

M25 junction 10/A3 Wisley interchange TR010030

6.5 Environmental Statement: Appendix 7.11 Great crested newts

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Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended)

M25 junction 10/A3 Wisley interchange

The M25 junction 10/A3 Wisley interchange Development Consent Order 202[x]

6.5 ENVIRONMENTAL STATEMENT: APPENDIX 7.11 GREAT CRESTED NEWTS

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Table of contents

Appendix	Pages
7.1 Great crested newt survey report	5
Appendix A. Great crested newt survey results	15
Tables	
Table 7.1.1: HSI score and suitability of the aquatic habitat for great crested newt	7
Table 7.1.2: Survey results of waterbodies within 500 m of the Scheme	16
Table 7.1.3: 2017 Presence/likely absence (using conventional survey methods) and population class size survey results	23

Appendix 7.11 Great crested newts

7.1 Great crested newt survey report

7.1.1 Introduction

- 7.1.1.1 Great crested newts are a European Protected Species subject to full protection under the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). A summary of the relevant legislation can be found in Appendix 7.1.
- 7.1.1.2 Surveys were carried out in 2016, 2017, 2018 and 2019 to determine the habitat suitability and presence/likely absence of great crested newts within waterbodies up to 500 m of the M25 junction 10/A3 Wisley interchange Improvement Scheme (hereafter referred to as the Scheme).
- 7.1.1.3 This report provides the methodology and results of these surveys. An evaluation of the importance of the Site for great crested newts and the importance of the great crested newt population present will be provided in the Environmental Statement (ES) for the Scheme.

7.1.2 Objectives

- 7.1.2.1 The aim of the great crested newt surveys was to determine the presence or likely absence of this species within waterbodies up to 500 m from the Scheme and to determine the distribution and population size-class of any breeding populations of great crested newts present.

7.1.3 Methodology

- 7.1.3.1 All great crested newt surveys detailed below have been undertaken in accordance with good practice guidance¹ and CIEEM competencies for undertaking great crested newt surveys².

Desk study

- 7.1.3.2 Ponds and ditches within 500 m of the Scheme as shown in Figure 7.15 were identified from Ordnance Survey maps and readily available aerial photographs.
- 7.1.3.3 A desk study was conducted in 2017, which included the provision of records from Surrey Biodiversity Information Centre (SBIC) and Surrey Amphibian and Reptile Group (SARG) for great crested newts up to 1 km from the Scheme in the last ten years (2007-2017).

Field survey

- 7.1.3.4 All waterbodies within 500 m of the Scheme where access was permitted were subject to Habitat Suitability Index (HSI) assessments and environmental DNA (eDNA) surveys in 2016 and 2017 unless they were scoped out as they were unsuitable for great crested newt breeding due to the presence of flowing water or being dry at the time of survey.

¹ English Nature (2001). Great Crested Newt Mitigation Guidelines; Natural England guidance provided at <https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects> [accessed December 2018]

² CIEEM (2013). Competencies for Species Survey: Great Crested Newt.

7.1.3.5 Great crested newts typically use suitable terrestrial habitat up to 500 m from a breeding pond. However, there is a notable decrease in great crested newt abundance beyond a distance of 250 m from a breeding pond³. Therefore, in 2018, taking into account the Scheme design, the abundance of available suitable terrestrial habitat in the area, particularly woodland habitats which provide habitat connectivity to nearby ponds and offer suitable foraging and hibernation opportunities for great crested newts, waterbodies were scoped in for detailed survey work as follows:

- HSI assessment and presence/likely absence surveys (using eDNA or conventional survey techniques) were carried out at all waterbodies within 250 m of the Scheme where access was permitted;
- Survey work was not carried out on waterbodies over 250 m from the Scheme unless the waterbody was part of a group of waterbodies (potential amphibian metapopulation) around the 250 m buffer; and
- If great crested newts were found to be present, population size-class assessment surveys were only carried out where scale of anticipated temporary/permanent habitat loss in relation to the distance of the waterbody from the Scheme would require this information for assessment and licensing requirements, as recommended in the guidance provided in the Natural England great crested newt license application method statement instructions⁴.

