

## **Great North Road Solar and Biodiversity Park**

Environmental Statement

Volume 4 – Technical Appendices

Technical Appendix A8.7 – Great Crested Newt Baseline

Document reference – EN010162/APP/6.4.8.77A

Revision number 42

~~June 2025~~

January 2026

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, APFP Regulation 5(2)(a)

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# 1 INTRODUCTION

## 1.1 INTRODUCTION

- 1 This Technical Appendix (TA) presents the methods and results of a baseline study for great crested newts *Triturus cristatus* in relation to the Great North Road Solar Park (the Development).
- 2 The scope of the study was determined through a combination of a Preliminary Ecological Appraisal (PEA), comprising a desk study and site walkover, consultation with Natural England, and professional judgement with reference to prevailing good practice.
- 3 This TA includes no valuation of great crested newt or assessment of potential effects. These aspects are presented in the Ecology and Biodiversity [EN010162/APP/6.2.8] of the Environmental Statement (ES).
- 4 This TA is supported by the following appendices:
  - Appendix A – Figures; and
  - Appendix B – Survey Results.

## 1.2 LEGISLATION AND POLICY

### 1.2.1 Legislation

- 5 Great crested newts receive legal protection through the Wildlife and Countryside Act 1981<sup>1</sup> (as amended), under which it is an offence to intentionally kill, injure, or take great crested newts; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection; and intentionally or recklessly disturb great crested newts while they occupy a place used for shelter and protection.
- 6 Great crested newts are also protected by the Conservation of Habitats and Species Regulations 2017<sup>2</sup> (as amended), making it an offence to deliberately capture, kill or disturb great crested newts, and the destroy a breeding site or resting place of great crested newts (even if they are not present).

### 1.2.2 Conservation Status

- 18 Great crested newt is a species of Principal Importance in England under Section 41 of the Natural Environment and Communities Act 2006<sup>3</sup>, and a Species of Conservation Concern under the Nottinghamshire Local Biodiversity Action Plan<sup>4</sup>.

## 1.3 AIMS AND OBJECTIVES

- 19 The aim of the study is to provide a robust baseline against which the effects of the Development will be assessed. A combination of desk study and field

<sup>1</sup> Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents> [accessed 12/05/2025]

<sup>2</sup> Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made> [accessed 12/05/2025]

<sup>3</sup> Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents> [accessed 12/05/2025]

<sup>4</sup> Nottinghamshire Biodiversity Action Group (2020). Nottinghamshire Biodiversity Action Plan. Available at: <https://nottsbag.org.uk/lbap/lbap-introduction-and-sections-1-to-6/> [accessed 12/05/2025]

surveys have been completed to meet this aim by addressing the following objectives:

- Determine the suitability of ponds to support great crested newts; and
- Establish the presence or likely absence of great crested newts in suitable ponds.

## 1.4 STUDY AREA

- 20 The Study Area for surveys included all land within the Order Limits and, where accessible, up to 250 m outside the Order Limits (Figure A8.7.1). A smaller survey radius of 50 m was defined around access routes along public highways because these will be subject to only small scale and localised construction works within the adopted highway. Written requests were made to landowners not involved in the Development for permission to access ponds on their land outside the Order Limits. The Order Limits were refined and reduced during the course of baseline studies and so a larger number of ponds than is reported here were initially scoped into the study.

## 2 METHODS

### 2.1 DESK STUDY

- 21 A desk study was undertaken to assess the nature of the surrounding habitat and obtain pre-existing ecological data and information relevant to the assessment. The desk study included the following elements:
- An assessment of aerial imagery and Ordnance Survey mapping;
  - Nottinghamshire Biological and Geological Records Centre (NBGRC) records of great crested newt within 2 km of the Order Limits (January 2024); and
  - A search of the MAGIC<sup>5</sup> website for European Protected Species (EPS) Licenses within 2 km of the Order Limits.

### 2.2 SURVEYS

- 22 The survey scope was agreed with Natural England (see TA A8.2 1 Ecology and Biodiversity Consultation [EN010162/APP/6.4.8.1]) who confirmed the following:
- A core Study Area of 250 m from the Order Limits, extending to 500 m depending on the survey results and Development impacts;
  - Habitat Suitability Index (HSI) surveys of all ponds in the Study Area; and
  - Environmental DNA (eDNA) survey of all ponds with categorised by the HSI as 'Average' or above.

