

# Ecologyia Ltd.

## Great Crested Newt Survey & Recommendation Report – Mythe Farm

**Intended for:**

**Mr. & Mrs. J Garland**

**Date:**

**August 2025**

**Project Number:**

**CTPL\_020\_02**

**Document Number:**

**CTPL\_020\_02\_R2\_18092025**

## Version Control Log

| Current Revision | Author       | Reviewed By | Approved By  | Date approved | Reason for Review        |
|------------------|--------------|-------------|--------------|---------------|--------------------------|
| v1               | S. A. Graham | -           | S. A. Graham | 23/08/2025    | Draft for client comment |
| V2               | S. A. Graham | -           | S. A. Graham | 18/09/2025    | Final for Issue          |

## Revision History

| Previous Revision | Author | Reviewed By | Approved By | Date approved | Reason for Review |
|-------------------|--------|-------------|-------------|---------------|-------------------|
|                   |        |             |             |               |                   |
|                   |        |             |             |               |                   |

## Revision Summary

| Paragraph Modified | Details of Modification |
|--------------------|-------------------------|
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## 1 EXECUTIVE SUMMARY

- 1.1.1. This report presents a Great Crested Newt *Triturus cristatus* survey of land at Mythe Farm, Pinwall Lane, Sheepy Magna, Atherstone, CV9 3PF. (the development site). The Appraisal was undertaken by Ecology Ltd. on behalf of Mr and Mrs J. Garland.
- 1.1.2. The aims of the study were to identify the presence or potential presence of *Triturus cristatus* and their habitats and provide an interpretation of potential historical habitats and ecological features prior to the construction of the development and provide an appraisal of any potential impacts the development may have had on these. The report also aimed to Provide recommendations for further survey work and / or mitigation measures, if required.
- 1.1.3. The Great Crested Newt survey comprises a multifaceted approach: a desk study review, walkover survey, Habitat Suitability Index survey and presence / likely absence survey.
- 1.1.4. A significant decline in the population status of GCN present in the wider environment has been identified between surveys undertaken in 2010 and those undertaken in 2024. Pond P1 has experienced a decline from a “Medium” population to that of a “Small” population and the population at Pond P2 has lost the population altogether.
- 1.1.5. With a population decline identified to have experienced in both ponds P1 and P2, a comparison in the reduction of numbers, when reviewed in relation to the dramatic change in the landscape over the same period of time and reduction in pond suitability to support GCN, identified through the HSI scores, could explain a natural population decline of what was considered to be a population of Local importance in 2010.
- 1.1.6. A review of historical land use on aerial imagery could suggest that the core habitat for breeding, foraging and resting / hibernating is limited to within close proximity of pond P1. Habitats between pond P1 and P2 have changed from agricultural to amenity.
- 1.1.7. Biodiversity enhancement measures, to be implemented as part of the application, to provide opportunities for the GCN population to recover from the experienced historical, natural decline have been proposed. The following enhancement is proposed within the northern section of the red line boundary (known and the biodiversity enhancement area):
- 1.1.8. Change of use from intensively managed agricultural land to include, but not limited to the creation of 1 x pond suitable for GCN breeding, the creation of 1 x hibernacula suitable for common amphibian and GCN hibernation and provision of grassland of varied sward to facilitate foraging and commuting to the wider environment.

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## 2 INTRODUCTION

### 2.1. BACKGROUND

2.1.1. Ecologyia Limited. (EL) was commissioned by Mr and Mrs J. Garland on 22 March 2024 to undertake a Great Crested Newt *Triturus cristatus* survey of land at Mythe Farm, Pinwall Lane, Sheepy Magna, Atherstone, CV9 3PF. The land is subject to a retrospective planning application in relation to the construction of a caravan storage facility. Two areas of land are included, the first including an area of hard standing, perimeter security fencing, portable site office and associated lighting (here on in known as ‘the development’) and a section of an arable field to act as a biodiversity enhancement area. The approximate center of the retrospective application lies at grid reference 431387, 299455 and the mitigation site at: 431387, 299455.

2.1.2. The objectives of the study were to:

- Identify the presence or potential presence of *Triturus cristatus* and their habitats;
- Provide an interpretation of potential historical habitats and ecological features prior to the construction of the development and provide an appraisal of any potential impacts the development may have had on these;
- Identify the proximity of any sites designated for nature conservation interest in relation to *Triturus cristatus* and provide an appraisal of any potential effects the development may have had on these;
- Identify the Favorable Conservation Status of *Triturus cristatus* at the development and provide an appraisal of any potential effects the development may have had on that; and
- Provide recommendations for further survey work and / or mitigation measures, if required.

2.1.3. The study comprised a field survey, in combination with a desk-based review of existing data and available online resources. The areas of interest related to the footprint of the development itself and associated works (Figure 1).

### 2.2. DEVELOPMENT DESCRIPTION

2.2.1. The Site subject to the retrospective planning application is a secure caravan storage facility. The development comprises an area of hard standing surrounded by a large earth bund and perimeter security fencing. The development comprises an area of some ca. 7960 square m. The development has a portable site office and associated time-limited lighting. The development is located some 389 m south of Pinwall Lane, accessed from internal farm tracks.

2.2.2. The biodiversity enhancement area comprises the corner or a field currently under arable use.

### 2.3. SITE DESCRIPTION

- 2.3.1. The assessment comprises two elements: the development and biodiversity enhancement site.
- 2.3.2. The development comprises an area of hard standing surrounded by a large earth bund and perimeter security fencing. The development has a portable site office and associated time-limited lighting present within the site.
- 2.3.3. The biodiversity enhancement site comprises the corner or a field currently under arable use located just to the south of an area of mature woodland.
- 2.3.4. The wider landscape is characterized by a network of arable and grazed fields with occasional woodland blocks and hedgerows, marshland areas and the Rivers Anker and Sence to the south and south-east respectively, interspersed with small roads. The Town of Atherstone lies just over 560 m to the south of the development.

### 2.4. LEGISLATION

#### WIDESPREAD AMPHIBIAN SPECIES

- 2.4.1. Widespread amphibians (common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus*) are protected via part of Section 9(5) of the Wildlife & Countryside Act 1981 (as amended).

#### The Wildlife & Countryside Act 1981 (as amended)

- 2.4.2. Widespread amphibians (common frog, common toad, smooth newt, palmate newt) are protected via part of Section 9(5) of the Wildlife & Countryside Act 1981 (as amended) against:
  - I. Selling, offering or exposing for sale, or having in possession or transporting for the purpose of sale, any live or dead wild animal or any part of, or anything derived from, such an animal; or
  - II. Publishing or causing to be published any advertisement likely to be understood as conveying buying or selling, or intending to buy or sell, any of those things.

#### Natural Environment & Rural Communities (NERC) Act 2006

- 2.4.3. Section 40 of Natural Environment and Rural Communities (NERC) carries an extension of the earlier Countryside and Rights of Way (CROW) Act (2000) biodiversity duty to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. Section 41 requires the Secretary of State, as respects England, to publish a list of species and habitats which are of 'principal importance for the purpose of conserving biodiversity'. These lists generally reflect the species and habitats previously listed under the UK Biodiversity Action Plan.

### PROTECTED AMPHIBIAN SPECIES: GREAT CRESTED NEWT

2.4.4. Great Crested Newts *Triturus cristatus* (GCN) are a European Protected Species, meaning that they are protected by law under the Conservation of Habitats and Species Regulations 2017, (as amended). Great Crested Newts are additionally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

#### Conservation of Habitats and Species Regulations 2017 (as amended)

2.4.5. The principal means by which the European Habitats Directive is transposed in England and Wales. Regulation 41 creates the following offences relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species e.g. GCN
- deliberately disturb animals of any such species in such a way as to be likely to:
  - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate;
  - significantly affect the local distribution or abundance of the species to which they belong;
  - deliberately take or destroy the eggs of such an animal; and
  - damage or destroy a breeding site or resting place of such an animal.

2.4.6. However, the actions listed above can be made lawful through the granting of licences (European Protected Species License) by the appropriate authorities (Natural England).

#### The Wildlife & Countryside Act 1981 (as amended)

2.4.7. The Act creates the following offences:

- To intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and interference with places used for shelter or protection, or intentionally disturbing animals occupying such places;
- Certain methods of killing, injuring, or taking wild animals listed in Schedule 6;

2.4.8. It also provides a mechanism making any of the above offences legal through the granting of licenses by the appropriate authorities.

### 3 RELEVANT GUIDANCE

3.1.1. Any ecological mitigation methodology, the subsequent interpretation and mitigatory advice provided by the ecologist will make reference to the following guidance documents:

- All UK (and individual UK countries) legislation can be viewed at: <http://www.legislation.gov.uk/browse>
- ARG UK (2017). *ARG UK Advice Note 4: Amphibian Disease Precautions: A Guide for UK Fieldworkers*. Amphibian and Reptile Groups of the United Kingdom.
- Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P. and Dunn F. (2014a). *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.
- English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough
- Gent, T. & Gibson, S. (eds). (2003). *Herpetofauna Workers' Manual* (revised reprint), JNCC, Peterborough, ISBN 1 86107 450 6.
- Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), *Great Crested Newt Conservation Handbook*, Froglife, Halesworth.
- Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10(4), 143-155.
- Rees H.C., Baker C.B., Maddison B.C. (2023). *An evidence review for great crested newt eDNA monitoring protocols*. Natural England Commissioned Reports, Number NECR476.

## 4 METHODOLOGY

### 4.1. DESK-BASED ASSESSMENT

- 4.1.1. A desk study was undertaken to identify statutory designated sites of nature conservation interest for *Triturus cristatus* within a 5 km radius of the development through a review of the Multi Agency Geographic Information for the Countryside (MAGIC) and Natural England (NE) websites.
- 4.1.2. Biological records data were requested from the Warwickshire Biological Records Centre (WBRC) and Leicestershire & Rutland Environmental Records Centre (LRERC).
- 4.1.3. The following data search parameters were used. Both the WBRC and LRERC data searches focused on the approximate center point of the development site (grid reference 431387, 299455):
- All statutory designated sites within a 5 km radius;
  - Non-statutory designated sites within a 2 km radius;
  - Records for *Triturus cristatus* within a 2 km radius.
- 4.1.4. Reference was also made to Ordnance Survey maps of the wider area and online aerial images ([www.google.co.uk/maps](http://www.google.co.uk/maps)) to Identify any feature of nature conservation interest in the wider landscape.
- 4.1.5. Additional reference was also made to historical site reports provided by the client:

Ecolocation Ltd. (2010). *Great Crested Newt Report and Mitigation Strategy at Mythe Farm, Sheepy Magna, Warwickshire*. Warwickshire.