7.1.3.6 Where proposed works are limited to cabling and gantries within the existing highways boundary, for example along the M25 east of junction 10, east of Hatchford Overbridge, waterbodies within 250 m of the Scheme have been scoped out from surveys. Taking into account the proposed works, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a Precautionary Method of Working (PMW) to ensure no harm to great crested newts. Therefore, no surveys were undertaken of waterbodies that were within 250 m of just these works.

7.1.3.7 Any waterbodies separated from the Scheme by physical barriers that would prevent great crested newt movement (such as rivers, major roads etc) were scoped out from further surveys.

Habitat Suitability Index (HSI) assessment

7.1.3.8 Waterbodies were assessed for their potential to support great crested newt using the HSI assessment⁵. This technique provides a standardised assessment of the potential of a waterbody to support great crested newt and is recognised by the licencing authorities. The HSI is calculated using ten habitat variables ('suitability indices') which are known to affect the survival of great crested newts. These are:

- Geographical location (i.e. with respect to the range of great crested newt);

³ Cresswell, W. & Whitworth, R. (2004) English Nature Research Reports Number 576: *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus*. English Nature, Peterborough.

⁴ Guidance provided in: Natural England (2015). Template for Method Statement to support application for licence under Regulation 53(2)e of The Conservation of Habitats and Species Regulations 2010 (as amended) in respect of great crested newts *Triturus cristatus*. Form WML-A14-2 (Version December 2015).

⁵ Oldman, R. S., Keeble, J., Swan, M. J. S., and Jeffcote, M. (2000). Evaluating the Suitability of Habitat for the Great crested newt (*Triturus cristatus*) *Herpetological Journal* 10 (4), 143-155.

- Waterbody area;
- Permanence of water (estimated number of years a waterbody is likely to dry out in spring, per decade);
- Water quality (as indicated by aquatic invertebrates);
- Percentage shade of waterbody margin;
- Presence of waterfowl;
- Occurrence of fish;
- Waterbody density;
- Connectivity and quantity of suitable terrestrial habitat; and
- Macrophyte (aquatic plant) coverage.

7.1.3.9 Each habitat variable is assessed by experienced surveyors in the field. The ten suitability indices are combined to derive the final HSI score for the waterbody. The HSI, expressed as a value between 0.01 and 1.0, is then categorised as shown in Table 7.1.1.

Table 7.1.1: HSI score and suitability of the aquatic habitat for great crested newt⁶

HSI score	Suitability of the aquatic habitat for great crested newt
0.01 – 0.49	'Poor'
0.50 – 0.59	'Below average'
0.60 - 0.69	'Average'
0.70 – 0.79	'Good'
0.80 – 1.00	'Excellent'

Presence/likely absence surveys - environmental DNA (eDNA) survey techniques

7.1.3.10 Presence/likely absence surveys followed the methodology provided by Department for Environment, Food & Rural Affairs (DEFRA) in Appendix 5 of the report for DEFRA project WC10673: *Analytical and methodological development for improved surveillance of the Great Crested Newt⁷*. The survey involved taking water samples at each suitable waterbody to send for laboratory analysis to test for the presence of great crested newt eDNA. In line with the DEFRA methodology, surveys were conducted between the 15 April and 30 June (in 2016, 2017, 2018 and 2019). This technique provides presence/likely absence only and is currently unable to provide an estimate of population size-class.

⁶ Amphibian and Reptile Groups of the United Kingdom (ARG UK) (May, 2010) Advice Note 5: Great Crested Newt Habitat Suitability Index

⁷ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford

7.1.3.11 The water sampling was carried out by a licenced great crested newt surveyor. Water samples were stored in a fridge in accordance with the DEFRA methodology before being couriered to the laboratory. The laboratories undertaking the analysis of samples were ADAS and SureScreen, both of which have passed the Natural England proficiency testing.