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<sup>5</sup> Available at: [www.magic.gov.uk](http://www.magic.gov.uk) [accessed 12/05/2025]

### 2.2.1 Habitat Suitability

- 23 HSI surveys<sup>6,7</sup> were undertaken between 2021 and 2024 to determine the suitability of ponds to support great crested newts. The HSI score is based on quantifying 10 variables describing the characteristics of a pond, such as geographic location, shade and water quality, which is then categorised (Table A8.7.1).

**Table A8.7.1: Categorisation of HSI scores**

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

### 2.2.2 eDNA Survey

- 24 Environmental DNA (eDNA) analysis of water samples was undertaken in May 2022 and May–June 2024 following good practice sampling protocols<sup>8</sup>. Water samples were taken from ponds with ‘Average’ suitability or above and sent to an accredited laboratory for testing. A positive result indicates the presence of great crested newt DNA from which it can be inferred that the species is present in the pond.

### 2.2.3 Population Survey

- 25 Population surveys were conducted on 13 ponds in April–June 2022 to determine their population size class. Each pond was surveyed on six occasions between mid-March and mid-June following good practice guidance<sup>9,10</sup>. The ponds selected for survey were part of an initial study and were not intended to provide a comprehensive data set. Nonetheless, the results provide useful additional data about the presence and population sizes of great crested newts.

## 2.3 LIMITATIONS

- 26 Some off-site ponds have not been surveyed because the landowners did not grant access in response to two rounds of written requests. Access to some ponds was also withdrawn or could not be reconfirmed following initial HSI surveys and so eDNA surveys could not be completed on these. Access limitations are summarised in Appendix B. A total of 86 ponds were accessed for some level of survey, providing a sound baseline for assessing the potential effects of the Development.

<sup>6</sup> Amphibian and Reptile Groups of the United Kingdom [ARG UK] (2010). Great Crested Newt Habitat Suitability Index.

<sup>7</sup> 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.

<sup>8</sup> PondNet (undated). How to collect an eDNA sample.

<sup>9</sup> English Nature (2001). Great crested newt mitigation guidelines.

<sup>10</sup> Froglife (2001). Great Crested Newt Conservation Handbook.

## 3 RESULTS

### 3.1 DESK STUDY

- 27 The Order Limits comprises 84% (1,482 ha) arable fields, a terrestrial habitat of limited value to great crested newts. Discrete areas of higher value terrestrial habitats were present within the agricultural landscape, including woodland, scrub and grassland, and many of these were connected by an extensive network of hedgerows and watercourses.
- 28 Based on a review of aerial imagery and OS maps, 108 ponds were identified in the Study Area and are distributed throughout, with slightly higher densities in the west and east.
- 29 NBGRC returned six records of great crested newts, one of which was within the Study Area. MAGIC returned no granted EPS licenses or license returns for great crested newt.

### 3.2 SURVEYS

#### 3.2.1 Habitat Suitability

- 30 Access was possible to 86 ponds and all of these were subject to an HSI survey, the results of which are provided in Appendix B.