### 4.2. FIELD SURVEY

#### Great Crested Newt Site Walkover Survey

- 4.2.1. A walkover survey was undertaken to identify and document all permanent / temporary waterbodies within 250 m from the development footprint.

#### Great Crested Newt Terrestrial Habitat Suitability Survey

- 4.2.2. GCN utilize different habitats at different times of year, satisfying different ecological requirements.
- 4.2.3. Habitats across the development site and in the wider environment, along with inferred historical habitats were assessed for their suitability to support GCN, satisfying these different ecological requirements. The following functional requirements were assessed.

### Connectivity

Are connectivity features present within or immediately adjacent to the site boundary which could be utilized by GCN as a pathway throughout the site / wider environment, between suitable areas of habitat.

### Breeding

Are waterbodies present on site, in suitable condition (see Great Crested Newt Habitat Suitability Index (HSI) Survey), which could be utilized by GCN for breeding.

### Foraging

Does the site contain habitats of a varied sward height and structure, providing a diversity of habitats for prey items.

### Shelter / Hibernation

Does the site contain habitats which would provide temporary shelter from dehydration and predation during a GCN's active period and / or sufficient thermal stability to provide overwintering (hibernation) success.

### **Great Crested Newt Habitat Suitability Index (HSI) Survey**

- 4.2.4. The HSI is a measure of habitat suitability using a numerical index between 0 and 1. The index is derived from an assessment of the following variables known to influence the probability of GCN presence (Amphibian and Reptile Groups of the United Kingdom, 2010);
- Waterbody size;
  - Surface area;
  - Water depth;
  - Water quality;
  - Amount of shade;
  - Macrophyte cover;
  - Presence of fish and waterfowl;
  - Number of waterbodies within 1 km; and
  - Type of marginal / aquatic vegetation.
- 4.2.5. During the HSI assessment, locations of potential GCN terrestrial habitat and naturally occurring hibernacula were additionally noted.
- 4.2.6. The HSI assessment scores were used to rate the suitability of each waterbody for GCN following the classifications shown in Table 4.1.

**Table 4.1:** Waterbody Suitability Rating (Oldham, 2000).

| HSI Score  | GCN Suitability Rating |
|------------|------------------------|
| < 0.5      | Poor                   |
| 0.5 – 0.59 | Below Average          |
| 0.6 – 0.69 | Average                |
| 0.7 – 0.79 | Good                   |
| > 0.8      | Excellent              |

### Great Crested Newt Presence / Likely Absence Survey

- 4.2.7. A presence / likely absence survey, extended to population size-class assessment in the eventuality that Great Crested newts were identified in an individual pond was undertaken in accordance with the Great Crested Newt Mitigation Guidelines (English Nature, 2001).
- 4.2.8. For presence / likely absence surveys three methods (torch survey, bottle-trapping and egg search) per visit were utilized, with four visits undertaken in suitable weather conditions between mid-March to mid-June, with at least two of these visits during mid-April to mid-May. Where this was extended to population size-class assessments, six visits were undertaken in suitable weather conditions between mid-March to mid-June, with at least three of these visits during mid-April to mid-May.
- 4.2.9. Survey were undertaken utilizing the following methods:

#### Torchlight Survey

- 4.2.10. The water body was thoroughly searched using a 1,000,000 candle power torch between dusk and midnight. The surveyor walked slowly around the perimeter of the water body once (where access was possible), checking for newts in the torch beam every 2 – 3 m, paying particular attention to marginal vegetation and potential display areas on the pond bottom. Surveys of each section of the bank was considered complete when all visible water area had been scanned with the torch beam and no further amphibians were encountered. Care was taken with the torch to minimise disturbance to the newts and other wildlife which may have been present (e.g. nesting birds).

#### Egg searching

- 4.2.11. Suitable egg laying material in the form of submerged and floating aquatic vegetation in all ponds was inspected (where possible) for evidence of Great Crested newt eggs during torching surveys. Once eggs were discovered in a particular waterbody, no further egg searches were undertaken although incidental observations of breeding activity were noted. Other evidence of breeding activity, e.g., courtship and egg-laying were also recorded where observed.

#### Bottle trapping

- 4.2.12. Bottle traps were set around the margin of the water body, where accessible, in the evening and left overnight to catch adults during the breeding season. Traps were set at an appropriate density of one trap per two meters of shoreline dependent upon

individual site variations. The guidelines set out by Natural England, Froglife, and the Herpetofauna Workers Manual was followed strictly to ensure the welfare of trapped newts and other aquatic organisms.

4.2.13. Submerged bottle traps containing an air bubble did not go unchecked for longer than 17 hours overnight and checked between 06:00 and 11:00 hours. If used without an air bubble, they must not be left unattended longer than 12 hours in March-April, 10 hours in May, 8 hours in June, 7 hours in July / August and 8 hours in September-October. They were held firmly in place to prevent tilting and loss of the air bubble. The top of the canes used to secure bottle traps in place were marked with high-visibility, electrical tape to make it easier to find all traps in poor light or heavily vegetated areas.

4.2.14. Bottle traps were not set in full summer sunlight or at night during periods of very hot weather, as the temperature of water inside the trap may rise considerably and oxygen levels reduced. Larvae are especially prone to such risks.

#### Netting

4.2.15. Using a long-handled dip-net, with a 2 – 4 mm mesh, the entire banks of the waterbody was surveyed for fifteen minutes per 50m of pond shoreline (where accessible).

#### **Biosecurity**

4.2.16. Great crested newt and / or common amphibian in some parts of the world are declining because of disease.

4.2.17. This section identifies and manages the risk of spreading diseases during site survey. It further sets out how the guidance is to be applied by all site surveyors during fieldwork.

4.2.18. It is also intended that the guidance should help prevent the spread of invasive plants or animals during the course of survey work. However, please note that more stringent precautions may apply should invasive species be identified during the course of field surveys.

#### Generic Biosecurity Precautions

4.2.19. To avoid the spread of these diseases a guidance for activities that carry a risk is provided:

- Handle sensitive common amphibians only when necessary.
- If handling common amphibians, wear powder-free disposable vinyl gloves which you rinse before contact with the common amphibians. Use vinyl rather than latex or nitrile because the latter two may be harmful to common amphibians.
- Use a fresh pair of gloves for each site visit. For higher risk activities, it may be appropriate to change gloves between handling individual common amphibians, even within the same site (see below).

- Disinfect survey equipment or containers used to hold common amphibians between each site visit (see disinfection procedures below).
- Wash all clothing on a 40°C cycle with biological detergent, after exposure to common amphibians.
- Do not release common amphibians anywhere except at the place of safety.
- Treat dead or sick common amphibians as a high infection risk and do not handle unless necessary.

#### Disinfection Procedures

4.2.20. Disinfect all field equipment that has come into contact with common amphibians. This includes footwear, buckets, carry bags, etc.

4.2.21. To disinfect equipment in the field the following will be required:

- a bucket or washing up bowl
- a brush
- disinfectant (bleach or Virkon)
- disposable or washing up gloves (to wear while disinfecting)
- a source, or container, of clean water
- bin bags for waste and wrapping field equipment.
  - A. Use brush to scrub off any debris, plant fragments, mud etc.
  - B. Rinse with water (pond water will suffice).
  - C. Soak in bleach solution for at least 5 minutes, or Virkon for at least one minute (5 minutes where Bsal is suspected).
  - D. Rinse with clean water.
  - E. If possible, allow to dry for before next use.
  - F. Keep field equipment inside plastic bags during transit and storage (after thorough drying) to reduce the chance of transmitting pathogens.

4.2.22. Dispose of disinfectant solutions following the supplier's instructions. Unless otherwise stated, it is recommended that used disinfectant solutions should be poured directly into a drain connected to the sewerage system and flushed with clean water (note that not all drains are connected to sewerage systems), or disposed of as hazardous waste. Used gloves should be disposed of as domestic rubbish. Fabrics including clothes worn while doing amphibian fieldwork can be washed on a 40°C cycle with biological detergent (see comments above regarding clothing requiring colder washes).

#### Disinfection solutions

- Bleach (diluted with water to produce a 4% solution).
- Virkon (10mg/ml, as per supplier's instructions).
- Virkon-S (licensed for veterinary/animal livestock applications but not human use) can also be purchased in tablet form. One 5mg tablet can be dissolved in 500ml of water.

4.2.23. Pond water can be used to make up solutions so long as it contains little or no organic matter (as this reduces disinfectant efficacy).

#### 4.3. PERSONNEL

- 4.3.1. Surveys have been undertaken by a suitably qualified and experienced ecologist: a Great Crested Newt Level 2 licensed ecologist (Dr. S. A. Graham MCIEEM, CEcol., CEnv, Natural England Licence Number: 2015-18403-CLS-CLS) who satisfies all necessary field survey competencies as set out by the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 4.3.2. Dr. S. A. Graham is a practicing Ecological Consultant and Honorary Research Fellow at Bangor University with over sixteen years' experience, holding a BSc (Hons), MSc in Environmental Science and PhD in Herpetology as well as being a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM), a Fellow of the Linnean Society of London (FLS) and both a Chartered Ecologist (CEcol) and Chartered Environmentalist (CEnv). Dr. S. A. Graham is additionally a member of the British Herpetological Society (BHS) a member of Amphibian and Reptile Conservation (ARC) and of the Bangor University Herpetological Society as well as being Co-Chair of the Shropshire and Staffordshire Amphibian and Reptile Group (SAS ARG).
- 4.3.3. Dr. S. A. Graham is widely published in the field of herpetology as well as having presented numerous conference papers on UK Native herpetofauna at UK conferences and lectured on native herpetofauna at Bangor University and Wolverhampton University. Additionally, Dr. S. A. Graham is an advisor to the Welsh Amphibian & Reptile Link (WARL) and Welsh Invasive Non-Native Species (INNS) Groups for Amphibians and Reptiles as well the Scientific Advisor to the Welsh Assembly Government *Pelophylax* Working Group.