7.1.3.12 Any waterbodies that returned an indeterminate eDNA result in 2016 or 2017, were resurveyed in 2018.

Presence/likely absence surveys and population size-class surveys – conventional survey techniques

7.1.3.13 The conventional presence/absence surveys were undertaken in accordance with good practice guidelines⁸ in 2017.

7.1.3.14 A minimum of four surveys visits were undertaken between mid-March and mid-June with at least two of the surveys undertaken between mid-April and mid-May. In waterbodies where great crested newt presence was confirmed, a further two surveys were undertaken between mid-April and mid-May in order to obtain a population estimate. All surveys were conducted in suitable weather conditions.

7.1.3.15 The following standard survey techniques were used:

- Torching: this involved ecologists walking the circumference of each waterbody shining a high-powered torch (one million candlepower) into the water to record the number of great crested newts (and other amphibian species) present;
- Bottle trapping: this involved placing specifically made bottle traps around the margins of each waterbody. The traps were set late in the evening and then retrieved early the following morning and any trapped great crested newts (and other amphibian species) were counted and sexed;
- Egg searching: this involved searching the live and dead submerged vegetation and other debris present within each waterbody for great crested newt eggs (and eggs of other amphibian species);
- Netting: using a sturdy dip-net with a 2-4 mm mesh the surveyors worked around the perimeter of the waterbody along 2 m lengths of shoreline agitating the net through aquatic vegetation; and
- Refuge searching: terrestrial searches around the waterbody under suitable refuge materials such as rocks, logs, moss and discarded debris.

7.1.3.16 Where six surveys were carried out, the maximum adult count per waterbody is used to assess the population size-class as follows⁹:

- 'Small' for maximum counts up to 10;
- 'Medium' for maximum counts between 11 and 100; and
- 'Large' for maximum counts over 100.

⁸ English Nature (2001). Great Crested Newt Mitigation Guidelines, English Nature, Peterborough; Natural England guidance provided at <https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects> [accessed December 2018]

⁹ Natural England guidance provided at <https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects> [accessed December 2018]

- 7.1.3.17 In 2016, the Surrey Wildlife Trust undertook eDNA surveys of the wet areas (waterbody W9a) around Bolder Mere (W9), which were returned as positive, confirming the presence of great crested newts in this area¹⁰. Waterbody locations are shown on Figure 7.15. Therefore, great crested newt population size-class surveys were carried out in 2017 at Bolder Mere (W9) and the surrounding wet areas (W9a).
- 7.1.3.18 In 2017 presence/absence surveys using conventional methods were also carried out at W10 (which had a negative eDNA result in 2016) and W11 due to their proximity to W9/W9a and good habitat connectivity between the waterbodies.

7.1.4 Survey limitations

- 7.1.4.1 The search for water bodies within 500 m of the Scheme was undertaken by using Ordnance Survey plans and aerial photographs only. These sources may not show all ponds and/or water bodies within 500 m of the Scheme (for example, some garden ponds may not be shown on maps or aerial images) and therefore some water bodies may not have been identified. However, it is considered that the vast majority of established water bodies will have been identified as a result of this approach, and this should be sufficient to determine the approximate abundance of great crested newts within the survey area.
- 7.1.4.2 Ecological surveys are limited by factors which affect the presence of animals such as the time of year, migration patterns and behaviour. Therefore, the absence of evidence of any species should not be taken as conclusive proof that the species is not present or that it will not be present in the future.
- 7.1.4.3 Surveys have been conducted in 2016, 2017, 2018 and 2019 as access permission has been received. Access was not permitted and therefore surveys were not undertaken at four waterbodies (one pond and three ditches).
- 7.1.4.4 Taking into account the number of waterbodies that were scoped out or subject to survey, or the fact that where suitable great crested newt habitat exists within the Scheme, vegetation clearance works would be conducted under a PMW to ensure no harm to great crested newts, the lack of access to these last four waterbodies is not considered a significant limitation. As a precaution, where surveys have not been possible, great crested newt presence and a medium population size-class is assumed.
- 7.1.4.5 For two waterbodies (W6 and D63), HSI was not recorded. However, this is not a limitation on the final survey results as eDNA surveys were undertaken at both these waterbodies.