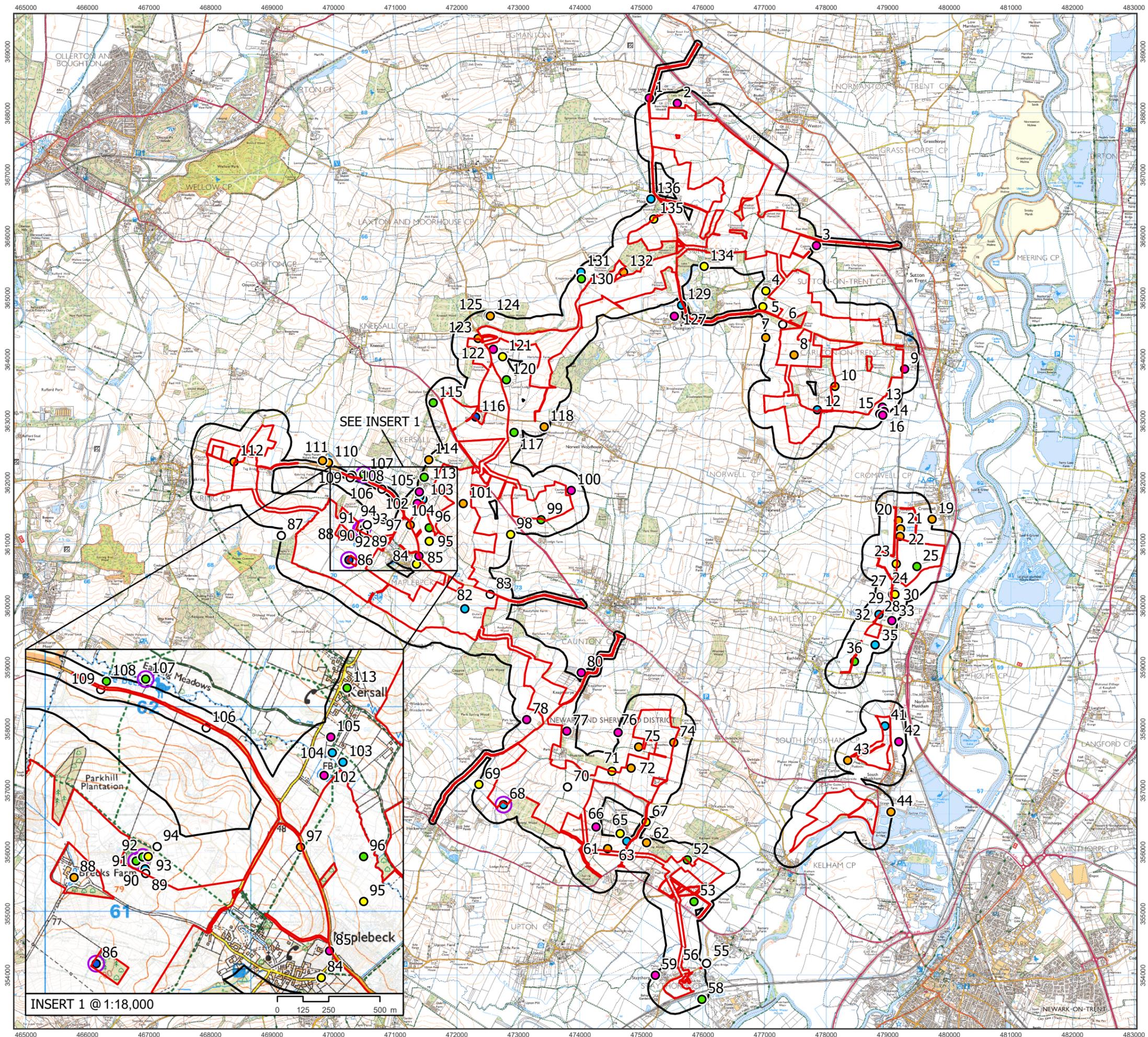
#### 3.2.2 eDNA Survey

- 31 22 ponds were sampled for eDNA, of which five returned positive results (see Appendix B for details). Four of the ponds were clustered in the west of the Study Area: ponds 91 and 92 were separated by c. 35 m in a woodland surrounded by arable land; pond 86 is in a woodland 540 m to the south of these, separated by arable land; and pond 107 is 870 m to the north, also separated by arable land, in Eakring and Maplebeck Meadows Site of Special Scientific Interest.

#### 3.2.3 Population Survey

- 32 Population surveys confirmed great crested newt populations in two ponds, both of which also tested positive for eDNA. Pond 86 supported a medium population ( $n = 32$ ; 19 adult males and 13 adult females) and eggs were also confirmed in this pond. Pond 92 supported a small population of two adult females, but no eggs were identified.