#### 4.4. SURVEY LIMITATIONS

- 4.4.1. No significant survey constraints were experienced. Surveys have been undertaken within the accepted survey season.
- 4.4.2. The lack of evidence of a protected species does not preclude their possible presence at a later date. This is particularly true for highly mobile species; their use of a particular feature can significantly vary, not only on a seasonal basis, but also from day to day. Any survey represents only a 'snapshot' of possible species activity. Importantly, lack of evidence of a species does not guarantee their absence and therefore consideration

should be given to the need to update the data in the future in the event of substantial delay to the implementation of development.

- 4.4.3. This report is valid for a period of 24 months from the time of survey, not report production. Reliance on the findings of this report, post this period, should seek clarity from the report author, as per the CIEEM (2019) and LERC (2022) Guidance.

## 5 RESULTS

### 5.1. DESK-BASED ASSESSMENT

#### Statutory Designated Sites

- 5.1.1. Biological records data was received from both Warwickshire Biological Records Centre (WBRC) and Leicestershire & Rutland Environmental Records Centre (LRERC) on 03 April 2024.
- 5.1.2. No statutory designated site was identified which specifically relate to *Triturus cristatus* within a 5 km radius around the approximate center of the development site.

#### Non-Statutory Designated Sites

- 5.1.3. No non-statutory designated site was identified which specifically relate to *Triturus cristatus* within a 2 km radius around the approximate center of the development site.

#### Data Search

- 5.1.4. The datasets provided by WBRC and LRERC identified nine records of amphibians for four species within a 2 km radius of the development site. Species records provided by WBRC and LRERC include Great Crested newts (2 records), Common toad (1 records), Common frog (3 record) and Smooth newt (3 records). Species records date from 2010 - 2019, with the closest record located in pond P2 on the development site.
- 5.1.5. No identifiable European Protected Species (EPS) derogation licences have been granted by Natural England within a 2km radius of the proposed scheme in relation to GCN.
- 5.1.6. Three GCN Class licence Survey Licence Returns / GCN Pond Survey results (2017 – 2019) have been identified within a 2km radius of the proposed scheme. The returns are all located to the north-east and east. All three record locations are separated from the site by the River Anker.

#### Historical Survey Report

- 5.1.7. A summary of survey results detailed in Ecolocation Ltd. (2010) Great Crested Newt Report and Mitigation Strategy at Mythe Farm, Sheepy Magna, Warwickshire. Warwickshire ss provided below in italics:
- 5.1.8. A summary of the 2010 HSI survey results are provided in Table 5.1.

**Table 5.1:** HSI Assessment of site (Ecolocation, 2010).

| <b>Pond Ref</b>             | <b>Pond 1</b> | <b>Pond 2</b> | <b>Pond 3</b> |
|-----------------------------|---------------|---------------|---------------|
| <i>SI1 – Location</i>       | <i>1</i>      | <i>1</i>      | <i>1</i>      |
| <i>SI2 – Pond area</i>      | <i>0.85</i>   | <i>1</i>      | <i>0.09</i>   |
| <i>SI3 – Pond drying</i>    | <i>0.9</i>    | <i>0.5</i>    | <i>0.5</i>    |
| <i>SI4 – Water quality</i>  | <i>0.67</i>   | <i>0.67</i>   | <i>0.67</i>   |
| <i>SI5 – Shade</i>          | <i>1</i>      | <i>0.6</i>    | <i>1</i>      |
| <i>SI6 – Fowl</i>           | <i>0.67</i>   | <i>1</i>      | <i>1</i>      |
| <i>SI7 – Fish</i>           | <i>1</i>      | <i>1</i>      | <i>1</i>      |
| <i>SI8 – Ponds</i>          | <i>1</i>      | <i>1</i>      | <i>1</i>      |
| <i>SI9 – Terr’l habitat</i> | <i>0.67</i>   | <i>0.67</i>   | <i>0.67</i>   |
| <i>SI10 – Macrophytes</i>   | <i>0.4</i>    | <i>0.7</i>    | <i>0.5</i>    |
| <b>HSI</b>                  | <b>0.79</b>   | <b>0.79</b>   | <b>0.80</b>   |

5.1.9. *Using categorization of scores developed by Lee Brady equates to values between 0.79-0.80 for all three ponds which suggests good-excellent pond suitability for Great Crested Newt.*

5.1.10. *Great Crested Newts were recorded in both ponds 1 & 2,*

5.1.11. *Although the HSI gave Pond 3 as having an excellent score for Great Crested Newt suitability, the pond had dried up considerably by the time of the initial survey and continued to dry out. No newts were found during the survey dates, although Smooth Newt eggs were discovered on the last survey visit on the 18th May 2010. By this date the pond was almost completely dry affecting its viability as a breeding pond this season.*

5.1.12. *The maximum adult count per waterbody (obtained from torching/bottle trapping) can be conveyed as a peak count per waterbody. Population size can be classed as:*

*‘Small’ for maximum counts up to 10.*

*‘Medium’ for maximum counts between 11 and 100.*

*‘Large’ for maximum counts over 100.*

5.1.13. *Table 5.2 shows the population class size assessment for the ponds surveyed in 2010.*

**Table 5.1:** Population size class assessment (Ecolocation, 2010).

| <b>Pond</b>   | <b>Maximum Count of Adult GCN</b> | <b>Relative population size</b> |
|---------------|-----------------------------------|---------------------------------|
| <i>Pond 1</i> | <i>48</i>                         | <i>‘Medium’</i>                 |
| <i>Pond 2</i> | <i>19</i>                         | <i>‘Medium’</i>                 |

5.1.14. *The results of the surveys show that there is a ‘medium’ breeding population of Great Crested Newt in the ponds. The site appears to be relatively isolated. It is unknown whether there are any other ponds in the area that could support the population.*

5.1.15. *There is suitable terrestrial habitat for Great Crested newt adjacent to the ponds and in local area providing both foraging and hibernating opportunities.*

5.1.16. *The Great Crested Newt is currently widespread throughout the sub-region of Warwickshire, Coventry and Solihull. Although, there are areas in the extreme south, north-west and north-east of the region with few records from pond surveys.*

5.1.17. *Due to the isolation and the numbers of Great Crested Newt recorded this site is considered to be of local importance.*

## 5.2. FIELD SURVEY

### Great Crested Newt Site Walkover Survey

5.2.1. A walkover survey was undertaken on 22 March 2024. A single pond was located immediately adjacent to the development footprint. Four additional permanent / temporary waterbodies were identified within 250 m from the development footprint (see Figure 1). Acknowledging that 250 m is the upper limit over which most great crested newts typically disperse from breeding ponds (English Nature, 2001; Langton et al., 2001). The desk-based assessment identified no further ponds within 250 m of the proposed development site. A description of each pond is provided below:

**P1:** Large linear pond, believed to be an old moat. The pond has steep sides. The pond is surrounded by mature trees on all four sides forming a predominantly closed canopy over the pond. Small areas of aquatic vegetation were present within the pond to the east and north-western corner. Although the water level appeared to be ca. 50 – 100 cm deep, the tree water depth could not be established. Moorhen (*Gallinula chloropus*) were present on the pond at time of survey. See Appendix A: Image 1.

**P2:** Large pond, with steep sides, located immediately adjacent to caravan storage facility. The pond is surrounded by mature trees on all four sides forming a predominantly closed canopy over the pond. No aquatic vegetation was present in the pond, with the base of the pond formed by dense leaf-litter and detritus. Although the water level appeared to be ca. 50 – 80 cm deep, the tree water depth could not be established. Mallard ducks (*Anas platyrhynchos*) were present on the pond at time of survey. See Appendix A: Image 2.

**P3:** Large linear pond, with shallow sides, dominated by terrestrial grasses. Aquatic vegetation was present, although choked and suppressed by terrestrial grasses in the eastern section. No aquatic vegetation was present in the western section. The pond is considered to be ca 100 - 120 cm deep at the center, with wheel ruts indicating that it frequently dry's; facilitating movement through it. The pond is surrounded by mature trees on three sides. See Appendix A: Image 3.

**P4:** Small natural depression adjacent to a farm track. The pond is surrounded by immature plantation woodland and bramble scrub on three sides. The pond is considered to be ca 50 cm deep at the center with no aquatic plants, although terrestrial grasses were present indicating that it may typically dry annually. See Appendix A: Image 4.

**P5:** Small ornamental pond in garden of farmhouse, The pond is plastic lined with a number of ornamental plants and rocks scattered throughout. The pond is considered to be ca 40 cm deep and contains a number of large fish. See Appendix A: Image 5.

- 5.2.2. A single Great Crested Newt egg was identified on aquatic vegetation present along the eastern bank of Pond P1 during the course of the survey. The presence of the egg confirmed the pond to be a Great Crested newt breeding pond.

### **Great Crested Newt Terrestrial Habitat Suitability Survey**

- 5.2.3. Habitats across the proposed development site and in the wider environment were assessed for their suitability to support GCN, satisfying these different ecological requirements (see Appendix A: Images 6 – 11). The following functional requirements were assessed.

#### Connectivity

Connectivity would be limited to the wider environment through a network of mature hedgerows to the south and north and small pockets of woodland to the east and south-west. These habitats may provide connectivity to more favorable habitat in the wider environment.

The proposed development site is considered to provide **Low - Moderate** connectivity opportunity for GCN.

#### Breeding

A single pond, pond 2, was located immediately adjacent to the development footprint. Four additional permanent / temporary waterbodies were identified within 250 m from the development footprint

The proposed development site is considered to provide **Low** breeding opportunity for GCN.

