

# A428 Black Cat to Caxton Gibbet improvements

TR010044

Volume 9

9.61 Great Crested Newt Survey Update Technical Note

Planning Act 2008

Rule 8(1)(k)

Infrastructure Planning (Examination Procedure) Rules  
2010

November 2021

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning (Examination  
Procedure) Rules 2010**

**A428 Black Cat to Caxton Gibbet  
improvements  
Development Consent Order 202[ ]**

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**9.61 Great Crested Newt Survey Update Technical Note**

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<b>Regulation Reference:</b>	Rule 8(1)(k)
<b>Planning Inspectorate Scheme Reference</b>	TR010044
<b>Application Document Reference</b>	TR010044/EXAM/9.61
<b>Author</b>	A428 Black Cat to Caxton Gibbet improvements Project Team, National Highways

<b>Version</b>	<b>Date</b>	<b>Status of Version</b>
Rev 1	16 November 2021	Deadline 5

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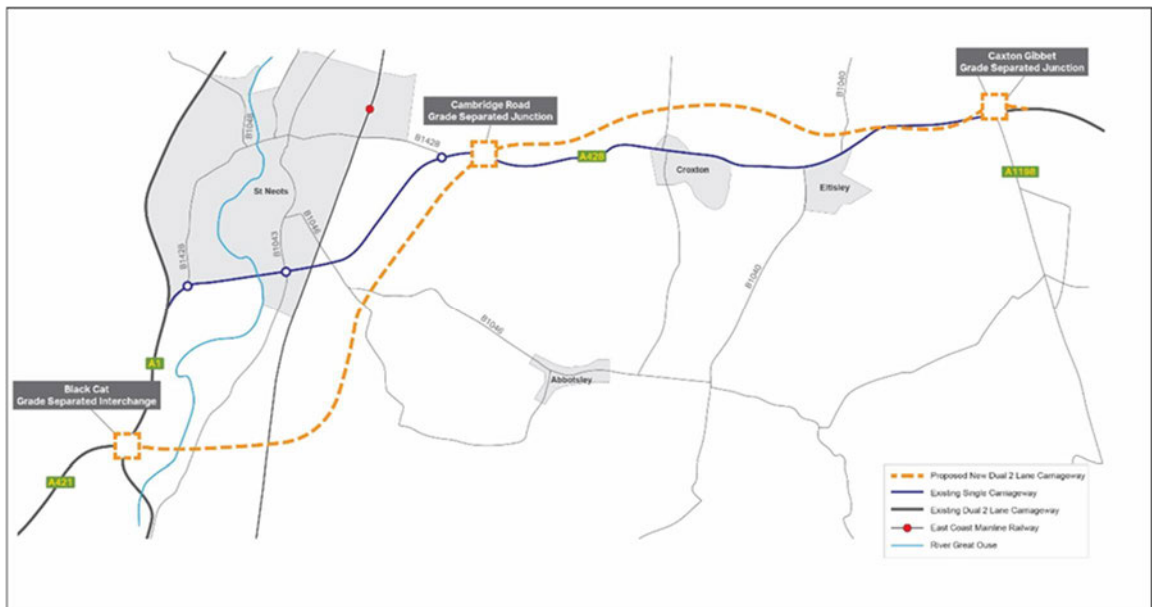
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# 1 Summary

- 1.1.1 Surveys for the presence of Great Crested Newt (*Triturus cristatus*) were undertaken in 2021 to provide new or updated information on ponds within the Order Limits of the Scheme and to 500m beyond the Order Limits: 17 due to historic access issues; and 27 as updates of surveys carried out in 2018 and 2019. Water samples were taken for analysis for Great Crested Newt eDNA.
- 1.1.2 Of the 17 ponds not surveyed previously, the water samples from five ponds (Ponds 13, 37, 51, 59 and 60) tested negative for Great Crested Newt eDNA and twelve remained inaccessible due to physical restrictions on access, namely dense vegetation or steep banks or due to landowner refusal (Ponds 5, 12, 28, 29, 63, 64, 65, 66, 68, 73, 76 and 86). None of the ponds surveyed for the first time tested positive for eDNA. The status of Pond 13 and 37 remain inconclusive, because samples could not be taken until early August, so presence continues to be assumed on a precautionary basis.
- 1.1.3 Of the 27 ponds which had been surveyed previously, nine ponds which had been assessed positive for Great Crested Newt previously, also had a positive eDNA result in 2021 (Ponds 14, 16, 36, 38, 54, 55, 56, 57 and 81). There were 11 ponds surveyed previously which had a repeat negative eDNA in 2021 (Ponds 1, 4, 11, 17, 19, 20, 22, 23, 27, 49 and 50). Two ponds (Pond 2 and 85) were found to be dry in 2021 and no Great Crested Newt had been found in them in 2018. Three ponds (Ponds 9, 53 and 82) had a different result in 2021 compared to previous surveys; they had a negative result in 2021, but a small Great Crested Newt population (Pond 53 and 82) had been found in each in 2018 and a positive eDNA result (Pond 9) was found in 2018. Two of the negatives may be due to late samples (Ponds 9 and 82). Presence is assumed in all three on a precautionary basis. Two ponds (Ponds 18 and 24) were not accessible in 2021 due the dense vegetation around the ponds (they were accessible in 2018 but no Great Crested Newt were found in those ponds then).
- 1.1.4 The 2021 survey data has been tabulated with data from previous surveys to provide the status of all ponds within 500m of the Scheme.

## 2 Introduction

- 2.1.1 The purpose of the A428 Black Cat to Caxton Gibbet Improvements (the Scheme) is to address the problems of congestion, poor journey time reliability and poor resilience against incidents between the Black Cat and Caxton Gibbet roundabouts. The Scheme seeks to address these problems through construction of a new 10 mile (16 kilometres) dual 2-lane carriageway from the Black Cat roundabout to Caxton Gibbet roundabout, to be known as the A421, and in addition there is approximately 1.8 miles (3 kilometres) of tie-in works shown in schematic form in **Figure 2-1**.



**Figure 2-1 The Scheme**

- 2.1.2 The purpose of this Great Crested Newt Survey Update Technical Note (the Technical Note) is to present updated baseline information on Great Crested Newt on the set of ponds surveyed in 2021, as part of the Scheme.
- 2.1.3 The Technical Note should be read in conjunction with Appendix 8.14, Great Crested Newt **[APP-201]** of the Environmental Statement, which includes the details of the previous surveys.
- 2.1.4 The results for previous surveys are briefly summarised in **Table 6-1**, together with the results for the 2021 surveys.

## 3 Surveys

### 3.1 2018 and 2019 surveys

- 3.1.1 As part of the Scheme, 59 waterbodies (all ponds) within the Order Limits of the Scheme and a zone of 500m around them were assessed in 2018 and 2019 for the presence of Great Crested Newt (*Triturus cristatus*). The data collected and its interpretation are described in Appendix 8.14, Great Crested Newt [APP-201] of the Environmental Statement.
- 3.1.2 Surveys were undertaken by assessing Habitat Suitability Indices (HSIs), analyses of water samples for Great Crested Newt eDNA and standard survey methods by torch surveys at night, bottle-trapping, egg-searches and hand-netting.
- 3.1.3 The eDNA sampling technique was used in 24 ponds (between April and June in 2018 and 2019) and in 4 ponds during the extended Phase 1 Habitat survey (Jacobs, 2017) [REF 1-1] of the 59 ponds. Of these 28 ponds, eight ponds tested positive for Great Crested Newt eDNA.
- 3.1.4 Of the ponds surveyed in 2018 and/ or 2019, 36 ponds were subject to standard survey techniques to determine presence/absence of Great Crested Newts. These included the eight ponds which had a positive eDNA result in 2018 and thus allowed a population size class to be determined, which cannot be done with eDNA sampling alone.
- 3.1.5 In total, from the 2018 and 2019 surveys, 22 of the ponds were found to support Great Crested Newt.

### 3.2 Scope of 2021 surveys

- 3.2.1 In 2021, the aim was to survey 17 ponds (Ponds: 5, 12, 13, 28, 29, 37, 51, 59, 60, 63, 64, 65, 66, 68, 73, 76 and 86) which had not previously been surveyed, due to lack of permission to visit a given pond, or problems of access due to dense vegetation (e.g. bramble). Additionally, 27 ponds which had previously been surveyed were visited to obtain eDNA data to keep the baseline survey of the ponds up to date. A group of three ponds (Ponds 41(A), 41(B) and 41(C)) was not re-surveyed. Two had a negative eDNA test in 2019 and one (Pond 41 (A)) had a positive test, although it was difficult to access and was omitted from survey in 2021 on safety grounds.
- 3.2.2 Pond locations are shown on **Figure C3.2A** in Appendix A, together with their status. A table showing these ponds with methods used and summary HSI is included in Appendix B. Notes on the ponds surveyed in 2021, including photographs, are presented in Appendix C.
- 3.2.3 For those ponds for which access had been agreed, the objectives included:
- Checking that the pond did exist.
  - Undertaking a HSI calculation.
  - Taking a water sample, from which an analysis could be made for Great Crested Newt eDNA.

## 4 Methodology

- 4.1.1 The surveys were undertaken by suitably experienced ecologists during the period 27 May to 25 June 2021, a period when ponds used by Great Crested Newts would be likely to have eDNA present. Four ponds (9, 13, 37 and 82) were not surveyed until 6 August 2021 due to the time required to obtain consent to survey.
- 4.1.2 A check was made that each pond was present and had not either been infilled, allowed to become terrestrialised or its location was an error in map reading or interpretation of aerial photography.
- 4.1.3 For those ponds which were existing and not dried out, data were collected from which to calculate a HSI, and water samples were taken for analysis of Great Crested Newt eDNA. A single visit was made to each pond surveyed in 2021.
- 4.1.4 Details of the methods used are presented in Appendix 8.14, Great Crested Newt **[APP-201]** of the Environmental Statement. The sampling method for eDNA was the same in 2021 as in previous surveys. Standard methods of torch surveys, bottle-trapping and hand netting were not used in 2021.
- 4.1.5 A difference between eDNA samples and the standard methods is that eDNA determines the presence of Great Crested Newt from a water sample taken on one occasion during the breeding season or soon afterwards. It does not determine the relative abundance of a breeding population. Standard survey methods require four visits or six visits (see details in Appendix 8.14, Great Crested Newt **[APP-201]** of the Environmental Statement).
- 4.1.6 The principal method is a count of newts seen in the pond and around the margin by torchlight. The highest number recorded (peak count) indicates the relative abundance of the population (size class). A count of 1-10 represents a small population, 11-100 a medium population and more than 100 a large population. Where this standard method was used in previous surveys the size class is shown in **Table 6-1** (and Appendix B) together with the eDNA results from 2021.
- 4.1.7 Additionally, the existing desk study information was supplemented with a search undertaken on the MAGIC website [REF 1-2] to identify any Natural England European Protected Species (EPS) Mitigation Licence applications for Great Crested Newt within 1 kilometre (0.6 miles) from the Scheme's Order Limits in the last ten years. This was to see whether a pond with a known population of Great Crested Newt more than 500m from the Scheme might be within range to colonise an unsurveyed pond within 500m from the Scheme, i.e. increase the likelihood of presence in a pond which could not be surveyed. This information was not available on the MAGIC website for the previous desk study in 2018. There were no records found on MAGIC within 1 kilometre (0.6 miles) from the Scheme.
- 4.1.8 Additional desk study records were obtained from the Cambridgeshire and Peterborough Environmental Records Centre for six ponds in the vicinity of the Scheme, as presented in **Table 4-1**.