¹⁰ Surrey Wildlife Trust (2016). Great Crested Newt Survey report: Wisley and Ockham Commons. Surrey Wildlife Trust, Pirbright, Surrey.

- 7.1.4.6 The eDNA results of W19 and W49 in 2017 were returned as 'indeterminate'. This may be due to the high or medium levels of sediment recorded within the samples which could inhibit the laboratory techniques. At the time of survey in 2017, the water levels within both of these waterbodies were low. Therefore, in 2018 these waterbodies were re-visited during the eDNA survey period. A re-survey of W49 was possible with the result returned as negative. W19 was completely dry at the time of survey and therefore scoped out as being unsuitable as a great crested newt breeding pond. Taking this into account, the indeterminate result from 2017 is not considered a significant limitation for these surveys.
- 7.1.4.7 During the eDNA and population estimate surveys at W9, access was limited to approximately 50% of waterbody. As this waterbody has been subject to both presence/likely absence eDNA and conventional survey techniques (six visits undertaken), this is not considered a limitation due to the robust survey effort to detect the potential presence of great crested newt.
- 7.1.4.8 Presence/likely absence surveys using conventional methods at ponds W10 and W28 also had restricted access due to health and safety reasons. Access to the east side of W28 was restricted in 2017 as a result of boggy ground. However, in 2017 an eDNA survey was undertaken at W28 with access to the entire perimeter of the waterbody. Therefore, the restricted access in 2017 is not considered a significant limitation to the survey at W28. For W10, no torching was conducted along the northern edge of the waterbody due to the presence of a Public Sex Environment within the vicinity of Ockham Common Bolder Mere and Ockham Forest Old Lane Car Parks. Although it was not possible to torch the entire perimeter of W10, bottle trapping, netting and egg searching could be implemented along this edge. Therefore, the torching coverage during these surveys is not considered a significant limitation to the survey results.
- 7.1.4.9 Taking into account the constraints for the presence/likely absence surveys conducted in 2016, 2017, 2018 and 2019 for great crested newts, the results detailed in this report can be considered as an accurate representation of presence/likely absence for great crested newts.

7.1.5 Results

Desk study

- 7.1.5.1 The SBIC data search returned four records of great crested newts within 1 km of the Scheme, of which three were recorded since 2007 (i.e. within 10 years of the data search), with the most recent records being from 2016. The closest records to the Scheme fall within the 1 km OS grid squares for Bolder Mere, Wisley Common and Ockham Common. The SARG data search returned one record of great crested newt within 1 km of the Scheme, located at Ordnance Survey National Grid Reference (OSNGR) TQ 06969 59565. This record was provided as a positive eDNA result and falls within the Scheme on the edge of Buxton Wood. No waterbody was located at this grid reference or nearby following a review of Ordnance Survey maps and aerial imagery, with the closest waterbody located 130 m to the west. Furthermore, no waterbody was located within the vicinity of this grid reference during the HSI surveys.

7.1.5.2 Surrey Wildlife Trust confirmed a water sample taken from the wetland edge features of Bolder Mere in 2016 tested positive for great crested newt eDNA¹⁰. This location is partially located within the Scheme within the Proposed Thames Basin Heaths Special Protection Area (SPA) enhancement area at Ockham Common off Old Lane and located approximately 250 m from the highways proposals (the temporary and permanent land take of the Scheme).