#### Foraging

The majority of the wider area is well maintained amenity grassland with a species poor sward, or field which are actively sheep grazed / intensively farmed for crop. Foraging opportunities are generally limited to areas immediately surrounding ponds, small woodland pockets to the east and south-west and hedgerow bases. Opportunistic foraging is additionally afforded by the grassland to the west of pond 2 and materials occasionally stored on site. In summary, it is anticipated that the site typically would attract a low species diversity / availability of prey items to sustain intensive foraging by GCN.

The proposed development site is considered to provide **Low** suitable for foraging by GCN.

### Shelter / Hibernation

The majority of the wider area is well maintained amenity grassland with a species poor sward, or field which are actively sheep grazed / intensively farmed for crop. Hibernation opportunities are generally limited to areas immediately surrounding ponds. Rubble, earth and stone piles were observed to be present to the west of pond 2 along with the earth bund which part forms the perimeter of the development site along with scattered materials occasionally stored on site. It is considered that these are of a size and depth to support sufficient thermal stability to provide overwintering (hibernation) success.

In addition, the mature hedgerow bases to the north and south of the site could provide additional overwintering (hibernation) success.

The development site is considered to provide **Moderate - High** suitable for sheltering / hibernation by GCN.

- 5.2.4. In summary, the site is currently considered to provide an overall **Moderate** suitability for GCN.
- 5.2.5. Habitats across the proposed development site and in the wider environment were further assessed for their suitability to support GCN in a historical context. The review looked to identify changes in the different ecological requirements since surveys undertaken in 2010.
- 5.2.6. The review identifies a change in agricultural practices to the east and north of the site from 2010 as shown in Figures 2 - 4. Previously utilized for crop production, the fields have changed to amenity grassland. The area to the east of the caravan storage facility has additionally changed. It has remained as a business / recreational off-road track, however, the vegetation structure looks to have improved into a more diverse sward. Woodland planting to the southwest has also developed over time to provide semi-mature woodland blocks.
- 5.2.7. The existing hedgerow network appears to have improved over time through the creation of hedge lines to the north and west of the site, improving connectivity throughout the landscape.
- 5.2.8. The tree canopy above Pond 2, present immediately adjacent to the caravan storage facility, appears to have developed and completely closed since 2010. Additionally, although not evident on Figures 2 - 4, with the woodland planting to the southwest having developed over time to provide semi-mature woodland blocks, it is anticipated that this pond would have been more enclosed, resulting in a deterioration of both ponds for their suitability for breeding GCN.

### **Great Crested Newt Habitat Suitability Index (HSI) Survey**

- 5.2.9. A HSI survey of Ponds P1 to P5 was undertaken on 13 April 2024. Weather conditions at the time of survey were dry, 16oC with 60 % cloud cover.

5.2.10. The results of the great crested newt HSI survey on Ponds P1 to P5 (Shown in Figure 1) are provided in Table 5.3 below.

**Table 5.3:** 2024 Great crested Newt Habitat Suitability Index survey results for Mythe Farm, Sheepy Magna, Atherstone.

| Criteria            | Score (P1)  | Score (P2)  | Score (P3)  | Score (P4)  | Score (P5)  |
|---------------------|-------------|-------------|-------------|-------------|-------------|
| Location            | 1           | 1           | 1           | 1           | 1           |
| Pond area           | 1           | 0.8         | 0.7         | 0.05        | 0.01        |
| Pond drying         | 0.9         | 0.1         | 0.1         | 0.1         | 0.9         |
| Water quality       | 0.67        | 0.67        | 0.67        | 0.67        | 0.67        |
| Shade               | 0.8         | 1           | 1           | 1           | 1           |
| Fowl                | 0.67        | 0.67        | 0.67        | 1           | 1           |
| Fish                | 0.67        | 1           | 1           | 1           | 0.01        |
| Ponds               | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         |
| Terrestrial habitat | 0.67        | 1           | 1           | 1           | 1           |
| Macrophytes         | 0.35        | 0.35        | 0.5         | 0.5         | 0.35        |
| Score               | <b>0.72</b> | <b>0.62</b> | <b>0.64</b> | <b>0.51</b> | <b>0.33</b> |

5.2.11. The results of the great crested newt HSI survey on Ponds P1 to P5 indicate that P1 offers “Good” suitability, ponds P2 and P3 offer “Average” suitability, pond P4 offers “Below average” suitability and pond P5 offers “Poor” suitability for great crested newts.

#### Great Crested Newt Presence / Likely Absence Survey

5.2.12. A suit of presence / likely absence surveys, extended to population size-class assessment in the eventuality that Great Crested newts were identified in an individual pond was undertaken between 13 April and 15 June 2024, in accordance with the Great Crested Newt Mitigation Guidelines (English Nature, 2001).

5.2.13. Dates of survey and environmental parameters are provided in Appendix B: Table B1. The results of the great crested newt presence / likely absence surveys, extended to population size-class assessment in the eventuality that Great Crested newts were identified on Ponds P1 to P5 (Shown in Figure 5) are provided in Appendix C, Tables 1 - 6.

5.2.14. In summary, GCN were only identified to be present in Pond 1. A ‘Small’ population, comprising a maximum count of 9 individuals was recorded in 2024. GCN eggs were additionally recorded in the pond, indicating its utilization as a breeding pond.

5.2.15. No GCN were identified to be utilizing ponds 2, 3, 4 or 5 in 2024. Smooth newts and common frog were identified to be utilizing Pond 2 during a number of surveys. No indication of breeding was identified for this species during survey.

## 6 CONCLUSIONS AND IMPACT ASSESSMENT

### 6.1. OVERVIEW

- 6.1.1. This section seeks to identify potential current and historical effects on GCN. The proximity of statutory and non-statutory designated sites and potential effects on their qualifying interests is discussed. To this extent, recommendations are made for further survey work and / or mitigation, if required.
- 6.1.2. This section also introduces opportunities for habitat enhancement on and / or adjacent the development site for the benefit of GCN and local biodiversity, where applicable.
- 6.1.3. This section is based on the layout of the existing caravan storage facility and indicative location of the biodiversity enhancement area provided by CT Planning on 10 September 2024.

### 6.2. DESK BASED ASSESSMENT

- 6.2.1. The development site does not form part of any statutory or non-statutory designated sites for nature conservation in relation to GCN.
- 6.2.2. The datasets provided by WBRC and LRERC, along with a review of freely available electronic resources identified a number of historical records for common amphibian species and GCN in the wider landscape, although these all separated from the site by the River Anker. No identifiable European Protected Species (EPS) derogation licences have been granted by Natural England within a 2km radius of the proposed scheme in relation to GCN.
- 6.2.3. Historical surveys, incorporating ponds present immediately adjacent to the caravan storage facility and its surrounds, recorded a 'Medium' population of GCN, comprising a maximum count of between 19 - 48 individuals was recorded in 2010.
- 6.2.4. The survey also recorded HSI values between 0.79-0.80 for all three ponds surveyed, suggesting good-excellent pond suitability for GCN.

### 6.3. FIELD SURVEY

#### Great Crested Newt Site Walkover Survey

- 6.3.1. A walkover survey was undertaken on 22 March 2024. A single pond was located immediately adjacent to the caravan storage facility footprint. Four additional permanent / temporary waterbodies were identified within 250 m from the development footprint (Figure 1). Acknowledging that 250 m is the upper limit over which most great crested newts typically disperse from breeding ponds (English Nature, 2001; Langton et al., 2001).
- 6.3.2. A single Great Crested Newt egg was identified on aquatic vegetation present along the eastern bank of Pond P1 during the course of the survey. The presence of the egg confirmed the pond to be a Great Crested newt breeding pond.

- 6.3.3. Prior to and during the development period in 2023, a review of historical aerial imagery identified a change in agricultural practices to the east and north of the site from 2010. Previously utilized for crop production, the fields have changed to amenity grassland. The area to the east of the caravan storage facility has additionally changed. It has remained as a business / recreational off-road track, however, the vegetation structure looks to have improved into a more diverse sward. Woodland planting to the southwest has also developed over time to provide semi-mature woodland blocks.
- 6.3.4. The existing hedgerow network appears to have improved over time through the creation of hedge lines to the north and west of the site, improving connectivity throughout the landscape.
- 6.3.5. The tree canopy above Pond 2, immediately adjacent to the caravan storage facility, appears to have developed and completely closed since 2010. The woodland planting to the southwest having developed over time to provide semi-mature woodland blocks, it is anticipated that this pond (pond 3) would have been more enclosed, resulting in a deterioration of both ponds for their suitability for breeding GCN.

#### **Great Crested Newt Habitat Suitability Index Survey**

- 6.3.6. The results of the great crested newt HSI survey in 2024 on Ponds P1 to P5 indicate that P1 offers “Good” suitability, ponds P2 and P3 offer “Average” suitability, pond P4 offers “Below average” suitability and pond P5 offers “Poor” suitability for great crested newts.
- 6.3.7. This represents a degradation in condition against all ponds survey in 2010. Pond 1 was still considered to provide good habitat suitability, although the HSI score has reduced. Both ponds P2 and P3 have been downgraded to “Average” suitability. No comparison can be made for the remainder of the ponds.
- 6.3.8. Degradation of Pond 2, specifically closure of the tree canopy above and lack of aquatic vegetation is anticipated to have undertaken up to and including the time when the development was taking place, indicating a potential reduced suitability at the time of development.

#### **Great Crested Newt Presence / Likely Absence Survey**

- 6.3.9. GCN were only identified to be present in Pond 1 during the 2024 surveys. A ‘Small’ population, comprising a maximum count of 9 individuals was recorded in 2024. GCN eggs were additionally recorded in the pond, indicating its utilization as a breeding pond.
- 6.3.10. No GCN were identified to be utilizing ponds 2, 3, 4 or 5 in 2024. Smooth newts and common frog were identified to be utilizing Pond 2 during a number of surveys. No indication of breeding was identified for this species during survey.

### **6.4. POPULATION STATUS ASSESSMENT**

- 6.4.1. A significant decline in the population status of GCN present across the site and in the wider environment has been identified between surveys undertaken in 2010 and those

undertaken in 2024. Pond P1 has experienced a decline from a “Medium” population to that of a “Small” population and the population at Pond P2 has lost the population altogether. Population trend data cannot be undertaken for the remained of the three ponds (P3, P4, and P5).