**Table 4-1: Desk study records of Great Crested Newt obtained in 2021**

Record	Grid reference	Distance from Order Limits (m)	New record?	Comments
GCN1	TL29055996	317	Pond 80	
GCN2	TL25535925	599	Yes	Record is in Croxton Park
GCN3	TL25645931	518	Yes	Record is in Croxton Park
GCN4	TL30226099	14	Pond 81	
GCN5	TL268596	185	Appears to be Pond 62	Record is in Eltisley village
GCN6	TL273593	547	Yes	Record is in Eltisley village

- 4.1.9 None of these records are new ponds within 500m. The two ponds in Croxton Park are further away. The absence of newts in ponds 59 and 60 on the north side of the A428 from Croxton Park indicates this road is probably a barrier to movement of next from the ponds in Croxton Park. The record GCN6 in Eltisley village is an old moat southeast of the village. It is within 400m of Pond 68, which has not had access for survey. This record makes it more likely that newts could be present in Pond 68.
- 4.1.10 A review of rainfall data was carried out because rainfall affects whether ponds stay wet long enough for Great Crested Newts to complete their breeding, from arrival of adult newts to departure of fully developed juveniles into terrestrial habitat. Variations in rainfall from year to year mean that some ponds, which would be suitable for newts to breed in an average year, would be dry if there was much less than average winter rainfall to fill the ponds, or if the spring breeding season was unusually dry. Knowing how climatic conditions in a survey year compare with long term average conditions helps understanding of the suitability ponds for breeding.
- 4.1.11 As individual newts can live for several years, occasional drying of a pond does not affect the long term viability of the population. Indeed, infrequent drying out of a pond in late summer can be beneficial to the newt population by killing fish and large invertebrates such as dragonfly nymphs, both of which predate the newts. Where a pond dries out in multiple years per decade, before newts can complete their breeding, this reduces the population; usage of the pond may become intermittent, mainly as foraging habitat rather than a breeding site; or the population may be lost.



- 4.1.12 Rainfall data was used to compare conditions in 2021 with those in 2018 to see whether 2021 was similarly dry or closer to average conditions. Sources used were Met Office data for East Anglia (monthly rainfall data 1862-2021) areal values from the Had UK – 1km gridded climate data [REF 1-3] and a local recording station at Turvey near Bedford (amateur recording of weekly rainfall from 1984 – 2021, combined to show monthly and year totals) [REF 1-4]. Winter rainfall (January to March) was compared and spring rainfall (April to June), as the most relevant data for breeding ponds for Great Crested Newt.
- 4.1.13 The winter months of 2018 (January, February, and March) had total rainfall slightly above the long term average (113%), whereas the spring months of 2018 (April, May and June) had lower than average rainfall overall, 91% of average, but that was due to exceptionally low rainfall in June, whereas April and May were wetter than average.
- 4.1.14 Conditions in 2019 had lower than average rainfall in both winter (82% of average) and spring (90% of average).
- 4.1.15 In 2021 the total rainfall for the winter months was 131% of the average, largely due to a wet January, February and March were closer to average. The spring months of 2021 were wetter than the average (118% of average). April 2021 was much drier than average (24% of average) but it was followed by much wetter than average conditions in May and June (May 162% and June 148% of monthly average). Met Office data for East Anglia and UK climate mapping for these seasons showed a similar pattern.

## 5 Limitations

- 5.1.1 The eDNA sampling test can only be used to determine Great Crested Newt presence/ likely absence; it does not provide any information to help inform Great Crested Newt population size class estimates. Ponds with confirmed presence of Great Crested Newt which are directly or indirectly affected by the Scheme require mitigation measures to avoid adverse effects on the population of the EPS. Population class size helps to inform the details of mitigation measures such as exclusion or capture as part of requirements of an EPS licence. In order to complete the repeated survey visits required during the breeding season using standard methods, survey visits are required in April. Consent for surveys was not obtained soon enough to allow the full suite of survey visits, so eDNA sampling was used throughout. Subject to the Development Consent Order for the Scheme being made by the Secretary of State for Transport, ponds will be resurveyed in the survey season prior to the start of construction to inform either a District Level Licence for Great Crested Newt or an EPS licence.
- 5.1.2 Most of the eDNA surveys were undertaken in the period recognised by Natural England as being the most appropriate time of the year for eDNA sampling. Four of the ponds (Ponds 9, 13, 37 and 82) could not be sampled until 6 August 2021. This is towards the end of the newt season, adults would likely have left the ponds, albeit there may still have been juveniles present or some residual eDNA from earlier use of the pond by newts. The approach taken was to accept a positive eDNA as evidence of presence, but where a pond had a negative eDNA this could not be assumed to represent absence from a late season sample. If there had been a record of presence of Great Crested Newt by previous standard survey or eDNA, continued presence was assumed. Where there was no prior survey data the status remained uncertain but possible presence was assumed on a precautionary basis.

## 6 Results

6.1.1 **Table 6-1** summarises the results of the survey undertaken in 2021. Photographs and further details of the ponds are in Appendix C. Pond locations on **Figure C3.2A** in Appendix A show all the of the ponds in the vicinity of the Scheme and their status as known in 2021.

**Table 6-1: Summary of ponds surveyed in 2021**

Pond number	Previous findings (2018 unless stated) P/A = presence/absence survey, 4 visits, 6 visits for population size class)	Habitat Suitability Index (2021) nd = no data	eDNA result (2021)	Same result as previous
Pond 1	Absent (P/A)	0.48	Negative	Yes
Pond 2	Absent (P/A)	nd	Pond dry	No
Pond 4	Absent (P/A)	0.85	Negative	Yes
Pond 9	Present (eDNA Positive)	0.96	Negative (late sample)	No
Pond 11	Absent (eDNA Negative)	0.81	Negative	Yes
Pond 13	No survey consent	0.64	Negative (late sample)	New
Pond 14	Present (Small population, 2019 P/A)	0.35	Positive	Yes
Pond 16	Present (Medium population P/A)	0.73	Positive	Yes
Pond 17	Absent (P/A 2018; positive eDNA in 2016 considered false positive)	0.55	Negative	Yes
Pond 19	Absent (eDNA Negative)	0.72	Negative	Yes
Pond 20	Absent (eDNA Negative)	0.69	Negative	Yes
Pond 21	Pond dry	nd	Pond dry	Yes
Pond 22	Absent (eDNA Negative)	0.57	Negative	Yes
Pond 23	Absent (eDNA Negative)	0.52	Negative	Yes
Pond 27	Absent (eDNA Negative, 2016)	0.74	Negative	Yes
Pond 36	Present (Small population, P/A)	0.91	Positive	Yes

<b>Pond number</b>	<b>Previous findings (2018 unless stated)</b> P/A = presence/absence survey, 4 visits, 6 visits for population size class)	<b>Habitat Suitability Index (2021)</b> nd = no data	<b>eDNA result (2021)</b>	<b>Same result as previous</b>
Pond 37	Not accessible	0.44	Negative (late sample)	New
Pond 38	Present (Small population, P/A)	0.52	Positive	Yes
Pond 49	Absent (P/A)	0.62	Negative	Yes
Pond 50	Absent (eDNA Negative)	0.68	Negative	Yes
Pond 51	Not accessible	0.55	Negative	New
Pond 53	Present (Small population, P/A)	0.68	Negative	No
Pond 54	Present (Small population, P/A)	0.70	Positive	Yes
Pond 55	Present (Small population, P/A, 2019)	0.60	Positive	Yes
Pond 56	Present (Medium population, P/A 2019)	0.72	Positive	Yes
Pond 57	Present (GCN eggs found 2018, Small population, P/A, 2019)	0.78	Positive	Yes
Pond 59	No survey consent	0.57	Negative	New
Pond 60	No survey consent	0.69	Negative	New
Pond 81	Present (Small population, P/A)	0.79	Positive	Yes
Pond 82	Present (Small population, P/A)	0.71	Negative (late sample)	No
Pond 84	Pond dry	nd	Pond dry	Yes
Pond 85	Absent (P/A, 2019), (HSI 0.37)	nd	Pond dry	No

6.1.2 In 2021, 32 ponds were surveyed, five for the first time (Ponds: 13, 37, 51, 59 and 60) and 27 which had been surveyed previously.

## 6.2 Ponds not previously surveyed

- 6.2.1 Of the 17 ponds (Ponds: 5, 12, 13, 28, 29, 37, 51, 59, 60, 63, 64, 65, 66, 68, 73, 76 and 86) which had not been surveyed before 2021, water samples were taken just from five ponds (Ponds 13, 37, 51, 59 and 60). None of the samples tested positive for Great Crested Newt eDNA. All of the samples tested negative for eDNA. Two of the samples (Pond 13 and 37) were taken late in the survey season so it cannot be assumed that the pond was not used by Great Crested Newt. Presence is assumed on a precautionary basis.
- 6.2.2 Twelve ponds (Ponds 5, 12, 28, 29, 63, 64, 65, 66, 68, 73, 76 and 86) were not surveyed, due to access restrictions.

## 6.3 Ponds previously surveyed

- 6.3.1 In total 27 ponds which had been assessed for Great Crested Newt in 2018 and 2019 were visited in 2021. Nine ponds (Ponds: 14, 16, 36, 38, 54, 55, 56, 57 and 81) had a positive eDNA result in 2021. All nine ponds were positive for eDNA in 2018 and/or 2019 (refer to **Table 6-1** and Appendix 8.14, Great Crested Newt of **[APP-201]** the Environmental Statement).
- 6.3.2 There were 14 ponds (Ponds: 1, 4, 9, 11, 17, 19, 20, 22, 23, 27, 49, 50, 53 and 82) which had a negative eDNA result in 2021. Of these 14 ponds, 11 of them also had a negative result in 2018 or 2019 (Ponds 1, 4, 11, 17, 19, 20, 22, 23, 27, 49 and 50).
- 6.3.3 Two ponds (Pond 53 and 82) had a negative result in 2021, but a small population was found in a previous survey. The population is assumed to still be present, albeit small or intermittent. Two ponds (Ponds 9 and 82) where late samples were taken had a negative result for eDNA in 2021. Pond 9 had positive results for eDNA in the previous survey in 2018. Because the 2021 samples were late ones (6 August 2021) it cannot be assumed that newts were absent. It is assumed that the Great Crested Newt population is still present in both ponds.
- 6.3.4 Two ponds (Pond 2 and 85) were found to be dry in 2021 and no Great Crested Newt was recorded in 2018 and 2019. Two ponds (Ponds 18 and 24) were not accessible due the dense vegetation around the ponds in 2021 and no newts were found in 2018 in those ponds.

## 6.4 Summary of status of ponds within 500m of the Scheme

- 6.4.1 **Table 6-1** shows the ponds which were surveyed in 2021. Appendix B shows all of the ponds, including those which were not resurveyed in 2021. **Table 6-2** summarises the status of all the ponds (from Appendix B), based on the data from all survey years. A precautionary approach has been taken. As in Appendix 8.14, Great Crested Newt **[APP-201]** of the Environmental Statement, any pond not surveyed is assumed to have Great Crested Newt present. Ponds with Great Crested Newt present in 2018 but a Negative eDNA result in 2021 are assumed to still have newts present unless there was evidence that a pond had become unsuitable, although it is likely that the population is Small, or the pond is in intermittent use. Ponds which were dry, and especially those which were found to be dry in both 2018 and 2021 are assumed to be unsuitable as regular breeding

ponds. They may be used as terrestrial foraging habitat or possibly as intermittent breeding sites in wet years, but only if there are breeding ponds sufficiently near for there to be a local population of newts which may utilise the dry pond.

6.4.2 In total, the study area within 500m of the Scheme included 88 ponds, three of which were no longer existing, hence 85 sites remain. As shown in **Table 6-2**, the total number of ponds with confirmed Great Crested Newt, or possible (not surveyed or inconclusive result) is 39, representing approximately 45% of the total. There are ponds with newts along the length of the Scheme, but as shown on **Figure C3.2A** in Appendix A, they are clustered, with the highest density of ponds being those where there is habitat other than arable in close proximity.

