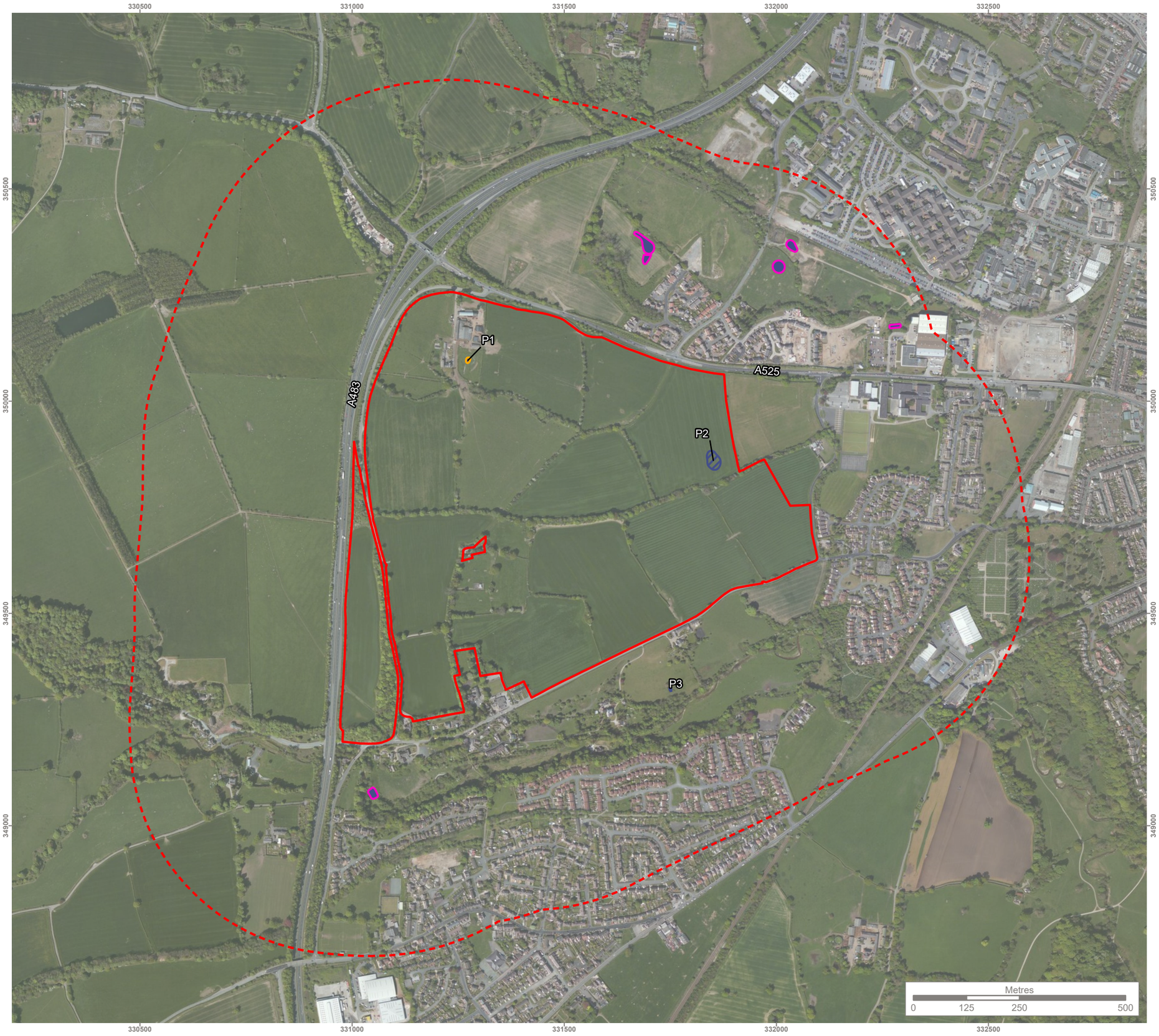
Additional Surveys

5.1 There are currently no additional survey requirements. Survey scope and timing is sufficient to inform development proposals and review legal and policy requirements. The surveys have confirmed that no population of GCN are present on the site. While pond P3 was not surveyed due to lack of access, it's isolation from other ponds in the area, all being more than 500m away, makes it unlikely that a population of GCN is present here.

5.2 Great crested newt surveys are valid for at least 2 years and potentially 4 years or more depending on the specific use of the data, local conditions and the potential impact predicted on GCN. When data is greater than 2 years old advice should be sought from an appropriately experienced ecologist.

DRAWINGS

G8745.017 Pond Location Plan and GCN Survey Results 2021



KEY

- Site boundary
- Site boundary - 500m buffer

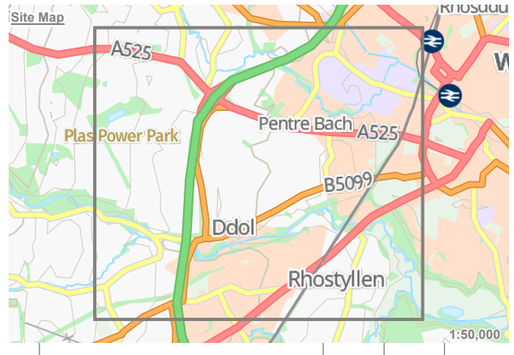
Great Crested Newt Survey Results (2021)

- Dry pond
- Scoped out of survey due to barriers to amphibian dispersal
- Pond with great crested newt absence
- Pond not surveyed

Note:
The locations of habitats and habitat features are indicative.

Reproduced by permission of Ordnance Survey on behalf of Her Majesty's Stationery Office.

Contains OS data © Crown Copyright and database right 2022. All rights reserved.
Contains data from OS Zoomstack
DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Rev	Description	Drawn	Approved	Date

TEP THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Ruthin Road, Wrexham

Title
Pond Location Plan

Drawing Number
G8745.017

Drawn	Checked	Approved	Scale	Date
SA	CW	AP	1:9,000 @ A3	02/12/2022

HEAD OFFICE WARRINGTON

Genesis Centre,
Birchwood Science Park,
Warrington
WA3 7BH

Tel: 01925 844004
E-mail: tep@tep.uk.com

MARKET HARBOROUGH

Harborough Innovation Centre,
Airfield Business Park,
Leicester Road,
Market Harborough
Leicestershire,
LE16 7WB

Tel: 01858 383120
E-mail: mh@tep.uk.com

GATESHEAD

Office 26, Gateshead International Business Centre,
Mulgrave Terrace,
Gateshead
NE8 1AN

Tel: 0191 605 3340
E-mail: gateshead@tep.uk.com

LONDON

8 Trinity Street,
London
SE1 1DB

Tel: 020 3096 6050
E-mail: london@tep.uk.com

CORNWALL

4 Park Noweth,
Churchtown,
Cury,
Helston
Cornwall
TR12 7BW

Tel: 01326 240081
E-mail: cornwall@tep.uk.com