## APPENDIX A – FIGURES



- Order Limits
  - Great Crested Newt Study Area
  - Positive eDNA Result
- HSI Survey Results
- Excellent
  - Good
  - Average
  - Below average
  - Poor
  - N/A
  - No access

1:60,000 Scale @ A3



Ref: 026-ES-A8.7.1 Rev2 Date: 13/01/2026

**Great Crested Newt Survey Results**  
Figure A8.7.1

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## APPENDIX B – SURVEY RESULTS

| Pond reference | HSI Suitability       | eDNA | Population Survey | Presence | Notes         |
|----------------|-----------------------|------|-------------------|----------|---------------|
| 1              | <i>Not accessible</i> |      |                   |          |               |
| 2              | <i>Not accessible</i> |      |                   |          |               |
| 3              | <i>Not accessible</i> |      |                   |          |               |
| 4              | Below Average         |      |                   |          |               |
| 5              | Below Average         |      |                   |          |               |
| 6              | N/A                   |      |                   |          | Pond was dry. |
| 7              | Poor                  |      |                   |          |               |
| 8              | Poor                  |      |                   |          |               |
| 9              | <i>Not accessible</i> |      |                   |          |               |
| 10             | Poor                  |      |                   |          |               |
| 12             | Good                  |      | Absent            |          |               |
| 13             | <i>Not accessible</i> |      |                   |          |               |
| 14             | <i>Not accessible</i> |      |                   |          |               |
| 15             | <i>Not accessible</i> |      |                   |          |               |
| 16             | <i>Not accessible</i> |      |                   |          |               |
| 19             | Poor                  |      |                   |          |               |
| 20             | Poor                  |      |                   |          |               |
| 21             | Poor                  |      |                   |          |               |

| Pond reference | HSI Suitability       | eDNA     | Population Survey | Presence | Notes   |
|----------------|-----------------------|----------|-------------------|----------|---|
| 22             | Poor                  |          |                   |          |   |
| 23             | Below average         |          |                   |          |   |
| 24             | Below average         |          |                   |          |   |
| 25             | Average               | Negative |                   |          |   |
| 27             | Average               | Negative |                   |          |   |
| 28             | Below average         |          |                   |          |   |
| 29             | Average               |          |                   |          | No access due to dense vegetation fully surrounding pond. |
| 30             | Below average         |          |                   |          |   |
| 32             | Good                  | Negative | Absent            |          |   |
| 33             | <i>Not accessible</i> |          |                   |          |   |
| 35             | Good                  | Negative | Absent            |          |   |
| 36             | Average               | Negative |                   |          |   |
| 40             | <i>Not accessible</i> |          |                   |          |   |
| 41             | Good                  | Negative |                   |          |   |
| 43             | Poor                  | Negative |                   |          |   |
| 42             | <i>Not accessible</i> |          |                   |          |   |
| 44             | Poor                  |          |                   |          |   |
| 46             | <i>Not accessible</i> |          |                   |          |   |
| 52             | Average               |          | Absent            |          |   |

| Pond reference | HSI Suitability       | eDNA     | Population Survey | Presence | Notes  |
|----------------|-----------------------|----------|-------------------|----------|--|
| 53             | Average               |          |                   |          | Limited access due to dense vegetation and steep banks. Nesting swan at only accessible point. |
| 55             | N/A                   |          |                   |          | Pond was dry.  |
| 56             | N/A                   |          |                   |          | Pond was dry.  |
| 58             | Average               | Negative |                   |          |  |
| 59             | <i>Not accessible</i> |          |                   |          |  |
| 61             | Poor                  |          |                   |          |  |
| 62             | Poor                  |          |                   |          |  |
| 63             | Good                  |          |                   |          | Access no longer possible.   |
| 65             | Below average         |          |                   |          |  |
| 66             | <i>Not accessible</i> |          |                   |          |  |
| 67             | Below average         |          |                   |          |  |
| 68             | Good                  | Positive |                   | Present  |  |
| 69             | Below average         |          |                   |          |  |
| 70             | N/A                   |          |                   |          | Pond was dry.  |
| 71             | Below Average         |          | Absent            |          |  |
| 72             | Poor                  |          |                   |          |  |
| 73             | <i>Not accessible</i> |          |                   |          |  |
| 74             | Poor                  |          |                   |          |  |