**Table 6-2: Summary of ponds by status (combined baseline data)**

Ponds with GCN present	Ponds (wet) with GCN absent	Ponds inconclusive (assume GCN present)	Ponds not surveyed (assume GCN present)	Ponds unsuitable (dry)	Ponds not existing
Total 24	Total 37	Total 3	Total 12	Total 9	Total 3
Ponds 14, 15, 16, 30, 31, 32, 33, 36, 38, 41A, 44, 53, 54, 55, 56, 57, 58, 62, 67, 72, 80, 81, 82, 83	Ponds 1, 3, 4, 6, 7, 8, 11, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 39, 40, 41B, 41C, 42, 43, 49, 50, 51, 52, 59, 60, 69, 70, 71, 74, 75, 77, 78, 79	Ponds 9, 13, 37	Ponds 5, 12, 28, 29, 63, 64, 65, 66, 68, 73, 76, 86	Ponds 2, 21, 45, 46, 47, 48, 61, 84, 85	Ponds 10, 34, 35

## 7 Conclusions

### 7.1 New survey results in 2021

7.1.1 Among the ponds which had not been previously surveyed, the surveys in 2021 provided new eDNA evidence about the status of Great Crested Newt in three (Ponds 51, 59 and 60). All of these ponds had a negative eDNA result within the normal survey period for eDNA sampling for Great Crested Newt. Previously, there had been a precautionary assumption adopted for assessment purposes that Great Crested Newt was present in these ponds. There were no new positive results from ponds in 2021.

### 7.2 Ponds surveyed but with inconclusive status

7.2.1 Negative eDNA results for Pond 13 and 37 are inconclusive, because the samples were late in the season. The assumption of possible presence is retained on a precautionary basis.

7.2.2 The nearest pond to Pond 13 is Pond 4, which was overgrown with emergent vegetation in 2018 and there was no record of Great Crested Newt. In 2021 there was enough water to sample for eDNA, but subsequent survey visits to check the aquatic status of Pond 4 showed it to be dry (see Aquatic Habitats Surveys 2021 Technical Note [TR010044/EXAM/9.58] submitted at Deadline 5 of the Examination). The nearest pond to Pond 13 which has a population of Great Crested Newt is Pond 14. That had a small population in 2018 and a positive eDNA test in 2021, but it is more than 500m away from Pond 13 across extensive arable, which makes it unlikely that there would be regular movement of newts between the ponds. For this reason, there is a low likelihood of Great Crested Newt in Pond 13, but as stated above, presence is assumed on a precautionary basis.

7.2.3 Pond 37 is more likely to have Great Crested Newt present. Pond 37 is within 250m of Pond 41 (A) and both ponds are north of the existing A428. Pond 41(A) had a positive eDNA test for Great Crested Newt in 2019, although two other ponds very close by (Ponds 41 (B) and 41 (C)) both tested negative in 2019, suggesting the population is small or intermittent. The existing A428 is considered to be a barrier to regular movement of newts from ponds to the south, but it appears that a Great Crested Newt population is present north of the road with potential for access to Pond 37. Close to Pond 37, but south of the A428, there is Pond 36, a pond with a small population which is part of a cluster of ponds with Great Crested Newt south of the existing A428 (Ponds 30, 31, 32, 33 and 36). Further updating surveys will be carried out prior to the start of construction of the Scheme. Presence of Great Crested Newt is assumed in Pond 37.

7.2.4 Two ponds (Pond 53 and 82) had a negative result in 2021 whereas a small population was found in the 2018 surveys in both ponds. Also, Pond 9 was negative for eDNA in 2021 but positive for eDNA in 2018. Pond 9 and 82 cannot be confirmed as having Great Crested Newt absence because the eDNA sample in 2021 was late in the season (ponds surveyed on 6 August 2021). Alternatively, these three ponds only had a small population in 2018 and it is possible that the population fluctuates and is below the level of detection in surveys in some or most years. As with the other inconclusive ponds, presence is assumed on a precautionary basis.

### 7.3 Dry Ponds in 2021

7.3.1 Four ponds (Ponds: 2, 21, 84 and 85) were found to be dry in 2021, in addition to the early drying out of Pond 4 mentioned above. It is unlikely that they support any regular breeding by Great Crested Newts. Ponds 2 and 4 were both dry in 2018 too. As described in the Aquatic Habitat Surveys 2021 Technical Note **[TR010044/EXAM/9.58]** submitted at Deadline 5 of the Examination, a total of seven ponds was surveyed on a series of occasions in 2021 to consider any effects of between-year differences in climatic conditions on whether ponds dried out. This was to increase confidence that ponds which were scoped out from survey for Great Crested Newts in 2018 from previous walkover habitat survey as being unsuitable because they were terrestrialised and dry, were still unsuitable in a year with wetter conditions. Visits to ponds considered to be dry or only intermittently wet (Ponds 2, 4, 21, 45, 46 and 61) showed these were all dry in May and on three subsequent survey visits. As shown in the rainfall data in section 4, conditions in the winter and spring breeding season in 2021 were wetter than in 2018 and wetter than average. This increases confidence that ponds were not classified as unsuitable just due to drier than average conditions in 2018.

### 7.4 Ponds still without access for survey in 2021

7.4.1 For the twelve remaining ponds (Ponds: 5, 12, 28, 29, 63, 64, 65, 66, 68, 73, 76 and 86) for which access was not gained, these ponds will be assumed to support Great Crested Newt on a precautionary basis, which reflects the assumption adopted previously (see Appendix 8.14, Great Crested Newt **[APP-201]** of the Environmental Statement).

7.4.2 Of these ponds, Pond 5 (north of Black Cat junction) would be separated from the Scheme by more than 100m distance and Pond 12 (south of Black Cat junction) would be separated from the western end of the Scheme by the existing A428, and it is more than 250m distant from the western end. Even if it is a breeding pond for Great Crested Newt, it is unlikely that any population breeding in Pond 12 is using the arable land north of the existing A428 because this road is likely to be a barrier to regular movement of newts. Most of the land required for the Scheme to the north-east of the pond is also arable land, more than 250m away from the pond. The most suitable terrestrial habitat is in the village of Roxton, south of the existing A428, which would not be lost to the Scheme.



- 7.4.3 Ponds 28 and 29 are assumed to be in the same cluster as Ponds 16 and 15 which have a medium population, based in the ample habitat of a golf course. If Ponds 28 and 29 have reasonably suitable habitat they are likely to be used by the same meta-population. The Scheme is within 250m, on arable land adjacent to the golf course.
- 7.4.4 Ponds 65 and 66 are separated from the Scheme more than 100m distance located in back private gardens and they will not be affected by the Scheme.
- 7.4.5 Pond 86 is north of the existing A428 near Caxton Gibbet junction. It has other ponds in the vicinity, the nearest of which is Pond 77. All the other ponds in the vicinity of Pond 86 have been surveyed and found to be negative for Great Crested Newt (Ponds: 77, 78, 75, plus 71, 72 and 74 at greater distance). This suggests that even if there was a population of newts present in Pond 86, it would probably be only a small one, using the immediately adjacent grassland and woodland, rather than the arable more than 250m away which would be affected by the Scheme.
- 7.4.6 Even though the status of these seven ponds without access for survey remains uncertain, the potential effects on loss of terrestrial habitat to the Scheme (mainly arable) can be assessed. The precautionary assumption that they could all have Great Crested Newt present has continued to be applied.

## 7.5 Conclusions from surveys in 2021

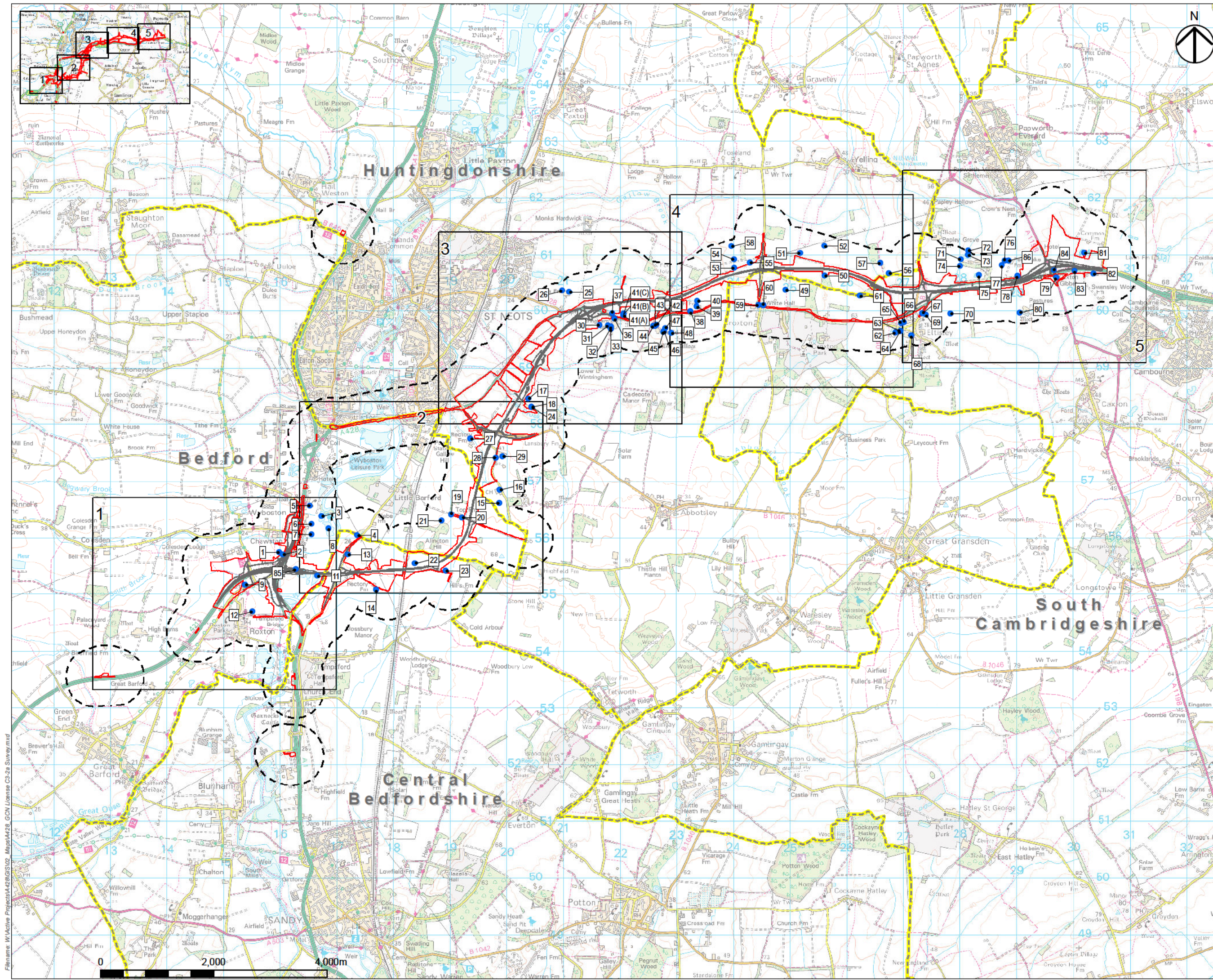
- 7.5.1 For ponds which were surveyed in both 2021 and 2018 or 2019, most (20 of 27) showed the same positive (nine ponds) or negative (11 ponds) result as in the previous survey. This increases confidence in the validity of both positive and negative results. In the three cases where there was a difference in result, i.e. where a site had a positive record in a previous survey but a negative result in 2021, the reasons were likely to be due to sampling limitations, or due to a small or intermittent population near the limit of detection, or because natural succession of vegetation (terrestrialisation) had reduced the suitability of the pond. Of the remaining four ponds (of 27 resurveyed) two were dry (Ponds 2 and 85) and two inaccessible due to dense vegetation (Ponds 18 and 24).
- 7.5.2 Whilst there were climatic differences between the years of surveys, the repetition of some of the ponds being dry in 2021 and 2018 gives an indication that those ponds do not hold water long enough to be used as regular breeding ponds by great crested newts.
- 7.5.3 For the three ponds where status is inconclusive and in the four without access, the assumption of possible presence of Great Crested Newt is maintained and will be applied until further update surveys are carried out.
- 7.5.4 All of the ponds which have records of Great Crested Newt or have inconclusive status will be resurveyed in the breeding season prior to the start of Scheme construction.
- 7.5.5 In summary, the surveys in 2021 fill in gaps in the coverage achieved in 2018 and 2019 and provide further confirmation of status on ponds which had been surveyed previously. This increases the confidence in the assessment reported in Chapter 8, Biodiversity [APP-077] of the Environmental Statement.