- 6.4.2. With a population decline identified to have experienced in both ponds P1 and P2, a comparison in the reduction of numbers, when reviewed in relation to the dramatic change in the landscape over the same period of time and reduction in pond suitability to support GCN, identified through the HSI scores, could explain a natural population decline.
- 6.4.3. A review of historical land use on aerial imagery could suggest that the core habitat for breeding, foraging and resting / hibernating is limited to within close proximity of this pond. Habitats between pond P1 and P2 have changed from agricultural to amenity.

## 6.5. POTENTIAL DEVELOPMENT IMPACTS

- 6.5.1. The general effect upon great crested newts and their Favorable Conservation Status (FCS) from the creation of the caravan storage facility was calculated; see Table 6.1 below showing the calculation using Natural England’s “Risk Assessment” Tool. The calculations were based on no mitigation measures being implemented and take a generalist evaluation based on area only.

**Table 6** – Natural England GCN Risk Assessment Tool.

| Component                                | Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom) | Notional offence probability scores |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Great crested newt breeding pond(s)      | No effect                                                                                                                                           | 0                                   |
| Land within 100m of any breeding pond(s) | No effect                                                                                                                                           | 0                                   |
| Land 100-250m from any breeding pond(s)  | 0.5 - 1 ha lost or damaged                                                                                                                          | 0.3                                 |
| Land >250m from any breeding pond(s)     | No effect                                                                                                                                           | 0                                   |
| Individual great crested newts           | No effect                                                                                                                                           | 0                                   |
|                                          | Maximum:                                                                                                                                            | 0.3                                 |
| Rapid risk assessment result:            | <b>AMBER: OFFENCE LIKELY</b>                                                                                                                        |                                     |

- 6.5.2. The result from the Risk Assessment Tool show that without appropriate mitigation, an offence is generally considered likely. A text description from the Natural England Tool is provided below:

*"Amber: offence likely" indicates that the development activities are of such a type, scale and location that an offence is likely. In this case, the best option is to redesign the development (location, layout, methods, duration or timing; see Non-licensed avoidance measures tool) so that the effects are minimized. You can do this and then re-run the risk assessment to test whether the result changes, or preferably run your own detailed site-specific assessment. Bear in mind that this generic risk assessment will over- or under-estimate some risks because it cannot take into account site-specific details, as mentioned in caveats above. In particular, the exact location of the development in relation to resting places, dispersal areas and barriers should be critically examined. Once you have amended the scheme you will need to decide if a*

*licence is required; this should be done if on balance you believe an offence is reasonably likely.*

- 6.5.3. A review of the caravan storage facility impacts in relation to site specific conditions, has been undertaken. The site-specific impacts upon great crested newts and their Favorable Conservation Status (FCS) from the creation of the caravan storage facility are considered below:

#### **Fragmentation and isolation**

No fragmentation or isolation issues are envisaged to result from the construction of the caravan storage facility. **Low** possibility of impact anticipated.

#### **Breeding site loss**

In the absence of mitigation, no breeding site loss has been undertaken as a result of the construction of the caravan storage facility. **No** possibility of impact anticipated.

#### **Foraging habitat loss**

In the absence of mitigation, potential and / or actual foraging habitat for great crested newts may have been destroyed during GCN active season. **Low** possibility of impact anticipated considering evaluation in Sections 6.3 and 6.4.

#### **Shelter / Hibernation Place loss**

In the absence of mitigation, potential and / or actual resting locations for great crested newts may have been destroyed during GCN active season. **Low** possibility of impact anticipated considering evaluation in Sections 6.3 and 6.4.

#### **Post-development interference impacts**

In the absence of mitigation, no post interference impacts have be envisaged.

- 6.5.4. Considering all of the parameters of the site-specific impacts upon great crested newts and their Favorable Conservation Status (FCS) from the creation of the caravan storage facility in review of the context of the Natural England's "Risk Assessment" Tool, it is considered unlikely to occur. A text description from the Natural England Tool is provided below:

*"Green: offence highly unlikely" indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. However, bearing in mind that this is a generic assessment, you should carefully examine your specific plans to ensure this is a sound conclusion, and take precautions (see Non-licensed avoidance measures tool) to avoid offences if appropriate. It is likely that any residual offences would have negligible impact on conservation status, and enforcement of such breaches is unlikely to be in the public interest.*

## 7 BIODIVERSITY ENHANCEMENT

### 7.1. OVERVIEW

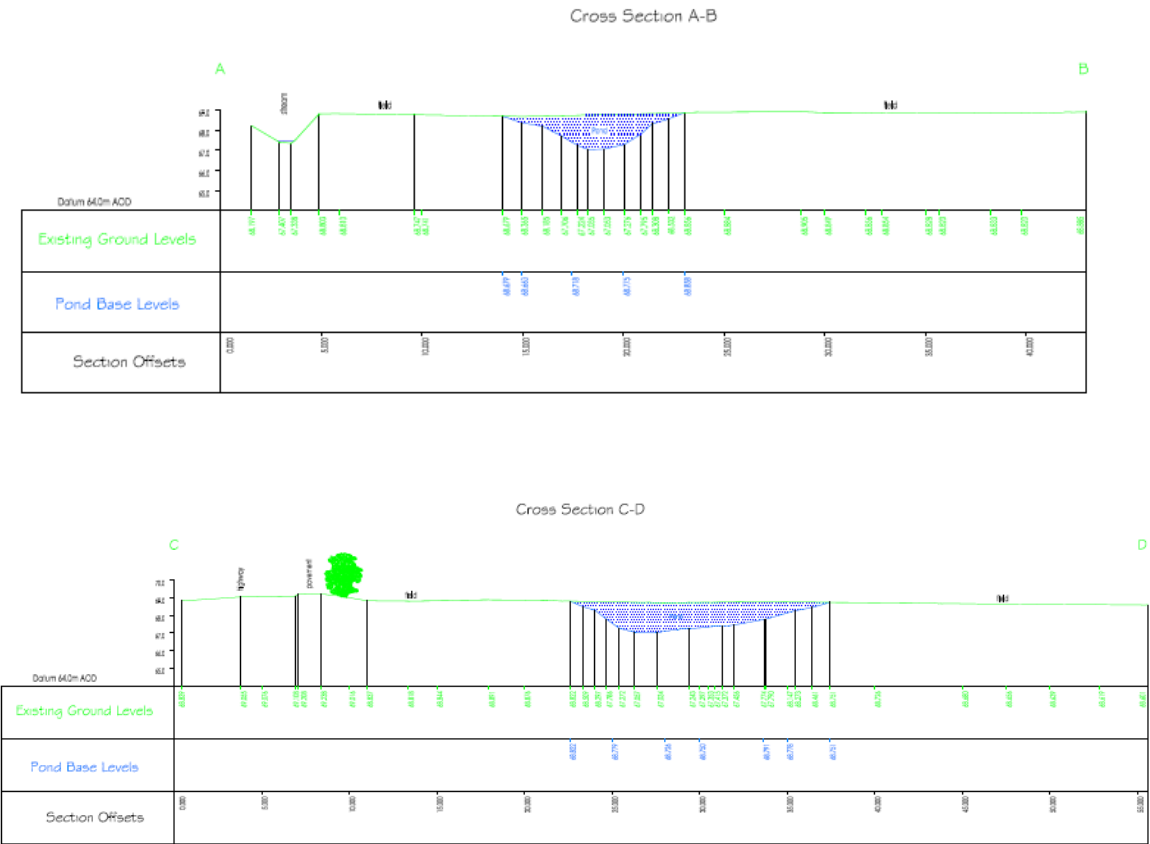
- 7.1.1. A significant decline in the population status of GCN has been identified between surveys undertaken in 2010 and those undertaken in 2024. Pond P1 has experienced a decline from a “Medium” population to that of a “Small” population and the population at Pond P2 has lost the population altogether. Population trend data cannot be undertaken for the remained of the three ponds (P3, P4, and P5).
- 7.1.2. With a population decline identified to have experienced in both ponds P1 and P2, a comparison in the reduction of numbers, when reviewed in relation to the dramatic change in the landscape over the same period of time and reduction in pond suitability to support GCN, identified through the HSI scores, could explain a natural population decline of what was considered to be a population of Local importance in 2010.
- 7.1.3. A review of historical land use on aerial imagery could suggest that the core habitat for breeding, foraging and resting / hibernating is limited to within close proximity of pond P1. Habitats between pond P1 and P2 have changed from agricultural to amenity.
- 7.1.4. This section details enhancement measures to be implemented as part of the application to provide opportunities for the GCN to recover from the historical, natural decline. The following enhancement is proposed within the northern section of the red line boundary (known and the biodiversity enhancement area):

Change of use from intensively managed agricultural land to include, but not limited to:

- Creation of 1 x pond suitable for GCN breeding;
- Creation of 1 x hibernacula suitable for common amphibian and GCN hibernation; and
- Provision of grassland of varied sward to facilitate foraging and commuting to the wider environment.