Field surveys

- 7.1.5.3 A summary of the findings for each waterbody is provided in Table 7.1.2 in Annex A. The results of the 2017 presence/likely absence and population size class estimate surveys using conventional survey methods are provided in Table 7.1.3 in Annex A. Waterbody locations are mapped on Figure 7.15.
- 7.1.5.4 A review of aerial imagery and Ordnance Survey maps identified aquatic habitat that could potentially be used by breeding great crested newts. A total of 84 ponds and 59 ditches are located within 500 m of the Scheme. In 2018, the search area was reduced to 250 m taking into account the fact that there is a notable decrease in great crested newt abundance beyond a distance of 250 m from a breeding pond. Therefore, taking into account the redefined search area and the criteria detailed in paragraphs 7.1.3.5 to 7.1.3.7, 35 ponds and 19 ditches were scoped out from further assessment, leaving 49 ponds and 40 ditches that required field survey.
- 7.1.5.5 Over four years (2016, 2017, 2018 and 2019), 85 waterbodies (48 ponds and 37 ditches) were subject to field survey:
- A total of 18 ponds and 24 ditches were classed as unsuitable as great crested newt breeding ponds and therefore scoped out from further survey during either an HSI or eDNA survey;
 - Five ponds and one ditch were subject to presence/likely absence surveys using conventional survey methods (four survey visits). Of these, four ponds were subject to six survey visits; and
 - A further 25 ponds and 12 ditches were subject to presence/likely absence surveys using eDNA survey methods.
- 7.1.5.6 During these surveys, great crested newts were confirmed in four waterbodies; W9a, W10, W11 and W32. At W10 and W11, small populations of great crested newts were recorded during population estimate surveys. Great crested newt presence was confirmed at pond W9a and W32 during eDNA surveys.

Incidental records

- 7.1.5.7 During reptile surveys undertaken as part of the Scheme in 2017, two great crested newts were recorded. On 19 September 2017, an adult male great crested newt was recorded within Wisley Airfield (disused), approximately 650 m to the south-west of Bolder Mere (W9) the nearest waterbody, and on the 28 September 2017 an adult male great crested newt was recorded at the northern edge of Bolder Mere in terrestrial habitat located adjacent to Bolder Mere (W9) and associated wet areas (W9a).

7.1.6 Discussion

- 7.1.6.1 Great crested newts were confirmed in four waterbodies; W9a, W10, W11 and W32. At W10 and W11, small populations of great crested newts were recorded during population estimate surveys. Great crested newt presence was confirmed at pond W9a and W32 during eDNA surveys. All four of these waterbodies are located outside of the highways proposals of the Scheme, with three waterbodies located within the south-east quadrant (Ockham Common) and one waterbody within the south-west quadrant (Wisley Common). However, W9a, W10 and W11 are located immediately adjacent (within 10 m) to the Proposed Thames Basin Heaths SPA enhancement area.
- 7.1.6.2 A number of surveys were undertaken at W9a, the edge wetland features associated with Bolder Mere (W9). In 2016, the Surrey Wildlife Trust received a positive result following an eDNA survey in this area¹⁰. In 2017, population estimate surveys were undertaken in this area, surveying W9 and W9a. Six visits were undertaken with no great crested newts recorded. After the second visit the wet areas (W9a) associated with Bolder Mere were predominantly dry, and it was no longer possible to use methods such as bottle trapping to survey W9a, nevertheless torching was still possible. Taking this into account, an eDNA survey was also conducted in 2018 of W9a, the result of which was negative for the presence of great crested newt eDNA. Although two sets of surveys have been returned as negative, a great crested newt breeding population will be assumed to be present within W9a following the positive eDNA record in 2016 provided by Surrey Wildlife Trust. Furthermore, adult great crested newt presence has been confirmed in this location within terrestrial habitat adjacent to W9 and W9a during common species of reptile surveys in 2017.
- 7.1.6.3 It is possible, that great crested newts at W9a also utilise W10 which is noted to have a small population of great crested newts and located 140 m south-east of W9a. Pond W11 is located approximately 620 m south-east of Bolder Mere but only 330 m south-east of W10. These three waterbodies are connected via suitable terrestrial. It is therefore possible that these three waterbodies form part of a metapopulation of great crested newts. Taking into account the peak counts of great crested newts during population estimates at these waterbodies, it is assumed that the metapopulation is still classed as a small population (maximum counts up to 10).
- 7.1.6.4 As W32 (situated within Wisley Common near Deers Farm, see Figure 7.15) is located greater than 250 m away from the Scheme, population estimates were not required⁴. A total of 17 waterbodies are located within 500 m of W32 and connected by suitable habitat without any physical barriers such as the M25 or River Wey which would prevent movement by great crested newts. Of these 17 waterbodies, 10 were subject to presence/likely absence surveys with no great crested newts recorded, and the remaining seven were scoped out and considered unsuitable for great crested newts. Taking this into account, it is likely that the great crested newt population utilising W32 as a breeding pond would be consistent with a small population size-class.