## 8 References

- REF 1-1. A428 Black Cat to Caxton Gibbet Improvement. Advanced Stage 3 Ecology Survey Scope. Jacobs UK Ltd (2017).
- REF 1-2. MAGIC Map. Department for Food, Environment and Rural Affairs.  
[REDACTED]
- REF 1-3. Met Office UK and regional series.  
[REDACTED]
- REF 1-4. Rainfall Statistics (Turvey, Cambridgeshire) recorder Andrew Leaper  
[REDACTED]

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## Appendix A: Figures



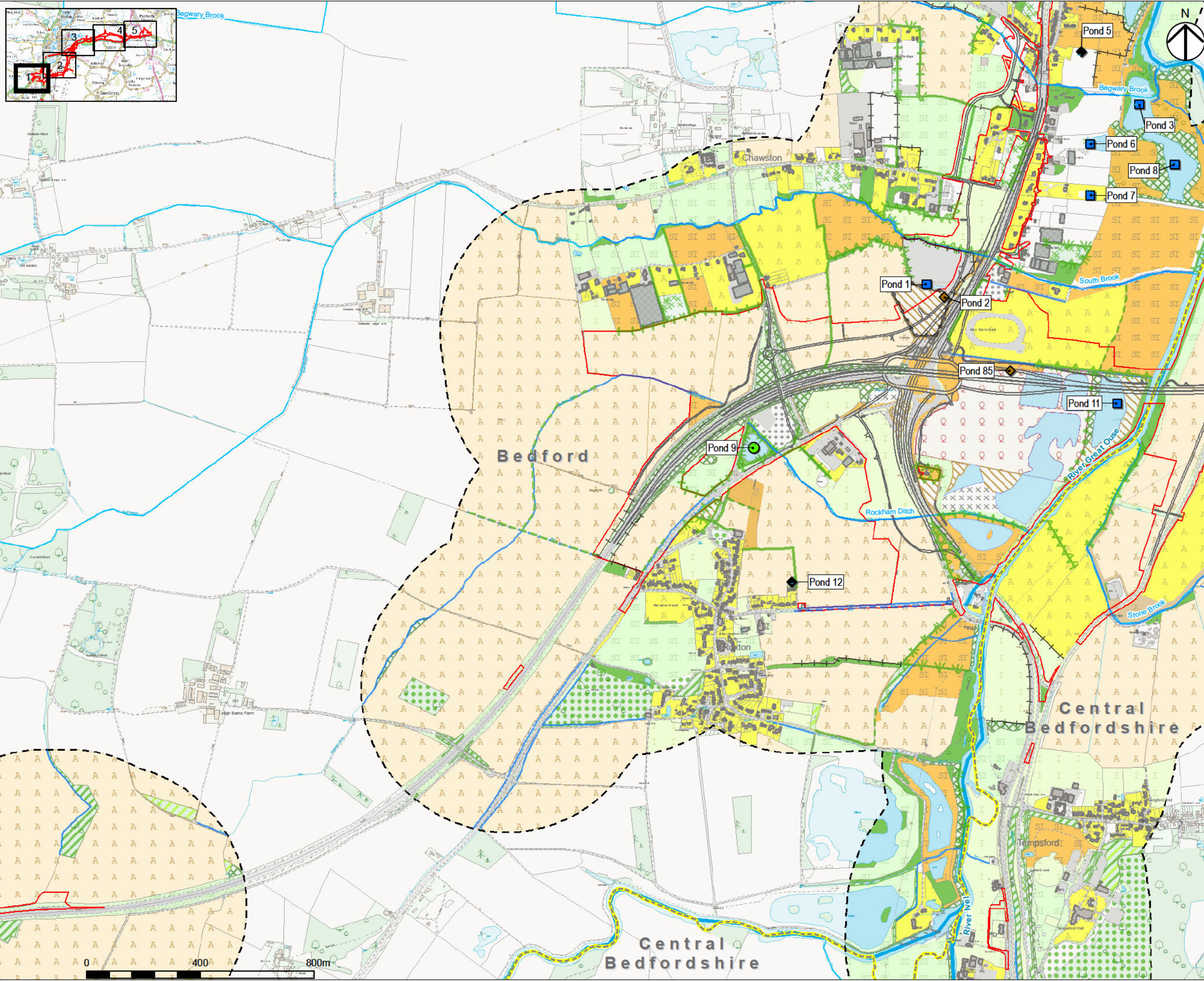
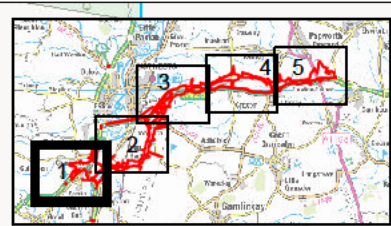
**Legend**

- Order Limits
- The Scheme
- 500m buffer to Order Limits
- Pond location
- District/borough boundary



Filename: W:\Active Projects\A428\GIS\02\_Maps\A428\_GCN\_Licence\_C3-2a\_Survey.mxd

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By	Check	Date	Status						
Purpose of Issue									
<b>FOR INFORMATION</b>									
Client National Highways Woodlands Manton Lane Manton Industrial Estate Bedford MK41 7LW									
Development Consent Order Number									
Project Title									
<b>A428 BLACK CAT TO CAXTON GIBBET IMPROVEMENTS</b>									
Drawing Title									
<b>FIGURE C3.2A SURVEY MAP PAGE 1 OF 6</b>									
Designed <b>CL</b>	Drawn <b>BF</b>	Checked <b>JC/SP</b>	Approved <b>JG</b>	Date <b>16/11/2021</b>					
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Location				Type   Role   Number					



- Legend**
- Order Limits
  - The Scheme
  - 500m buffer to Order Limits
  - GCN Survey 2021
    - GCN present 2018-2019, not present 2021 (late eDNA only)
    - GCN absent
    - Waterbody not surveyed (no access)
    - Waterbody dry
  - Phase 1 habitat
    - Broad leaved semi-natural woodland
    - Broad leaved plantation woodland
    - Broad-leaved parkland
    - Mixed plantation woodland
    - Coniferous plantation woodland
    - Continuous scrub
    - Scattered scrub
    - Poor semi improved grassland
    - Semi-improved neutral grassland
    - Unimproved neutral grassland
    - Improved grassland
    - Tall ruderal
    - Standing water
    - Artificial quarry
    - Amenity grassland
    - Arable
    - Arable field margin
    - Ephemeral/short perennial
    - Bare ground
    - Building
    - Hard surface
    - Earth bank
    - Scattered trees
    - Species rich intact hedge
    - Species rich hedge and trees
    - Species poor intact hedge
    - Species poor defunct hedge
    - Species poor hedge and trees
    - Running water
    - Dry ditch
    - Fence
    - District/borough boundary
- Note: where a waterbody has not been surveyed, GCN is assumed to be present on a precautionary basis for the purpose of assessing impact and potential need for mitigation

Revision Details	By	Check	Date	By

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**A428 BLACK CAT TO CAXTON GIBBET IMPROVEMENTS**