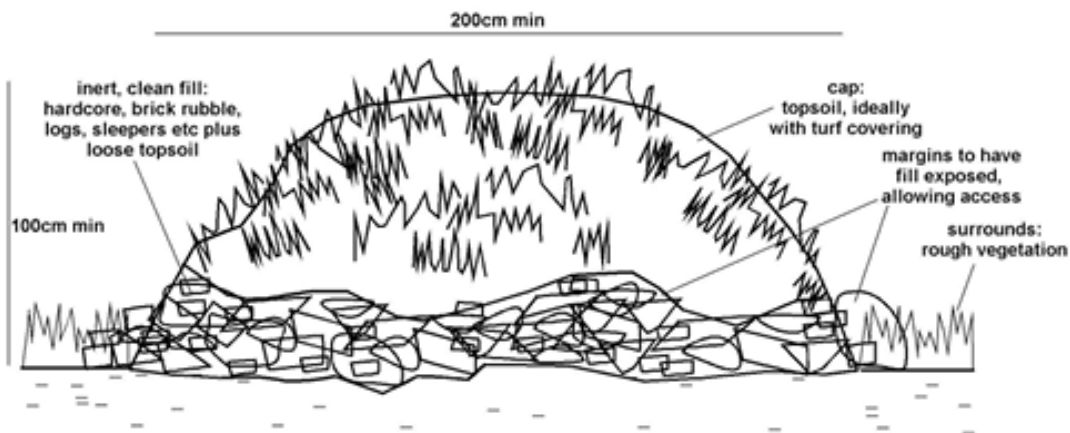
- 7.1.5. Indicative pond and hibernacula design schematics are provided:

**Biodiversity enhancement pond design.**



7.1.6. It is proposed that the newly created pond is left to natural colonize with aquatic plant species.

**Biodiversity enhancement hibernacula design.**



## 8 GCN REASONABLE AVOIDANCE METHOD STATEMENT

8.1.1. The objectives of this Reasonable Method Statement are to:

- Avoid committing an offence under the legislation detailed in Section 3 by minimising the risk of encountering great crested newts as far as practically possible during the construction of the biodiversity enhancement area;
- To ensure that the favorable conservation status of great crested newts is maintained; and
- Ensure that no harm or damage comes to any great crested newt.

8.1.2. Any work-related activities on the site, such as mobilization / demobilization, vegetation clearance, excavations, and / or storage of materials may potentially affect great crested newts. As a result, safeguards must be implemented to protect great crested newts and this Reasonable Avoidance Method Statement details measures to be implemented on site to ensure these objectives are achieved. Through the implementation of the Reasonable Avoidance Measures detailed below, the risk of committing an offence under the above legislation and therefore impacting great crested newts and / or the favorable conservation status of individual great crested newts is significantly reduced and considered highly unlikely.

### Generic Mitigation

8.1.3. Both the site Foreman / Supervisor and the Ecological Clerk of Works (ECoW) will ensure all Planning Consents are correct and up to date prior to the commencement of works.

8.1.4. The following mitigation measures must be adopted throughout all works activities, including mobilization and demobilization.

- The Ecological Clerk of Works (ECoW) will be informed of the works footprint, duration and sequence before the first day of works;
- Prior to the commencement of works, all site staff shall attend a toolbox talk briefed by the ECoW on the ecological risk and legislation protection afforded to great crested newts and common amphibians including any mitigation in place, as stated in this document;
- The Toolbox Talk and this RAMs document shall be kept on site, accessible to everyone in attendance on site, and available throughout the works period;
- If great crested newt and / or common amphibian habitat features are identified within or immediately adjacent to the works area, works will cease and machinery turned off until an assessment of the feature has been made by the ECoW;
- **No site operative will be permitted to disturb a great crested newt and / or common amphibian including their habitat until investigated by the ECoW;**

- Amphibians will be handled only when necessary;
- **If a great crested newt or “other” protected species is found on site all works shall stop and further consultation with the ECoW would be required in regard to further mitigation measures and / or the requirement for a Natural England Derogation Licence;**
- If other amphibians such as smooth newts, palmate newt, common toads, and common frogs are found, these will be moved to suitable habitat outside of the development footprint to ensure no harm comes to these animals during vegetation clearance and construction;
- No night works unless agreed by the ECoW;
- No deep excavations to be left open overnight unless agreed by the ECoW and a means of escape provided;
- Open deep excavations will be kept to a minimum across the whole Site. All excavations shall be profiled and / or contain ramps to allow any great crested newt and / or common amphibian to escape. Excavations shall be checked daily by the ECoW / appropriated trained and appointed site representative;
- No Vehicular and / or pedestrian access within vegetated areas unless under the direct supervision / agreement of the ECoW. Vehicles should be parked in hard standing / designated areas as far as possible from vegetated areas;
- No vehicular and / or pedestrian access within 2 m of semi-natural habitats, unless agreed / under the direct supervision of the ECoW;
- All equipment and materials to be stored off the ground and away from semi-natural habitats e.g., stick to hard standing (unless agreed with the ECoW);
- Quite working methodology to be always enforced on site (e.g., Turn off engines when not in use, no raised voices, reduced movement of vehicles); and
- All storage of earth (in place for longer than 24 hrs) or materials will be checked for the presence of sensitive ecological receptors prior to being moved unless under agreement and the direct supervision of the ECoW;

#### **Vegetation clearance specific Mitigation**

8.1.5. The following mitigation measures detail the specific mitigation measures to be adopted during vegetation and hibernacula clearance:

- Where practicably possible vegetation clearance works should be appropriately timed to avoid sensitive periods; hibernation periods for great crested newt and / or common amphibian (November to February).
- The ECoW shall conduct a ‘fingertip’ search of the works area prior to any activity commencing on site;

- Any required vegetation clearance will only be carried out upon approval of the ECoW after a ‘finger-tip’ search (as deemed suitable by the ECoW);
- Scrub / tall vegetation will be cut to a height of c.250 mm with all arising removed using hand tools, i.e. rakes and wheel barrows, and stored above ground level, to prevent potential areas of refuge for reptiles to shelter in;
- 24hrs later the ECoW will conduct a hand search, and any amphibians (with the exception of great crested newts) found will be captured for translocation;
- The remaining vegetation will then be cut, using hand tools, to a height of c. 150 mm, with all arisings removed as above – This should be directional, sweeping from least suitable habitat towards most suitable retained habitat;
- 24hrs later a further hand search by the ECoW and following soil strip can commence – This should also be directional; and
- The area will be maintained as bare earth to minimise the likelihood of newts recolonizing.
- It is best practice to restrict vegetation clearance and soil stripping to as soon as possible before works are to commence in each area, to reduce the likelihood of recolonization by newts.
- If a great crested newt, or their potential resting features are identified within or immediately adjacent to the works area, works will cease and machinery turned off within 10 m of the area until an assessment of the feature has been made by the ECoW;
- No site operative will be permitted to disturb a great crested newt and / or common amphibian until investigated by the ECoW;
- **If a great crested newt or “other” protected species is found on site all works shall stop and further consultation with the ECoW would be required in regard to further mitigation measures and / or the requirement for a Natural England Derogation Licence.**

### Ecological Clerk of Works

- The Ecological Clerk of Works (ECoW) will be a suitably qualified and experienced ecologist.
- An ECoW will be present on Site during all the vegetation removal works (unless deemed otherwise by the ECoW).
- A log of all Site checks, sightings of great crested newt and / or common amphibian and infringements of the RAMs document (to include advice given and actions taken to rectify) will be kept by the ECoW.

### Biosecurity

- 8.1.6. Great crested newt and / or common amphibian in some parts of the world are declining because of disease.
- 8.1.7. This section aims to identify and manage the risk of spreading diseases during any vegetation and topsoil clearance and construction works. It further sets out how the guidance is to be applied by all operatives and ECoW related fieldwork.
- 8.1.8. It is also intended that the guidance should help prevent the spread of invasive plants or animals during the course of work. However, please note that more stringent precautions may apply to should invasive species are identified during the course of works.

### **Generic Biosecurity Precautions**

- 8.1.9. To avoid the spread of these diseases a guidance for activities that carry a risk is provided:
- Handle sensitive common amphibians only when necessary.
  - If handling common amphibians, wear powder-free disposable vinyl gloves which you rinse before contact with the common amphibians. Use vinyl rather than latex or nitrile because the latter two may be harmful to common amphibians.
  - Use a fresh pair of gloves for each site visit. For higher risk activities, it may be appropriate to change gloves between handling individual common amphibians, even within the same site (see below).
  - Disinfect survey equipment or containers used to hold common amphibians between each site visit (see disinfection procedures below).
  - Wash all clothing on a 40oC cycle with biological detergent, after exposure to common amphibians.
  - Do not release common amphibians anywhere except at the place of safety.
  - Treat dead or sick common amphibians as a high infection risk and do not handle unless necessary.

### **Disinfection Procedures**

- 8.1.10. Disinfect all field equipment that has come into contact with common amphibians. This includes footwear, buckets, carry bags, etc.
- 8.1.11. To disinfect equipment in the field the following will be required:
- a bucket or washing up bowl
  - a brush
  - disinfectant (bleach or Virkon)

- disposable or washing up gloves (to wear while disinfecting)
- a source, or container, of clean water
- bin bags for waste and wrapping field equipment.

G. Use brush to scrub off any debris, plant fragments, mud etc.

H. Rinse with water (pond water will suffice).

I. Soak in bleach solution for at least 5 minutes, or Virkon for at least one minute (5 minutes where Bsal is suspected).

J. Rinse with clean water.

K. If possible, allow to dry for before next use.

L. Keep field equipment inside plastic bags during transit and storage (after thorough drying) to reduce the chance of transmitting pathogens.

8.1.12. Dispose of disinfectant solutions following the supplier's instructions. Unless otherwise stated, it is recommended that used disinfectant solutions should be poured directly into a drain connected to the sewerage system and flushed with clean water (note that not all drains are connected to sewerage systems), or disposed of as hazardous waste. Used gloves should be disposed of as domestic rubbish. Fabrics including clothes worn while doing amphibian fieldwork can be washed on a 40°C cycle with biological detergent (see comments above regarding clothing requiring colder washes).

#### **Disinfection solutions**

- Bleach (diluted with water to produce a 4% solution).
- Virkon (10mg/ml, as per supplier's instructions).
- Virkon-S (licensed for veterinary/animal livestock applications but not human use) can also be purchased in tablet form. One 5mg tablet can be dissolved in 500ml of water.

8.1.13. Pond water can be used to make up solutions so long as it contains little or no organic matter (as this reduces disinfectant efficacy).

## **9 EMERGENCY PROVISIONS**

8.1.14. The ecologist will have suitable provision to initially take care of any great crested newt and / or common amphibian. Such provision will include, but not be limited to appropriate personal protective equipment, a suitable box for transportation.

- 8.1.15. In the unlikely event that any injured great crested newt and / or common amphibian are encountered during works, they will be taken to the local vet (in the case of an emergency) or an appropriate wildlife hospital, the details of which are known to the ecologist and provided below.