| Pond reference | HSI Suitability       | eDNA     | Population Survey                                  | Presence | Notes  |
|----------------|-----------------------|----------|--|----------|--|
| 75             | Poor                  |          |  |          |  |
| 76             | <i>Not accessible</i> |          |  |          |  |
| 77             | <i>Not accessible</i> |          |  |          |  |
| 78             | <i>Not accessible</i> |          |  |          |  |
| 80             | <i>Not accessible</i> |          |  |          |  |
| 82             | Good                  | Negative |  |          |  |
| 83             | N/A                   |          |  |          | Pond no longer present.                          |
| 84             | Below Average         |          |  |          |  |
| 85             | <i>Not accessible</i> |          |  |          |  |
| 86             | Excellent             | Positive | 32 (19 adult male, 13 adult female. Eggs present.) | Present  |  |
| 87             | N/A                   |          |  |          | Pond no longer present.                          |
| 88             | Poor                  |          |  |          |  |
| 89             | N/A                   |          |  |          | No access due to dense bramble surrounding pond. |
| 90             | Good                  |          | Absent   |          |  |
| 91             | Average               | Positive | Absent   | Present  |  |
| 92             | Average               | Positive | 2 (adult females)                                  | Present  |  |
| 93             | Below average         |          |  |          |  |
| 94             | N/A                   |          |  |          | Pond no longer present.                          |

| Pond reference | HSI Suitability       | eDNA         | Population Survey | Presence | Notes                                |
|----------------|-----------------------|--------------|-------------------|----------|--------------------------------------|
| 95             | Below average         |              | Absent            |          |                                      |
| 96             | Average               | Inconclusive | Absent            |          |                                      |
| 97             | Poor                  |              |                   |          |                                      |
| 98             | Below average         |              |                   |          |                                      |
| 99             | Average               |              |                   |          | Pond was dry at time of eDNA survey. |
| 100            | <i>Not accessible</i> |              |                   |          |                                      |
| 101            | Poor                  |              |                   |          |                                      |
| 102            | <i>Not accessible</i> |              |                   |          |                                      |
| 103            | Good                  |              |                   |          | Not accessed following HSI.          |
| 104            | Good                  |              |                   |          | Not accessed following HSI.          |
| 105            | <i>Not accessible</i> |              |                   |          |                                      |
| 106            | N/A                   |              |                   |          | Pond no longer present.              |
| 107            | Average               | Positive     |                   | Present  |                                      |
| 108            | Average               | Negative     |                   |          |                                      |
| 109            | N/A                   |              |                   |          | Absent                               |
| 110            | Poor                  |              |                   |          |                                      |
| 111            | Poor                  |              |                   |          |                                      |
| 112            | Poor                  |              |                   |          |                                      |
| 113            | Average               |              |                   |          | No access due to steep banks.        |
| 114            | Poor                  |              |                   |          |                                      |

| Pond reference | HSI Suitability       | eDNA         | Population Survey | Presence | Notes                               |
|----------------|-----------------------|--------------|-------------------|----------|-------------------------------------|
| 115            | Average               |              |                   |          | Pond was dry at time of eDNA survey |
| 116            | Excellent             | Negative     |                   |          |                                     |
| 117            | Average               |              |                   |          | Pond was dry at time of eDNA survey |
| 118            | Poor                  | <u>ss</u>    |                   |          |                                     |
| 120            | Average               | Negative     |                   |          |                                     |
| 121            | Below average         |              | Absent            |          |                                     |
| 122            | <i>Not accessible</i> |              |                   |          |                                     |
| 123            | Poor                  |              |                   |          |                                     |
| 124            | Poor                  |              |                   |          |                                     |
| 125            | Good                  | Negative     |                   |          |                                     |
| 127            | <i>Not accessible</i> |              |                   |          |                                     |
| 129            | Good                  |              |                   |          |                                     |
| 130            | Average               | Negative     |                   |          |                                     |
| 131            | Good                  |              |                   |          | No access due to steep banks.       |
| 132            | Poor                  |              |                   |          |                                     |
| 134            | Below Average         |              |                   |          |                                     |
| 135            | Below Average         | Negative     |                   |          |                                     |
| 136            | Good                  | Inconclusive |                   |          |                                     |