Drawing Title  
**FIGURE C3.2A SURVEY MAP PAGE 2 OF 6**

Designed	Drawn	Checked	Approved	Date
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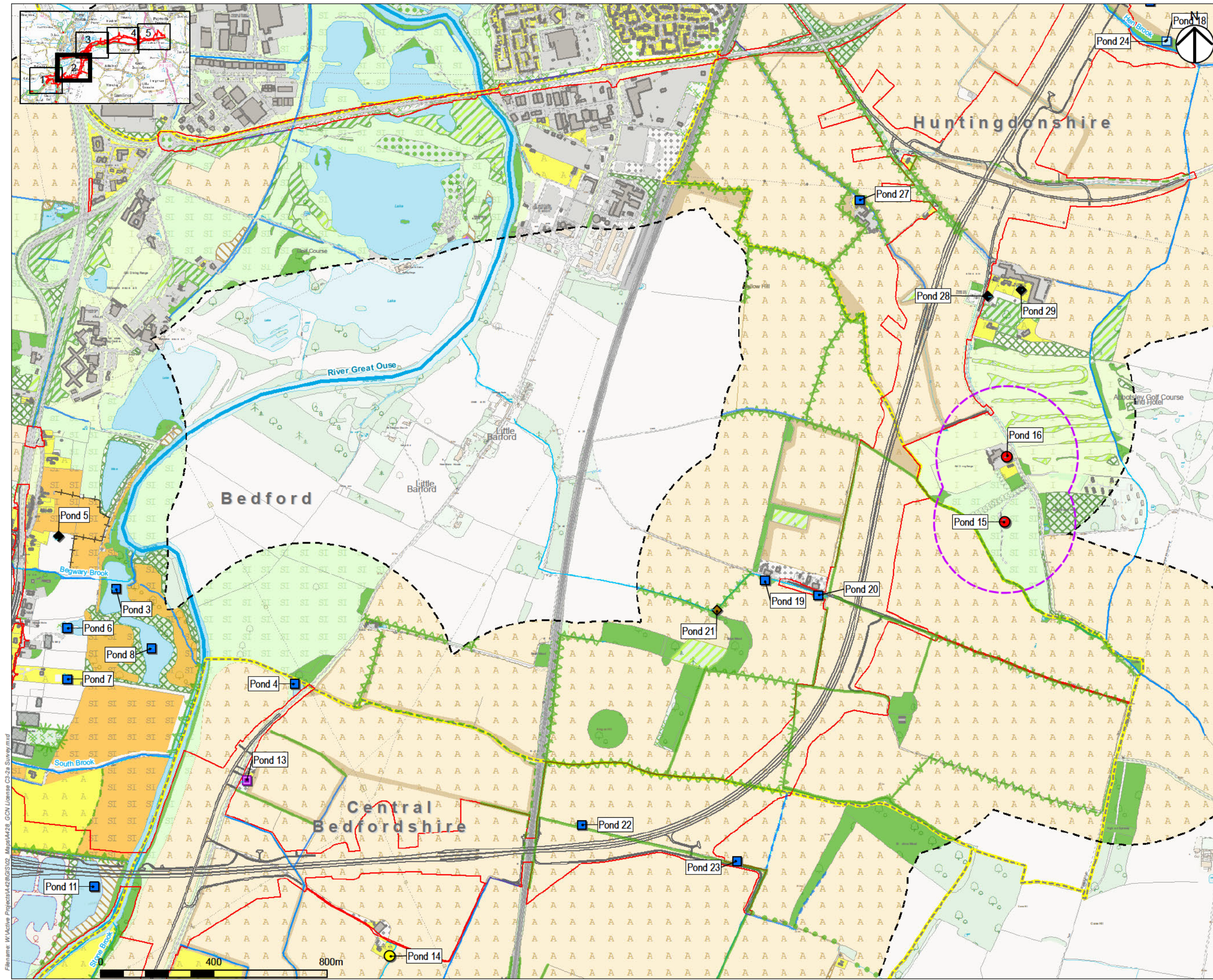
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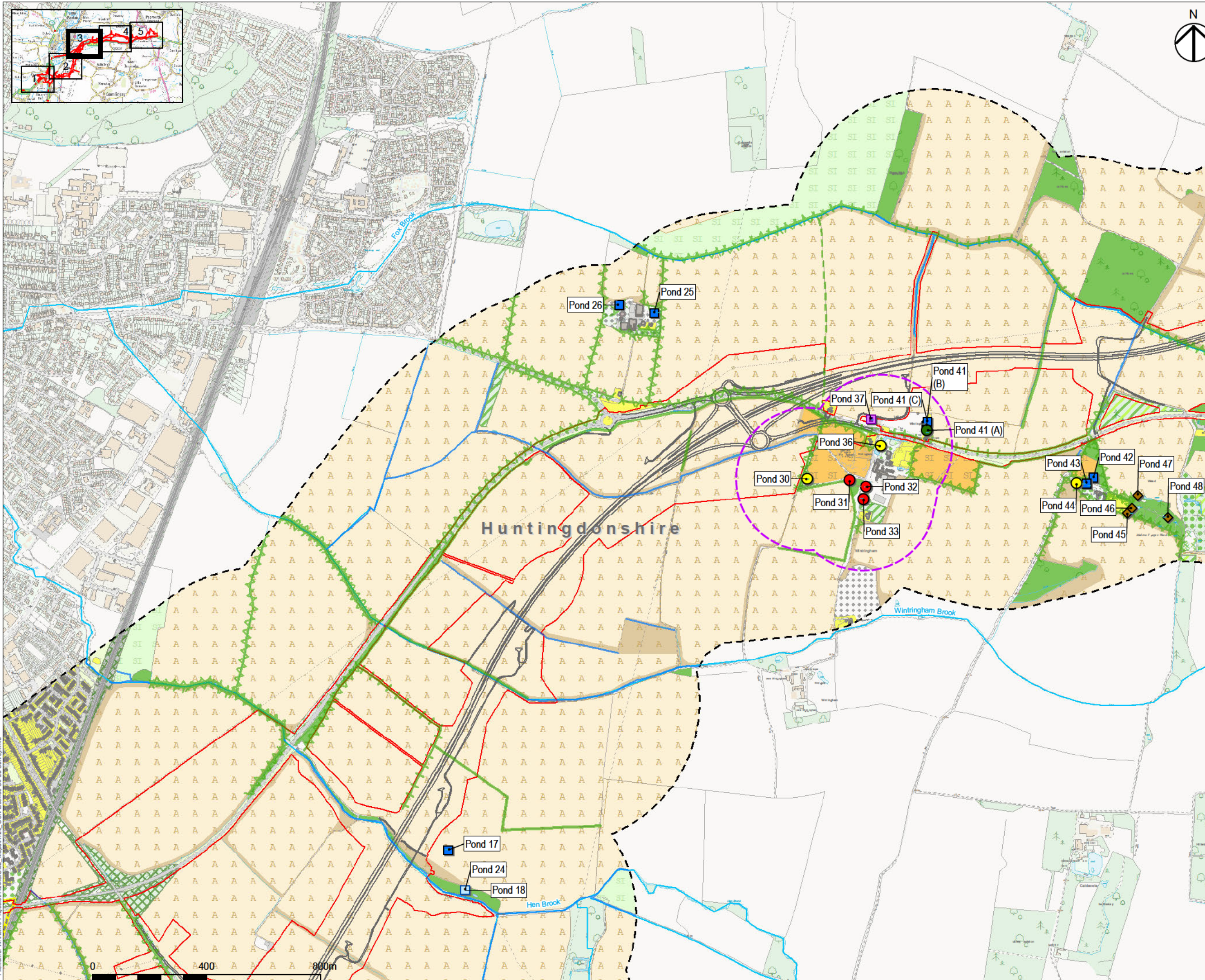
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A428 BLACK CAT TO CAXTON GIBBET IMPROVEMENTS					
Drawing Title					
FIGURE C3.2A SURVEY MAP PAGE 3 OF 6					
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- Legend**
- Order Limits
  - The Scheme
  - 500m buffer to Order Limits
  - GCN Survey 2021
    - Medium population of GCN
    - Small population of GCN
    - GCN present (eDNA 2018)
    - GCN absent
    - GCN absent (late eDNA only)
    - GCN absent (2018)/Not surveyed, no access (2021)
    - Waterbody dry
    - Pond cluster (indicative GCN metapopulation)
  - Phase 1 habitat
    - Broad leaved semi-natural woodland
    - Broad leaved plantation woodland
    - Broad-leaved parkland
    - Mixed plantation woodland
    - Mixed parkland
    - Coniferous plantation woodland
    - Continuous scrub
    - Scattered scrub
    - Poor semi improved grassland
    - Semi-improved neutral grassland
    - Unimproved neutral grassland
    - Improved grassland
    - Standing water
    - Amenity grassland
    - Arable
    - Arable field margin
    - Bare ground
    - Building
    - Hard surface
    - Species rich intact hedge
    - Species poor intact hedge
    - Species poor defunct hedge
    - Species poor hedge and trees
    - Running water
    - District/borough boundary

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**FIGURE C3.2A SURVEY MAP PAGE 4 OF 6**

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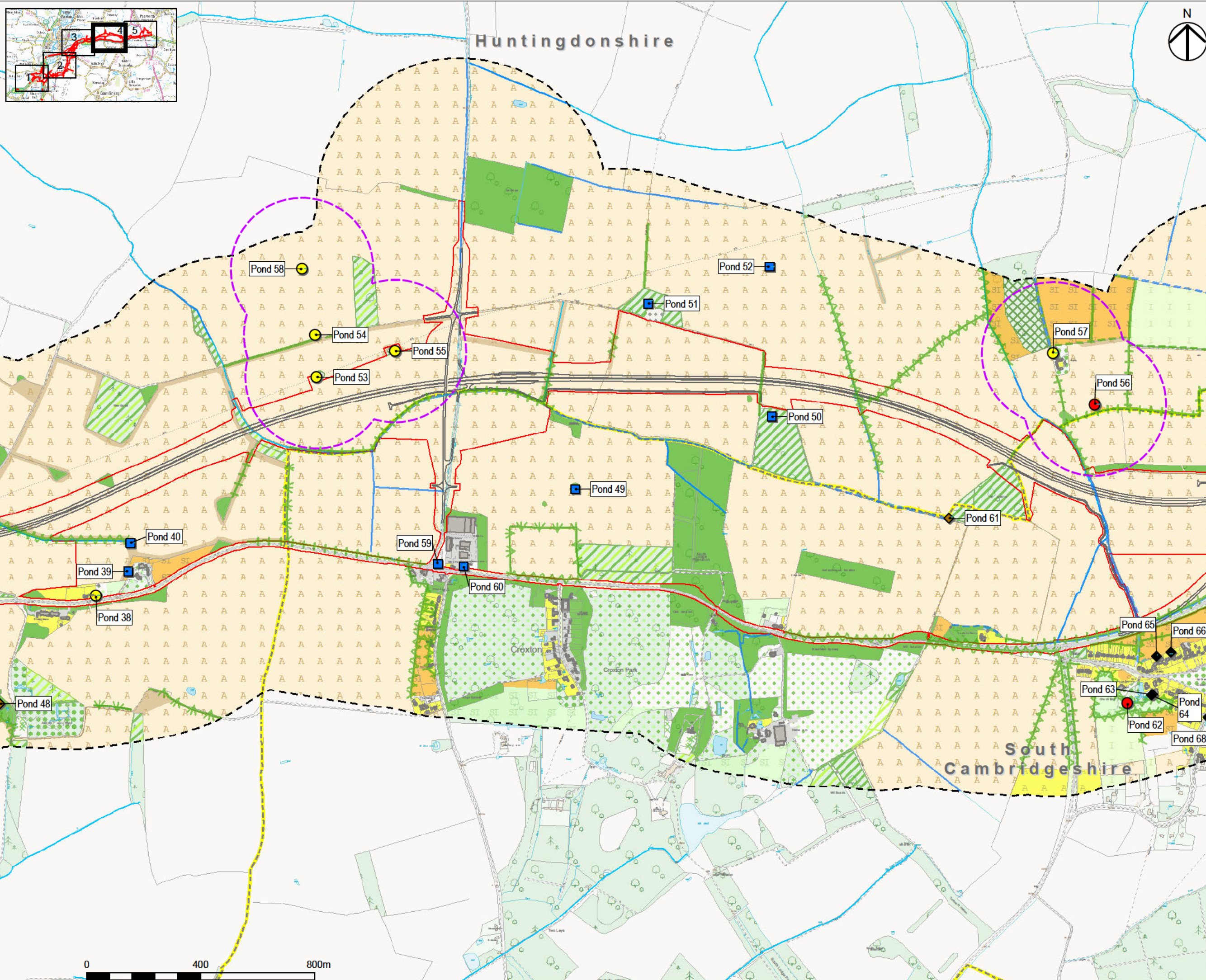
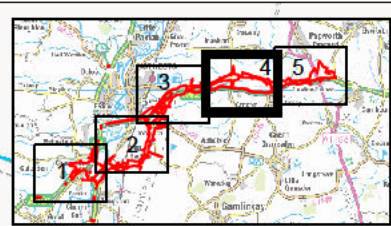
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- Legend**
- Order Limits
  - The Scheme
  - 500m buffer to Order Limits
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    - Medium population of GCN
    - Small population of GCN
    - GCN absent
    - Waterbody not surveyed (no access)
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    - Mixed parkland
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    - Continuous scrub
    - Scattered scrub
    - Poor semi improved grassland
    - Semi-improved neutral grassland
    - Improved grassland
    - Standing water
    - Amenity grassland
    - Arable
    - Arable field margin
    - Bare ground
    - Building
    - Hard surface
    - Species rich intact hedge
    - Species rich hedge and trees
    - Species poor intact hedge
    - Species poor defunct hedge
    - Species poor hedge and trees
    - Running water
    - Dry ditch
  - District/borough boundary
- Note: where a waterbody has not been surveyed, GCN is assumed to be present on a precautionary basis for the purpose of assessing impact and potential need for mitigation

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**FIGURE C3.2A SURVEY MAP PAGE 5 OF 6**

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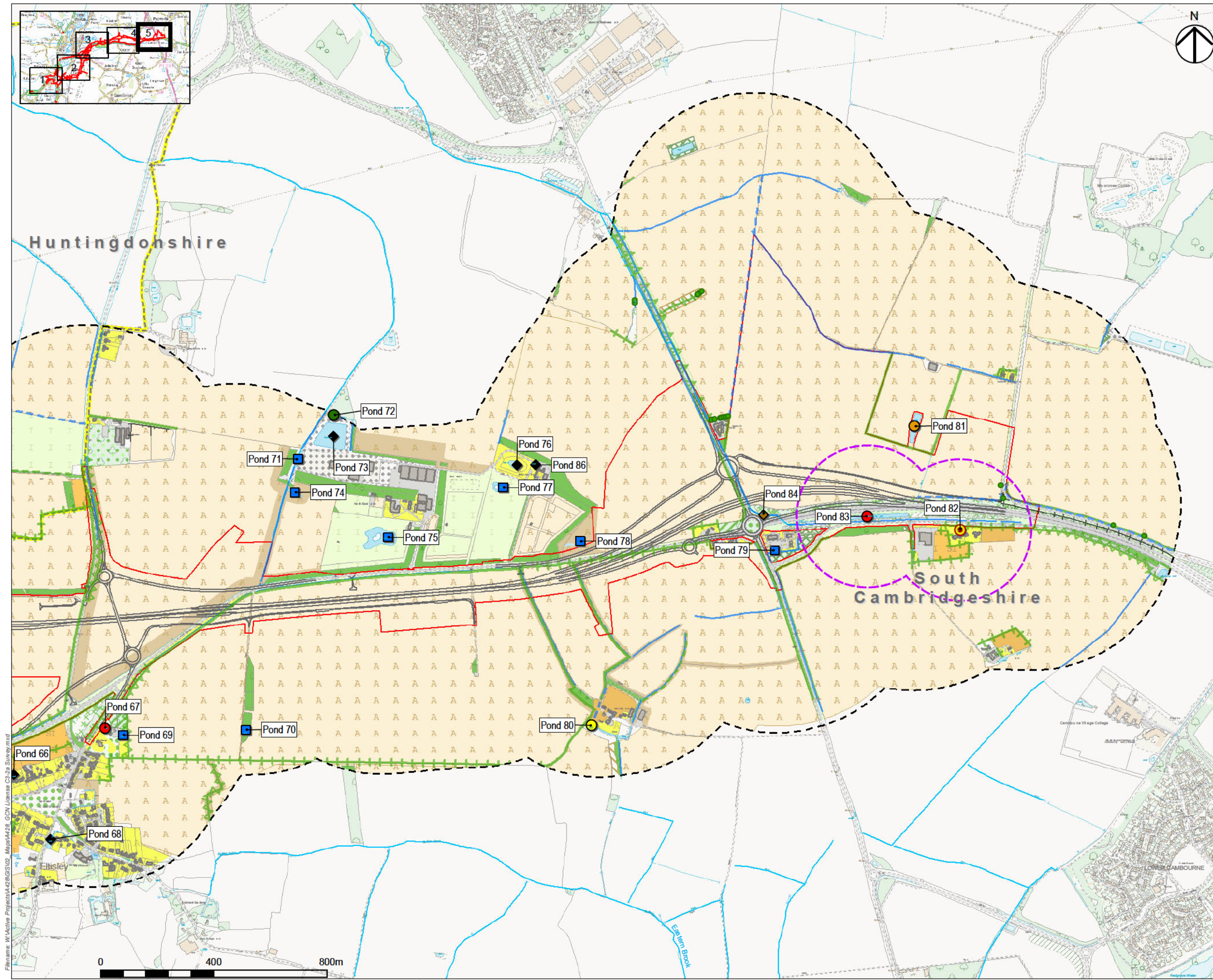
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0 400 800m