7.1.6.5 Surveys have not been conducted at one pond and three ditches within 250 m of the Scheme. These surveys are outstanding due to: access permission not being granted, and a Scheme redesign (DF3.1) causing waterbodies to now fall within 250 m which were previously located beyond 250 m from the Scheme and therefore previously scoped out from further survey. Where surveys have not been possible, great crested newt presence and a medium population size-class is assumed.

Appendices

Appendix A. Great crested newt survey results

Table 7.1.2: Survey results of waterbodies within 500 m of the Scheme

Waterbody reference	Survey result	HSI score	Presence/likely absence result ¹¹	Population estimate result	Approximate distance (m) from the Scheme	Reason waterbody scoped out/any other comments	Survey Requirements
W1	Scoped out	N/A	N/A	N/A	493	> 250 m from the Scheme	Scoped out - further survey not required
W2	Scoped out	N/A	N/A	N/A	314	> 250 m from the Scheme	Scoped out - further survey not required
W3	Scoped out	N/A	N/A	N/A	291	> 250 m from the Scheme	Scoped out - further survey not required
W4	Scoped out	N/A	N/A	N/A	379	> 250 m from the Scheme	Scoped out - further survey not required
W5	Scoped out	N/A	N/A	N/A	360	> 250 m from the Scheme	Scoped out - further survey not required
W6	GCN assumed absent	Not available	eDNA negative	N/A	0	-	No further survey required
W7	Scoped out	N/A	N/A	N/A	378	Assessed as part of waterbody group with some waterbodies within 250 m. Not suitable. Hard engineered ornamental ponds stocked with large numbers of carp, little/no macrophyte cover, mostly surrounded by hardstanding and well used by water fowl.	Scoped out - further survey not required
W8	Scoped out	N/A	N/A	N/A	200	Not suitable. Hard engineered ornamental ponds stocked with large numbers of carp, little/no macrophyte cover, mostly surrounded by hardstanding and well used by water fowl.	Scoped out - further survey not required
W9	GCN assumed absent	Poor	eDNA negative ¹²	Assumed absent	0	-	No further survey required
W9a	GCN present	Poor	2016: eDNA positive 2017: assumed absent* 2018: eDNA negative	No great crested newts recorded.	0	GCN have been assumed as present, following a single positive eDNA survey in 2016 (provided by third party – Surrey Wildlife Trust). It is not possible to determine population size-class, as no great crested newts were found during survey visits.	No further survey required
W10	GCN present	Poor	eDNA negative	Small GCN population	8	-	No further survey required
W11	GCN present	Average	Present	Small GCN population	2	-	No further survey required
W12	GCN assumed absent	Poor	eDNA negative	N/A	0	-	No further survey required
W13	Scoped out	N/A	N/A	N/A	286	> 250 m from the Scheme	Scoped out - further survey not required
W14	Scoped out	N/A	N/A	N/A	482	> 250 m from the Scheme	Scoped out - further survey not required
W15	GCN assumed absent	Poor	eDNA negative	N/A	45	-	No further survey required
W16	GCN assumed absent	Poor	eDNA negative	N/A	12	-	No further survey required
W17	GCN assumed absent	Average	eDNA negative	N/A	63	-	No further survey required
W18	Scoped out	-	-	-	0	Dry at time of HSI survey	Scoped out - further survey not required
W19	Scoped out	Poor	2017: eDNA indeterminate 2018: waterbody dry	N/A	0	Following an indeterminate eDNA result in 2017, an eDNA survey was attempted in 2018. However, W19 was dry at the time of the eDNA survey and therefore this waterbody has been scoped out from further survey.	Scoped out - further survey not required
W20	Scoped out	N/A	N/A	N/A	213	Large lake stocked with fish and waterfowl, with little emergent vegetation. Not considered suitable for great crested newts.	Scoped out - further survey not required

¹¹ Where * appears after the presence/likely absence result, waterbodies were subject to presence/likely absence surveys using conventional methods. For all other results where * does not appear, waterbodies were subject to eDNA surveys.