**Pool House Veterinary Hospital**

Fosseway Lane  
Lichfield  
Staffordshire  
WS13 8JY

- 8.1.16. Should a great crested newt and / or common amphibian be required to be taken into care for rehabilitation, the local species-specific group (Shropshire & Staffordshire Amphibian & reptile Group) will be contacted for further advice and guidance.

## 10 RERERENCES & SOURCE OF REFERENCE

All UK (and individual UK countries) legislation can be viewed at:  
<http://www.legislation.gov.uk/browse>

ARG UK (2017). ARG UK Advice Note 4: Amphibian Disease Precautions: A Guide for UK Fieldworkers. Amphibian and Reptile Groups of the United Kingdom.

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BSI (2013) BS 42020:2013 Biodiversity. Code of Practice for Planning and Development.

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Gent, T. & Gibson, S. (eds). (2003). Herpetofauna Workers' Manual (revised reprint), JNCC, Peterborough, ISBN 1 86107 450 6.

Google Earth (2021) Aerial imagery of Site. Google.

H.M.S.O. (2017) The Natural Environment and Rural Communities (NERC) Act as amended. London

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Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook, Froglife, Halesworth.

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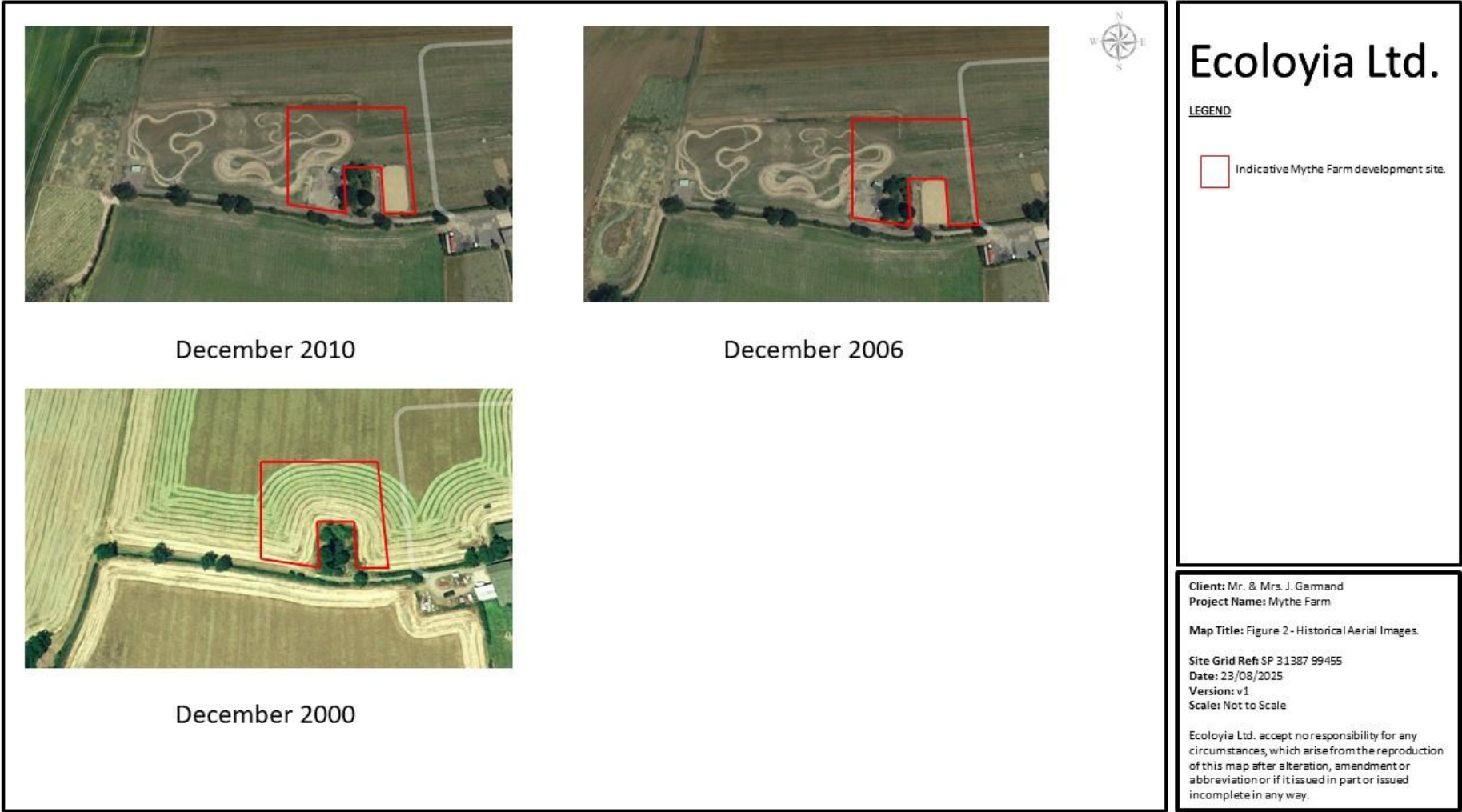
**FIGURE 1: GCN SURVEY AREA**

**SEE OVER PAGE**



**FIGURE 2: HISTORICAL AERIAL EMAGES**

**SEE OVER PAGE**



**FIGURE 3: HISTORICAL AERIAL EMAGES**

**SEE OVER PAGE**



**FIGURE 4: HISTORICAL AERIAL EMAGES**

**SEE OVER PAGE**



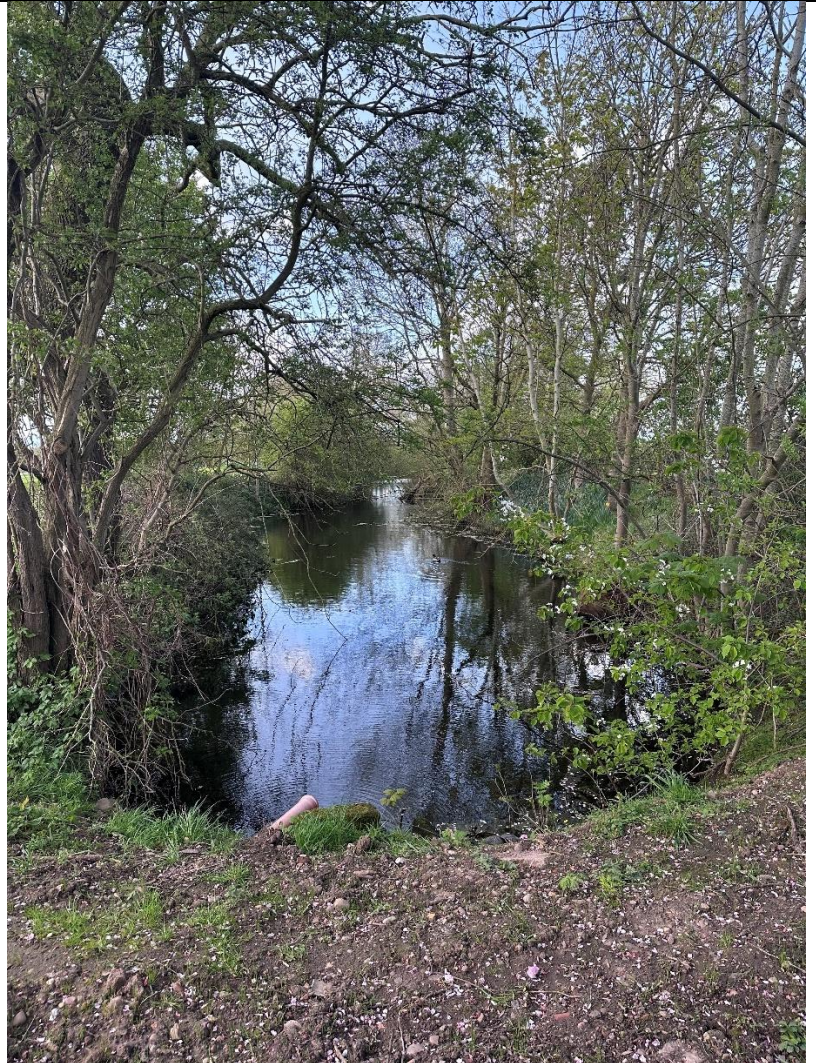
**FIGURE 5: 2024 GCN SURVEY RESULTS**

**SEE OVER PAGE**



## APPENDIX A: SITE IMAGES

**Image 1:** Image looking north at pond P1.



**Image 2:** Image looking north at pond P2.



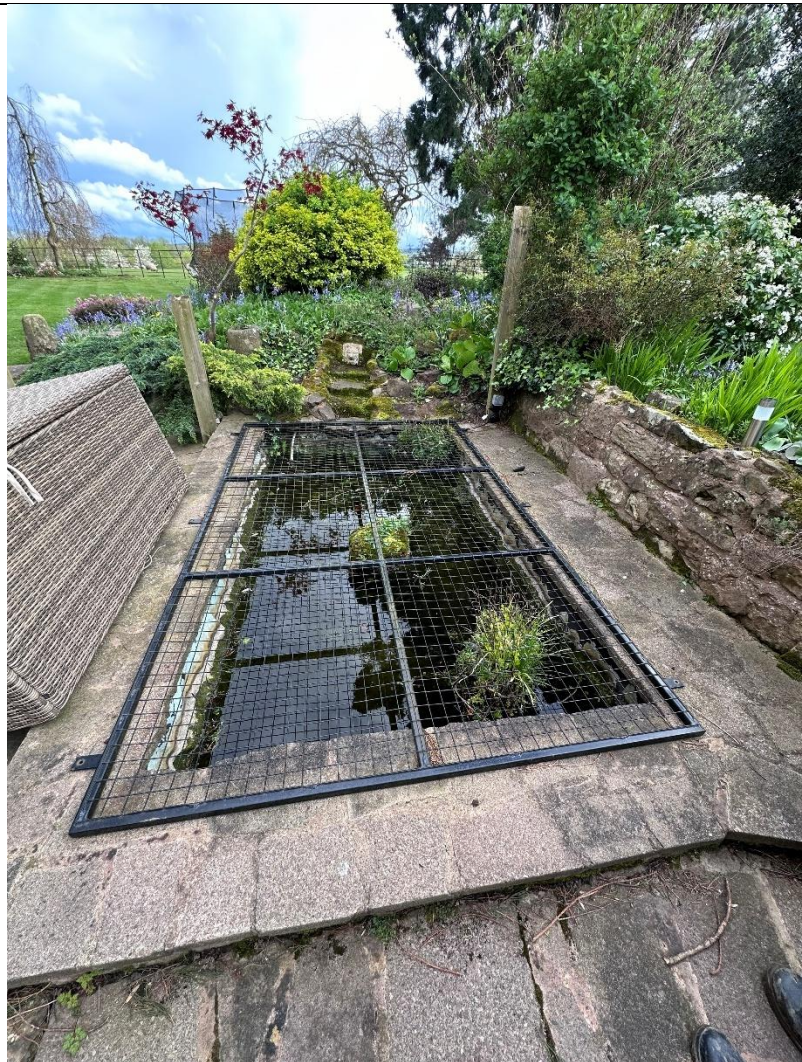
**Image 3:** Image looking west at pond P3.