- Legend**
- Order Limits
  - The Scheme
  - 500m buffer to Order Limits
  - GCN Survey 2021
    - Medium population of GCN
    - Small population of GCN
    - Small population of GCN (2018-2019), not present 2021 (late eDNA only)
    - GCN present (eDNA 2021)
    - GCN present (eDNA 2018)
    - GCN absent
    - Waterbody not surveyed (no access)
    - Waterbody dry
    - Pond cluster (indicative GCN metapopulation)
  - Phase 1 habitat
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    - Broad leaved plantation woodland
    - Broad-leaved parkland
    - Mixed parkland
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    - Scattered scrub
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    - Improved grassland
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    - Amenity grassland
    - Arable
    - Arable field margin
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    - Building
    - Hard surface
    - Species rich intact hedge
    - Species rich hedge and trees
    - Species poor intact hedge
    - Species poor defunct hedge
    - Species poor hedge and trees
    - Running water
    - Dry ditch
    - Fence
    - Individual Tree
    - District/borough boundary
- Note: where a waterbody has not been surveyed, GCN is assumed to be present on a precautionary basis for the purpose of assessing impact and potential need for mitigation

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FIGURE C3.2A SURVEY MAP PAGE 6 OF 6					
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Type   Role   Number					

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## Appendix B: Pond survey results table (all years)

The table lists all ponds within 500m of the Scheme in number order (see Appendix A for locations) together with summary survey results from 2021 and previous surveys.

<b>Pond Number</b>	<b>Previous findings (2018 unless stated)</b> P/A = presence/absence survey, 4 visits, 6 visits for population size class)	<b>Habitat Suitability Index (2021)</b> nd = no data NS=not surveyed	<b>eDNA result (2021)</b> NS = not surveyed
Pond 1	Absent (P/A)	0.48	Negative
Pond 2	Absent (P/A)	nd	Pond dry
Pond 3	Absent (P/A, HSI 0.54)	NS	NS
Pond 4	Absent (P/A)	0.85	Negative
Pond 5	No survey consent	NS	NS
Pond 6	Absent (eDNA Negative, HSI 0.50)	NS	NS
Pond 7	Absent (eDNA Negative, HSI 0.78)	NS	NS
Pond 8	Absent (eDNA Negative, HSI 0.79)	NS	NS
Pond 9	Present (eDNA Positive)	0.96	Negative (late sample)
Pond 10	No pond present	NS	NS
Pond 11	Absent (eDNA Negative)	0.81	Negative
Pond 12	No access 2018 (dense vegetation)	No survey consent	No survey consent
Pond 13	No survey consent	0.64	Negative (late sample)
Pond 14	Present (Small population, 2019 P/A)	0.35	Positive
Pond 15	Present (Medium population P/A, HSI 0.63)	NS	NS
Pond 16	Present (Medium population P/A)	0.73	Positive
Pond 17	Absent (P/A 2018; positive eDNA in 2016 considered false positive)	0.55	Negative
Pond 18	Absent (P/A, HSI 0.79)	nd	Not accessible
Pond 19	Absent (eDNA Negative)	0.72	Negative
Pond 20	Absent (eDNA Negative)	0.69	Negative

<b>Pond Number</b>	<b>Previous findings (2018 unless stated) P/A = presence/absence survey, 4 visits, 6 visits for population size class)</b>	<b>Habitat Suitability Index (2021) nd = no data NS=not surveyed</b>	<b>eDNA result (2021) NS = not surveyed</b>
Pond 21	Pond dry	nd	Pond dry
Pond 22	Absent (eDNA Negative)	0.57	Negative
Pond 23	Absent (eDNA Negative)	0.52	Negative
Pond 24	Absent (P/A, HSI 0.77)	nd	Not accessible
Pond 25	Absent (eDNA Negative, HSI 0.70)	NS	NS
Pond 26	Absent (eDNA Negative, HSI 0.64)	NS	NS
Pond 27	Absent (eDNA Negative, 2016)	0.74	Negative
Pond 28	No survey consent	No survey consent	No survey consent
Pond 29	No survey consent	No survey consent	No survey consent
Pond 30	Present (Small population, P/A, HSI 0.82)	NS	NS
Pond 31	Present (Medium population, P/A, HSI 0.59)	NS	NS
Pond 32	Present (Medium population, P/A, HSI 0.64)	NS	NS
Pond 33	Present (Medium population, P/A, HSI 0.73)	NS	NS
Pond 34	No pond present	NS	NS
Pond 35	No pond present	NS	NS
Pond 36	Present (Small population, P/A)	0.91	Positive
Pond 37	Not accessible	0.44	Negative (late sample)
Pond 38	Present (Small population, P/A)	0.52	Positive
Pond 39	Absent (P/A, HSI 0.47)	NS	NS
Pond 40	Absent (P/A HSI 0.53)	NS	NS
Pond 41A	Present (eDNA Positive, 2019, HSI 0.56)	NS	NS
Pond 41B	Absent (eDNA Negative 2019, HSI 0.53)	NS	NS
Pond 41C	Absent (eDNA Negative, 2019, HSI 0.38)	NS	NS


<b>Pond Number</b>	<b>Previous findings (2018 unless stated)</b> P/A = presence/absence survey, 4 visits, 6 visits for population size class)	<b>Habitat Suitability Index (2021)</b> nd = no data NS=not surveyed	<b>eDNA result (2021)</b> NS = not surveyed
Pond 42	Absent (P/A, 2019, HSI 0.69)	NS	NS
Pond 43	Absent (P/A, HSI 0.59)	NS	NS
Pond 44	Present (Small population, P/A 2019, HSI 0.66)	NS	NS
Pond 45	Pond dry	NS	NS
Pond 46	Pond dry	NS	NS
Pond 47	Pond dry	NS	NS
Pond 48	Pond dry	NS	NS
Pond 49	Absent (P/A)	0.62	Negative
Pond 50	Absent (eDNA Negative)	0.68	Negative
Pond 51	Not accessible	0.55	Negative
Pond 52	Absent (eDNA Negative, HSI 0.24)	NS	NS
Pond 53	Present (Small population, P/A)	0.68	Negative
Pond 54	Present (Small population, P/A)	0.70	Positive
Pond 55	Present (Small population, P/A, 2019)	0.60	Positive
Pond 56	Present (Medium population, P/A 2019)	0.72	Positive
Pond 57	Present (GCN eggs found 2018, Small population, P/A, 2019)	0.78	Positive
Pond 58	Present (Small population, P/A 2019)	NS	NS
Pond 59	No survey consent	0.57	Negative
Pond 60	No survey consent	0.69	Negative
Pond 61	Pond dry	NS	NS
Pond 62	Present (Medium population, P/A, HSI 0.64)	NS	NS
Pond 63	No survey consent	NS	NS
Pond 64	No survey consent	NS	NS

<b>Pond Number</b>	<b>Previous findings (2018 unless stated)</b> P/A = presence/absence survey, 4 visits, 6 visits for population size class)	<b>Habitat Suitability Index (2021)</b> nd = no data NS=not surveyed	<b>eDNA result (2021)</b> NS = not surveyed
Pond 65	No survey consent	No survey consent	No survey consent
Pond 66	No survey consent	No survey consent	No survey consent
Pond 67	Present (Medium population, P/A, 2019, HSI 0.72)	NS	NS
Pond 68	No survey consent	NS	NS
Pond 69	Absent (eDNA Negative, 2016, HSI 0.45)	NS	NS
Pond 70	Absent (P/A, 2019, HSI 0.65)	NS	NS
Pond 71	Absent (eDNA Negative, HSI 0.78)	NS	NS
Pond 72	Present (eDNA Positive, HSI 0.76)	NS	NS
Pond 73	Not accessible	NS	NS
Pond 74	Absent (eDNA Negative, HSI 0.65)	NS	NS
Pond 75	Absent (eDNA Negative, HSI 0.51)	NS	NS
Pond 76	Not accessible	NS	NS
Pond 77	Absent (eDNA Negative, HSI 0.52)	NS	NS
Pond 78	Absent (eDNA Negative, HSI 0.82)	NS	NS
Pond 79	Absent (eDNA Negative, HSI 0.64)	NS	NS
Pond 80	Present (Small population, P/A, HSI 0.73)	NS	NS
Pond 81	Present (Small population, P/A)	0.79	Positive
Pond 82	Present (Small population, P/A)	0.71	Negative (late sample)
Pond 83	Present (Medium, P/A, HSI 0.83)	NS	NS
Pond 84	Pond dry	nd	Pond dry
Pond 85	Absent (P/A, 2019), HSI 0.37)	nd	Pond dry
Pond 86	No survey consent	No survey consent	No survey consent


## Appendix C: Pond details (2021)

HSI was not recorded where ponds were completely dry (Ponds: 2, 21, 84 and 85) or access was not granted (Ponds: 5, 12, 28, 29, 65, 66 and 86).


### Pond 1

<b>Water Body reference:</b>	Pond 1		Photo 1: 
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	500	1	
Permanence	Never dries	0.9	
Water Quality	Moderate	0.67	
Shade	5	1	
Waterfowl	Absent	1	
Fish	Minor	0.01	
Pond Count	8	0.87	
Terrestrial Habitat	Poor	0.33	
Macrophytes	10	0.4	
<b>TOTAL:</b>		0.48	
<b>Water Body Description:</b>			
Permanent water body. Elongated and deep pond. Located next to a development. Steep banks, semi-improved grassland surroundings. Evidence of fishing.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			

## Pond 2


<b>Water Body reference:</b>	Pond 2		Photo 2:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location			
Pond Area (m <sup>2</sup> )			
Permanence			
Water Quality			
Shade			
Waterfowl			
Fish			
Pond Count			
Terrestrial Habitat			
Macrophytes			
<b>TOTAL:</b>			
<b>Water Body Description:</b>			
Pond completely dry in 2021. Located in a field with semi-improved and tall ruderal vegetation. Pond possibly drained			
<b>GCN Presence query:</b>	No access in 2018, surveyed 2019 but no GCN found. Dry, not suitable for GCN breeding in 2021.		
<b>Limitations:</b>			

## Pond 4


<b>Water Body reference:</b>	Pond 4		Photo 3:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	220	0.45	
Permanence	Rarely dries	1	
Water Quality	Moderate invertebrate diversity	0.67	
Shade	20%	1	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	8	0.87	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	100%	0.8	
<b>TOTAL:</b>		0.85	
<b>Water Body Description:</b>			
Large size pond. Cover with dense vegetation. 20cm deep. Shallow. Not accessible (50%). Associated vegetation is well developed. Most of the surface is covered by tall emergent species, greater pond sedge. Willows present around the pond. Located in a woodland edge.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			




## Pond 9

<b>Water Body reference:</b>	Pond 9		Photo 4:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	500	1	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	10%	1	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	10	0.93	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	50%	0.8	
<b>TOTAL:</b>		0.96	
<b>Water Body Description:</b>			
Permanent water body, measuring approximately 500m <sup>2</sup> , cover by dense emergent vegetation. No evidence of fishing. Associated vegetation is well developed. In addition to the swamp species such as bulrush ( <i>Typha latifolia</i> ), smaller species present include water mint ( <i>Mentha aquatica</i> ) and hard rush ( <i>Juncus inflexus</i> ). Very shallow, enclosed within a dense scrub and trees.			
<b>GCN Presence query:</b>	eDNA (2021) negative (refer to limitations). eDNA (2018) positive.		
<b>Limitations:</b>	Pond 9 cannot be confirmed as having Great Crested Newt absent because the sample was late in the season (Pond surveyed on 6 August 2021). It is assumed to have a population present at least intermittently.		


## Pond 11

<b>Water Body reference:</b>	Pond 11		Photo 5:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	1500	0.87	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	10%	1	
Waterfowl	Minor	0.67	
Fish	Possible	0.67	
Pond Count	8	0.87	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	10%	0.4	
<b>TOTAL:</b>		0.81	
<b>Water Body Description:</b>			
Permanent water body. Large and deep pond. Fish may be present. Absent of emergent or visible aquatic vegetation. Located within a quarry.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			


## Pond 13

<b>Water Body reference:</b>	Pond 13		Photo 6:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m2)	80	0.1	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	30%	1	
Waterfowl	Minor	0.67	
Fish	Minor	0.33	
Pond Count	10	0.93	
Terrestrial Habitat	Moderate	0.67	
Macrophytes	90%	0.9	
<b>TOTAL:</b>		0.64	
<b>Water Body Description:</b>			
Permanent water body. Pond located in a private garden, measuring approximately 8 x 10m, very vegetated with submerged aquatic species as well as surface cover of water lily (family <i>Nymphaeaceae</i> ), plus a narrow fringe of emergent vegetation in the margins. Willows overhanging part of the margins.			
<b>GCN Presence query:</b>	eDNA (2021) negative (refer to limitations).		
<b>Limitations:</b>	Pond surveyed on 6 August 2021. Pond 13 cannot be confirmed as having Great Crested Newt absent because the sample was late in the season. A small or intermittent population may be present.		


## Pond 14

<b>Water Body reference:</b>	Pond 14		Photo 7:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	80	0.1	
Permanence	Never dries	0.9	
Water Quality	Poor	0.33	
Shade	20%	1	
Waterfowl	Present - major	0.01	
Fish	Absent	1	
Pond Count	8	0.87	
Terrestrial Habitat	Poor (limited opportunities)	0.33	
Macrophytes	0%	0.3	
<b>TOTAL:</b>		0.35	
<b>Water Body Description:</b>			
Permanent water body. Pond located in a private garden, steep banks, connected to ditch, waterfowl (ducks) kept on site. Absence of emergent or aquatic vegetation and erosion on the banks eroded likely due to the waterfowl. No evidence of fishing.			
<b>GCN Presence query:</b>	GCN presence. Small population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			

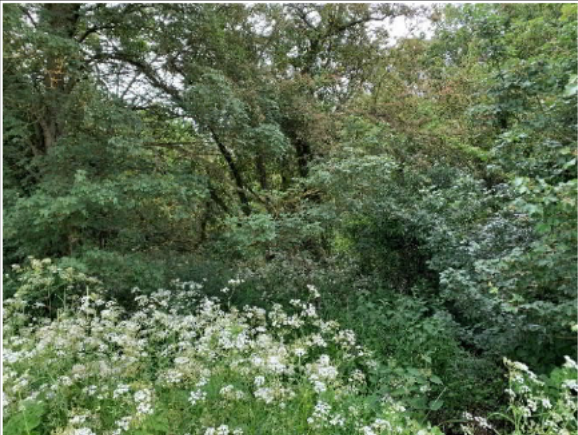
## Pond 16

<b>Water Body reference:</b>	Pond 16		Photo 8:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	150	0.3	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	50%	1	
Waterfowl	Minor	0.67	
Fish	Absent	1	
Pond Count	8	0.87	
Terrestrial Habitat	Moderate	0.67	
Macrophytes	10%	0.4	
<b>TOTAL:</b>		0.73	
<b>Water Body Description:</b>			
Medium sized and permanent pond, some willow trees surrounding the pond, grass banks, steep banks in some parts. Pond covered with duckweed. Pond located in a development area.			
<b>GCN Presence query:</b>	GCN presence. Medium population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			


## Pond 17

<b>Water Body reference:</b>	Pond 17		Photo 9:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	50	0.1	
Permanence	Sometimes	0.5	
Water Quality	Moderate invertebrate diversity	0.67	
Shade	95%	0.3	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	8	0.87	
Terrestrial Habitat	Poor (limited opportunities)	0.33	
Macrophytes	95%	0.85	
<b>TOTAL:</b>		0.55	
<b>Water Body Description:</b>			
Small pond located within an agricultural field. Pond enclosed within dense scrub vegetation. Steep slopes.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			

## Pond 18

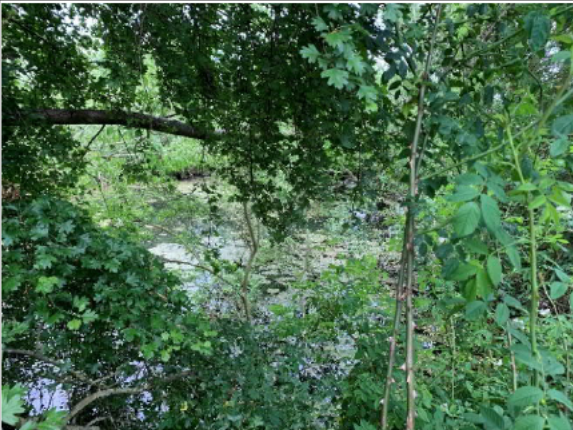
<b>Water Body reference:</b>	Pond 18		Photo 10:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location			
Pond Area (m <sup>2</sup> )			
Permanence			
Water Quality			
Shade			
Waterfowl			
Fish			
Pond Count			
Terrestrial Habitat			
Macrophytes			
<b>TOTAL:</b>			
<b>Water Body Description:</b>			
HSI (2018) = 0.79. Pond surrounded by dense terrestrial vegetation including nettle ( <i>Urtica dioica</i> ) and other tall herbs. Located within a woodland. Visibility poor, but pond may be only seasonally wet.			
<b>GCN Presence query:</b>	No GCN found (2018-2019).		
<b>Limitations:</b>	Not accessible due the dense vegetation (2021).		

## Pond 19


<b>Water Body reference:</b>	Pond 19		Photo 11:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	50	0.3	
Permanence	Sometimes dries	0.5	
Water Quality	Good	0.67	
Shade	60%	1	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	8	0.45	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	95%	0.85	
<b>TOTAL:</b>		0.72	
<b>Water Body Description:</b>			
Large pond surrounded by dense emergent swamp vegetation. Associate vegetation is well developed. Other species present include water mint, common spike-rush ( <i>Eleocharis palustris</i> ) and duckweed is present. Steep slopes, shallow (10-15cm).			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			




## Pond 20

<b>Water Body reference:</b>	Pond 20		Photo 12:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	200	0.4	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	90%	0.4	
Waterfowl	Minor	0.67	
Fish	Absent	1	
Pond Count	8	0.87	
Terrestrial Habitat	Poor (limited opportunities)	0.33	
Macrophytes	90%	0.9	
<b>TOTAL:</b>		0.69	
<b>Water Body Description:</b>			
Permanent water body. Large pond surrounded by dense vegetation (trees and scrub), steep slope. Pond located in a small woodland surrounded by an arable field.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			

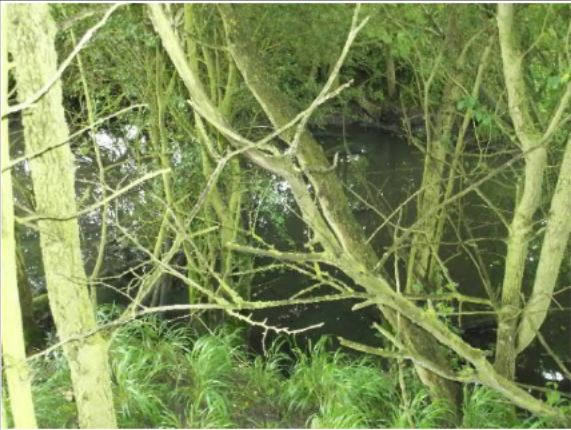
## Pond 21

<b>Water Body reference:</b>	Pond 21		Photo 13:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location			
Pond Area (m <sup>2</sup> )			
Permanence			
Water Quality			
Shade			
Waterfowl			
Fish			
Pond Count			
Terrestrial Habitat			
Macrophytes			
<b>TOTAL:</b>			
<b>Water Body Description:</b>			
Pond completely dry and cover by dense vegetation. Located in a woodland corner. Arable field located in the north.			
<b>GCN Presence query:</b>	Pond dry.		
<b>Limitations:</b>			


## Pond 22

<b>Water Body reference:</b>	Pond 22		Photo 14:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	60	0.1	
Permanence	Sometimes dries	0.5	
Water Quality	Moderate invertebrate diversity	0.67	
Shade	90%	0.4	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	8	0.87	
Terrestrial Habitat	Poor (limited opportunities)	0.33	
Macrophytes	60%	0.9	
<b>TOTAL:</b>		0.57	
<b>Water Body Description:</b>			
Pond located within a hedgerow between two arable fields. It is a small pond, 50cm deep, enclosed within a dense scrub and trees vegetation. Dead leaves in the pond and covering the pond surface. Some submerged and emergent plants.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			


## Pond 23

<b>Water Body reference:</b>	Pond 23		Photo 15:	
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>		
Geographic Location	Zone A (Optimal)	1		
Pond Area (m <sup>2</sup> )	50	0.1		
Permanence	Never dries	0.9		
Water Quality	Moderate invertebrate diversity	0.67		
Shade	100%	0.2		
Waterfowl	Absent	1		
Fish	Absent	1		
Pond Count	8	0.87		
Terrestrial Habitat	Poor (limited opportunities)	0.33		
Macrophytes	10%	0.4		
<b>TOTAL:</b>		0.52		
<b>Water Body Description:</b>				
Pond located within a hedgerow between two arable fields. Shaded, encloses within dense cover of trees and scrub, mainly hawthorn is present surrounding the pond. 40cm deep.				
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.			
<b>Limitations:</b>				


## Pond 24

<b>Water Body reference:</b>	Pond 24		Photo 16:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location			
Pond Area (m <sup>2</sup> )			
Permanence			
Water Quality			
Shade			
Waterfowl			
Fish			
Pond Count			
Terrestrial Habitat			
Macrophytes			
<b>TOTAL:</b>			
<b>Water Body Description:</b>			
HSI (2018) = 0.77. Not accessible due the dense hawthorn and other scrub vegetation surrounding the pond. Located within a woodland.			
<b>GCN Presence query:</b>	No GCN found (2018-2019).		
<b>Limitations:</b>	Not accessible due the dense vegetation.		