**Image 4:** Image looking east at pond P4.



**Image 5:** Image looking south at pond P5.



**Image 6:** Image looking west from the entrance of the caravan storage facility showing hard standing, office building and retained pond.



**Image 7:** Image looking north-west from the south-eastern corner of the caravan storage facility showing hard standing and office building.



**Image 8:** Image looking south from the entrance of the caravan storage facility showing hard standing, retained pond and trees and office building.



**Image 9:** Image looking east showing amenity grassland to the north of the caravan storage facility.



**Image 10:** Image looking north showing grassland used for business and amenity off-roading.



**Image 11:** Image looking north-west showing exterior of the entrance to the caravan storage facility showing amenity areas.



**Image 12:** Image looking east showing the entrance to and arable field where the biodiversity enhancement area is proposed.



**Image 13:** Image looking east showing the entrance to and arable field where the biodiversity enhancement area is proposed.



**Image 14:** Image looking east showing the mature tree line to the north where the biodiversity enhancement area is proposed.



## **APPENDIX B: SURVEY TIMINGS & WEATHER DATA**

**SEE OVER PAGE**

**Table B.1:** Great Crested Newt surveys and weather timings.

| <b>Survey No.</b>         | <b>1</b>   | <b>2</b>   | <b>3</b>   | <b>4</b>   | <b>5</b>   | <b>6</b>   |
|---------------------------|------------|------------|------------|------------|------------|------------|
| <b>Date</b>               | 13/04/2024 | 27/04/2024 | 14/05/2024 | 24/05/2024 | 08/06/2024 | 15/06/2024 |
| <b>Start Time (PM)</b>    | 18:15      | 18:10      | 19:00      | 19:30      | 21:00      | 20:45      |
| <b>End Time (PM)</b>      | 21:30      | 21:30      | 22:30      | 22:30      | 22:30      | 22:00      |
| <b>Start Time (AM)</b>    | 07:20      | 07:15      | 05:50      | 07:00      | 07:40      | 07:30      |
| <b>End Time (AM)</b>      | 09:00      | 08:45      | 07:15      | 08:30      | 08:30      | 08:30      |
| <b>Air Temp* (PM)</b>     | 16         | 8          | 16         | 13         | 14         | 12         |
| <b>Air Temp* (AM)</b>     | 9          | 6          | 13         | 13         | 11         | 12         |
| <b>Precipitation (PM)</b> | Dry        | Dry        | Dry        | Dry        | Dry        | Dry        |
| <b>Precipitation (AM)</b> | Dry        | Light rain | Dry        | Dry        | Dry        | Dry        |
| <b>Cloud Cover# (PM)</b>  | 5          | 7          | 7          | 7          | 1          | 7          |
| <b>Cloud Cover# (AM)</b>  | 1          | 8          | 8          | 3          | 5          | 7          |

\* = measured in °C, # = measured in Oktas

## **APPENDIX C: GREAT CRESTED NEWT RAW SURVEY RESULTS**

**SEE OVER PAGE**

**Table C.1:** Great Crested Newt raw survey results – Survey 1.

| Survey 1 | Method | Common Frog |   |      |        | Common Toad |   |      |        | Smooth Newt |   |      |        | Palmate Newt |   |      |        | GCN |   |      |        | Turbidity |   |
|----------|--------|-------------|---|------|--------|-------------|---|------|--------|-------------|---|------|--------|--------------|---|------|--------|-----|---|------|--------|-----------|---|
| Pond No. |        | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M            | F | Pair | Larvae | M   | F | Pair | Larvae | (1 – 3)   |   |
| 1        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        | 1   |   |      |        |           | 1 |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        | 1   |   |      |        |           |   |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
| 2        | T      |             |   |      |        |             |   |      |        |             | 1 |      |        |              |   |      |        |     |   |      |        |           | 1 |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
|          | B      |             |   |      |        |             |   |      |        | 5           | 2 |      |        |              |   |      |        |     |   |      |        |           |   |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
| 3        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           | 1 |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
|          | B      | 1           |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
| 4        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           | 1 |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |   |
| 5        | T      |             | 1 |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           | 1 |

|                                       |    |
|---------------------------------------|----|
| Number of Bottle Traps deployed (PM)  | 90 |
| Number of Bottle Traps recovered (AM) | 90 |

(B) = Bottle Trap, (T) = Torch, (E) = Egg search, (N) = Net search

**Table C.2:** Great Crested Newt raw survey results – Survey 2.

| Survey 2 | Method | Common Frog |   |      |        | Common Toad |   |      |        | Smooth Newt |   |      |        | Palmate Newt |   |      |        | GCN |   |      |        | Turbidity |
|----------|--------|-------------|---|------|--------|-------------|---|------|--------|-------------|---|------|--------|--------------|---|------|--------|-----|---|------|--------|-----------|
| Pond No. |        | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M            | F | Pair | Larvae | M   | F | Pair | Larvae | (1 – 3)   |
| 1        | T      | 1           |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        | 1   |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 2        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 3        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 4        | T      | 1           |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      | 1           |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 5        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |

|                                       |    |
|---------------------------------------|----|
| Number of Bottle Traps deployed (PM)  | 87 |
| Number of Bottle Traps recovered (AM) | 87 |

(B) = Bottle Trap, (T) = Torch, (E) = Egg search, (N) = Net search

**Table C.3:** Great Crested Newt raw survey results – Survey 3.

| Survey 3 | Method | Common Frog |   |      |        | Common Toad |   |      |        | Smooth Newt |   |      |        | Palmate Newt |   |      |        | GCN |   |      |        | Turbidity |
|----------|--------|-------------|---|------|--------|-------------|---|------|--------|-------------|---|------|--------|--------------|---|------|--------|-----|---|------|--------|-----------|
| Pond No. |        | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M            | F | Pair | Larvae | M   | F | Pair | Larvae | (1 – 3)   |
| 1        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        | 1   |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        | 2   | 7 |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 2        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        | 1           | 2 |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 3        | T      | 3           |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 4        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 5        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |

|                                       |    |
|---------------------------------------|----|
| Number of Bottle Traps deployed (PM)  | 90 |
| Number of Bottle Traps recovered (AM) | 90 |

(B) = Bottle Trap, (T) = Torch, (E) = Egg search, (N) = Net search

**Table C.4:** Great Crested Newt raw survey results – Survey 4.

| Survey 4 | Method | Common Frog |   |      |        | Common Toad |   |      |        | Smooth Newt |   |      |        | Palmate Newt |   |      |        | GCN |   |      |        | Turbidity |
|----------|--------|-------------|---|------|--------|-------------|---|------|--------|-------------|---|------|--------|--------------|---|------|--------|-----|---|------|--------|-----------|
| Pond No. |        | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M            | F | Pair | Larvae | M   | F | Pair | Larvae | (1 – 3)   |
| 1        | T      | 1           |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        | 6   |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 2        | T      |             |   |      |        | 1           |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        | 1           | 1 |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 3        | T      | 2           |   |      | 1      |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 4        | T      | 1           |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
| 5        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |

|                                       |    |
|---------------------------------------|----|
| Number of Bottle Traps deployed (PM)  | 90 |
| Number of Bottle Traps recovered (AM) | 90 |

(B) = Bottle Trap, (T) = Torch, (E) = Egg search, (N) = Net search

**Table C.5:** Great Crested Newt raw survey results – Survey 5.

| Survey 5 | Method | Common Frog |   |      |        | Common Toad |   |      |        | Smooth Newt |   |      |        | Palmate Newt |   |      |        | GCN |   |      |        | Turbidity |
|----------|--------|-------------|---|------|--------|-------------|---|------|--------|-------------|---|------|--------|--------------|---|------|--------|-----|---|------|--------|-----------|
| Pond No. |        | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M            | F | Pair | Larvae | M   | F | Pair | Larvae | (1 – 3)   |
| 1        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        | 1   |   |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |

|                                       |    |
|---------------------------------------|----|
| Number of Bottle Traps deployed (PM)  | 40 |
| Number of Bottle Traps recovered (AM) | 40 |

(B) = Bottle Trap, (T) = Torch, (E) = Egg search, (N) = Net search

**Table C.6:** Great Crested Newt raw survey results – Survey 6.

| Survey 6 | Method | Common Frog |   |      |        | Common Toad |   |      |        | Smooth Newt |   |      |        | Palmate Newt |   |      |        | GCN |   |      |        | Turbidity |
|----------|--------|-------------|---|------|--------|-------------|---|------|--------|-------------|---|------|--------|--------------|---|------|--------|-----|---|------|--------|-----------|
| Pond No. |        | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M           | F | Pair | Larvae | M            | F | Pair | Larvae | M   | F | Pair | Larvae | (1 – 3)   |
| 1        | T      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        | 1         |
|          | E      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |
|          | B      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     | 1 |      |        |           |
|          | N      |             |   |      |        |             |   |      |        |             |   |      |        |              |   |      |        |     |   |      |        |           |

|                                       |    |
|---------------------------------------|----|
| Number of Bottle Traps deployed (PM)  | 40 |
| Number of Bottle Traps recovered (AM) | 40 |

(B) = Bottle Trap, (T) = Torch, (E) = Egg search, (N) = Net search