## Pond 27

<b>Water Body reference:</b>	Pond 27		Photo 17:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	100	0.2	
Permanence	Dries sometimes	0.5	
Water Quality	Good	1	
Shade	80%	0.6	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	8	0.87	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	70%	1	
<b>TOTAL:</b>		0.74	
<b>Water Body Description:</b>			
Medium size pond dries in summer, willow trees in the edges, shallow, Associated vegetation is well developed, with submerged and marginal broadleaved herb species present include water mint. Dead leaves in the pond. Pond located in a private garden.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			

## Pond 36


<b>Water Body reference:</b>	Pond 36		Photo 18:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	1000	0.95	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	65%	0.9	
Waterfowl	Minor	0.67	
Fish	Absent	1	
Pond Count	8	0.8	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	60%	0.9	
<b>TOTAL:</b>		0.91	
<b>Water Body Description:</b>			
Large pond surrounded by dense vegetation. Extensive reedswamp with reedmace ( <i>Typha latifolia</i> ) and yellow flag ( <i>Iris pseudacorus</i> ). Marginal species present include water mint, common spike-rush ( <i>Eleocharis palustris</i> ).			
<b>GCN Presence query:</b>	GCN presence. Small population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			

## Pond 37


<b>Water Body reference:</b>	Pond 37		Photo 19:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	50	0.1	
Permanence	Sometimes dries	0.5	
Water Quality	Poor	0.33	
Shade	100%	0.2	
Waterfowl	Absent	1	
Fish	Possible	0.67	
Pond Count	10	0.93	
Terrestrial Habitat	Poor (limited opportunities)	0.33	
Macrophytes	10%	0.4	
<b>TOTAL:</b>		0.44	
<b>Water Body Description:</b>			
Pond surrounded by dense vegetation, duckweed present, dead trees inside the water, very shaded.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative (refer to limitations).		
<b>Limitations:</b>	Pond surveyed on 6 August 2021.		




## Pond 38

<b>Water Body reference:</b>	Pond 38		Photo 20:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	80	0.1	
Permanence	Never dries	0.9	
Water Quality	Poor	0.33	
Shade	100%	0.2	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	8	0.8	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	0%	0.3	
<b>TOTAL:</b>		0.52	
<b>Water Body Description:</b>			
Medium sized and permanent pond, surrounding by trees, steep banks. Pond covered with duckweed. Pond located in next to a road.			
<b>GCN Presence query:</b>	GCN presence. Small population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			


## Pond 49

<b>Water Body reference:</b>	Pond 49		Photo 21:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	50	0.05	
Permanence	Sometimes dries	0.5	
Water Quality	Good	1	
Shade	75%	0.7	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	10	0.93	
Terrestrial Habitat	Moderate	0.67	
Macrophytes	50%	0.8	
<b>TOTAL:</b>		0.62	
<b>Water Body Description:</b>			
Small pond, with extensive cover of submerged grasses, may dry at least partially later in the year. Pond surrounded by dense vegetation (trees and scrub), located within an arable field.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			


## Pond 50

<b>Water Body reference:</b>	Pond 50		Photo 22:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	300	0.6	
Permanence	never dries	0.9	
Water Quality	Poor	0.33	
Shade	50%	1	
Waterfowl	Minor	0.67	
Fish	Absent	1	
Pond Count	8	0.93	
Terrestrial Habitat	Moderate	0.67	
Macrophytes	0%	0.3	
<b>TOTAL:</b>		0.68	
<b>Water Body Description:</b>			
Permanent water body. Very deep, steep banks, located in a woodland, surrounding by dense vegetation (scrub).			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			


## Pond 51

<b>Water Body reference:</b>	Pond 51		Photo 23:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	2500	0.8	
Permanence	Never dries	0.9	
Water Quality	Bad	0.01	
Shade	50%	1	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	10	0.93	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	10%	0.4	
<b>TOTAL:</b>		0.55	
<b>Water Body Description:</b>			
Permanent water body. Deep pond, steep banks, absent of emergent or aquatic vegetation. Located within a small woodland.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			


## Pond 53

<b>Water Body reference:</b>	Pond 53		Photo 24:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	150	0.3	
Permanence	Never dries	0.9	
Water Quality	Moderate invertebrate diversity	0.67	
Shade	50%	1	
Waterfowl	Minor	0.67	
Fish	Absent	1	
Pond Count	10	0.93	
Terrestrial Habitat	Poor (limited opportunities)	0.33	
Macrophytes	30%	0.6	
<b>TOTAL:</b>		0.68	
<b>Water Body Description:</b>			
Permanent water body. Enclosed within dense scrub and trees vegetation. Absent of emergent or aquatic vegetation. Located within an arable field.			
<b>GCN Presence query:</b>	No GCN presence (2021). eDNA (2021) negative. Small population found in 2018-2019.		
<b>Limitations:</b>			


## Pond 54

<b>Water Body reference:</b>	Pond 54		Photo 25:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	300	0.6	
Permanence	Never dries	0.9	
Water Quality	Poor	0.33	
Shade	60%	1	
Waterfowl	Minor	0.67	
Fish	Absent	1	
Pond Count	8	0.93	
Terrestrial Habitat	Moderate	0.67	
Macrophytes	10%	0.4	
<b>TOTAL:</b>		0.70	
<b>Water Body Description:</b>			
Permanent water body. Deep. Enclosed within dense scrub and trees vegetation. Steep banks. Absent of emergent or aquatic vegetation. Located within an arable field.			
<b>GCN Presence query:</b>	GCN presence. Small population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			

## Pond 55


<b>Water Body reference:</b>	Pond 55		Photo 26:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	25	0.05	
Permanence	Never dries	0.9	
Water Quality	Moderate invertebrate diversity	0.67	
Shade	50%	1	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	10	0.93	
Terrestrial Habitat	Moderate	0.67	
Macrophytes	0%	0.3	
<b>TOTAL:</b>		0.60	
<b>Water Body Description:</b>			
Small sized and permanent pond, surrounding by trees, steep banks. Pond covered with duckweed. Located within a small woodland located within an arable field.			
<b>GCN Presence query:</b>	GCN presence. Small population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			

## Pond 56


<b>Water Body reference:</b>	Pond 56		Photo 27:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	50	0.1	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	5%	1	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	8	0.8	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	20%	0.5	
<b>TOTAL:</b>		0.72	
<b>Water Body Description:</b>			
Permanent water body, shallow, with well-developed fringe of marginal vegetation and sparse emergent across the pond.			
<b>GCN Presence query:</b>	GCN presence. Medium population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			



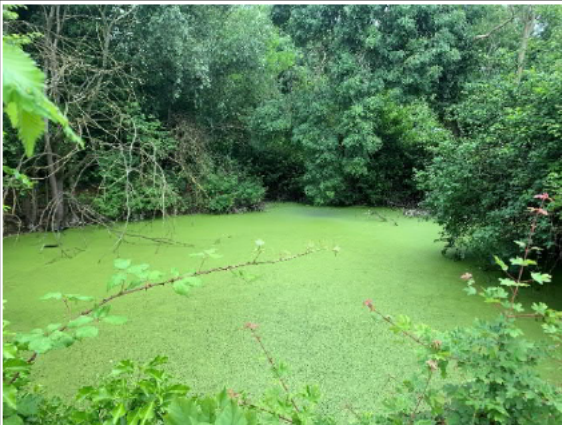
## Pond 57

<b>Water Body reference:</b>	Pond 57		Photo 28:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	700	1	
Permanence	Rarely dries	1	
Water Quality	Poor	0.33	
Shade	20%	1	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	6	0.8	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	0%	0.3	
<b>TOTAL:</b>		0.78	
<b>Water Body Description:</b>			
Permanent pond, surrounding by dense vegetation, steep banks. Pond covered with duckweed.			
<b>GCN Presence query:</b>	GCN presence. Small population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			


## Pond 59

<b>Water Body reference:</b>	Pond 59		Photo 29:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	50	0.05	
Permanence	Sometimes dries	0.5	
Water Quality	Good	1	
Shade	100%	0.2	
Waterfowl	Absent	1	
Fish	Absent	1	
Pond Count	10	0.93	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	100%	0.8	
<b>TOTAL:</b>		0.57	
<b>Water Body Description:</b>			
Small attenuation pond next to a road. Cover 100% with dense emergent swamp and tall ruderal herbs, steep banks. Located next to a road.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			


## Pond 60

<b>Water Body reference:</b>	Pond 60		Photo 30:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	250	0.5	
Permanence	Never dries	0.9	
Water Quality	Moderate invertebrate diversity	0.67	
Shade	60%	1	
Waterfowl	Absent	1	
Fish	Possible	0.67	
Pond Count	10	0.93	
Terrestrial Habitat	Poor (limited opportunities)	0.33	
Macrophytes	10%	0.4	
<b>TOTAL:</b>		0.69	
<b>Water Body Description:</b>			
Permanent water body. Located by the road, steep banks. One bank has a brick wall (not accessible). Duckweed covering all the surface, shaded by mature trees.			
<b>GCN Presence query:</b>	No GCN found. eDNA (2021) negative.		
<b>Limitations:</b>			


## Pond 81

<b>Water Body reference:</b>	Pond 81		Photo 31:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	1000	0.95	
Permanence	Never dries	0.9	
Water Quality	Moderate invertebrate diversity	0.67	
Shade	60%	1	
Waterfowl	Absent	1	
Fish	Possible	0.67	
Pond Count	60	0.8	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	0%	0.3	
<b>TOTAL:</b>		0.79	
<b>Water Body Description:</b>			
Permanent water body, surrounded by dense vegetation, steep slope. Absent of emergent or aquatic vegetation. Pond located within a small woodland.			
<b>GCN Presence query:</b>	GCN presence. Small population found in 2018-2019. eDNA (2021) positive.		
<b>Limitations:</b>			


## Pond 82

<b>Water Body reference:</b>	Pond 82		Photo 32:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location	Zone A (Optimal)	1	
Pond Area (m <sup>2</sup> )	100	0.2	
Permanence	Never dries	0.9	
Water Quality	Good	1	
Shade	50%	1	
Waterfowl	Minor	0.67	
Fish	Minor	0.33	
Pond Count	8	0.87	
Terrestrial Habitat	Good (offers opportunities for foraging and shelter)	1	
Macrophytes	90%	0.9	
<b>TOTAL:</b>		0.71	
<b>Water Body Description:</b>			
Permanent water body. Pond located in a private garden, dense submerged aquatic species and algae, plus water lily clumps covering part of the surface, waterfowl present.			
<b>GCN Presence query:</b>	GCN no presence (2021). eDNA (2021) negative (refer to limitations). Small population found in 2018-2019.		
<b>Limitations:</b>	Pond 82 cannot be confirmed as having Great Crested Newt absent because the sample was late in the season (Pond surveyed on 6 August 2021).		

## Pond 84

<b>Water Body reference:</b>	Pond 84		Photo 33:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location			
Pond Area (m <sup>2</sup> )			
Permanence			
Water Quality			
Shade			
Waterfowl			
Fish			
Pond Count			
Terrestrial Habitat			
Macrophytes			
<b>TOTAL:</b>			
<b>Water Body Description:</b>			
Linear waterbody forming part of the drainage system of A428, only intermittently wet. Dry in 2021 and covered by dense terrestrial vegetation, mainly creeping thistle ( <i>Cirsium arvense</i> ).			
<b>GCN Presence query:</b>	Pond dry		
<b>Limitations:</b>			

## Pond 85

<b>Water Body reference:</b>	Pond 85		Photo 34:
<b>HSI INDEX CATEGORY</b>	<b>Description:</b>	<b>HSI INDEX SCORE</b>	
Geographic Location			
Pond Area (m <sup>2</sup> )			
Permanence			
Water Quality			
Shade			
Waterfowl			
Fish			
Pond Count			
Terrestrial Habitat			
Macrophytes			
<b>TOTAL:</b>			
<b>Water Body Description:</b>			
Pond completely dry, bare ground with only sparse cover of vegetation on the bed, banks densely vegetated. Potential terrestrial habitat only.			
<b>GCN Presence query:</b>	Pond dry		
<b>Limitations:</b>			