¹² Due to the size of the waterbody, 2x kits were used during the eDNA surveys. Both kits were returned as negative for the presence of great crested newt eDNA.

Waterbody reference	Survey result	HSI score	Presence/likely absence result ¹¹	Population estimate result	Approximate distance (m) from the Scheme	Reason waterbody scoped out/any other comments	Survey Requirements
W21	Scoped out	Average	N/A	N/A	36	HSI was assessed in January 2017 over winter when the waterbody was holding water. Dry at time of eDNA survey (May 2017)	Scoped out - further survey not required
W22	Scoped out	Average	N/A	N/A	41	HSI was assessed in January 2017 over winter when the waterbody was holding water. Dry at time of eDNA survey (May 2017)	Scoped out - further survey not required
W23	Scoped out	Good	N/A	N/A	180	HSI was assessed in January 2017 over winter when the waterbody was holding water. Dry at time of eDNA survey (May 2017)	Scoped out - further survey not required
W24	Scoped out	Good	N/A	N/A	182	HSI was assessed in January 2017 over winter when the waterbody was holding water. Dry at time of eDNA survey (May 2017)	Scoped out - further survey not required
W25	Scoped out	Good	N/A	N/A	158	HSI was assessed in January 2017 over winter when the waterbody was holding water. Dry at time of eDNA survey (May 2017)	Scoped out - further survey not required
W26	Scoped out	Average	N/A	N/A	43	HSI was assessed in January 2017 over winter when the waterbody was holding water. Predominantly dry at time of eDNA survey (May 2017), consisting only of a very small muddy puddle. Therefore, scoped out as considered unsuitable for great crested newts.	Scoped out - further survey not required
W27	GCN assumed absent	Excellent	eDNA negative	N/A	2	-	No further survey required
W28	GCN assumed absent	Poor	eDNA negative	Assumed absent	0	-	No further survey required
W29	GCN assumed absent	Average	eDNA negative	N/A	158	-	No further survey required
W30	Scoped out	Average	N/A	N/A	5	HSI was assessed in January 2017 over winter when the waterbody was holding water. Dry at time of eDNA survey (May 2017)	Scoped out - further survey not required
W31	GCN assumed absent	Excellent	eDNA negative	N/A	0	-	No further survey required
W32	GCN present	Average	eDNA positive	Not required	145	No further survey required as per methodology in 7.1.3.5	No further survey required
W33	GCN assumed absent	Average	eDNA negative	N/A	276	> 250 m from the Scheme	Scoped out - further survey not required
W34	GCN assumed absent	Good	eDNA negative	N/A	4	-	No further survey required
W35	GCN assumed absent	Average	eDNA negative	N/A	245	-	No further survey required
W36	GCN assumed absent	Average	eDNA negative	N/A	28	-	No further survey required
W37	GCN assumed absent	Average	eDNA negative	N/A	0	-	No further survey required
W38	GCN assumed absent	Average	eDNA negative	N/A	30	-	No further survey required
W39	GCN assumed absent	Average	eDNA negative	N/A	48	-	No further survey required
W40	Scoped out	N/A	N/A	N/A	257	> 250 m from the Scheme	Scoped out - further survey not required
W41	Scoped out	N/A	N/A	N/A	290	> 250 m from the Scheme	Scoped out - further survey not required
W42	GCN assumed absent	Average	eDNA negative	N/A	107	-	No further survey required
W43	GCN assumed absent	Average	eDNA negative	N/A	0	-	No further survey required

Waterbody reference	Survey result	HSI score	Presence/likely absence result ¹¹	Population estimate result	Approximate distance (m) from the Scheme	Reason waterbody scoped out/any other comments	Survey Requirements
W44	GCN assumed absent	Excellent	eDNA negative	N/A	21	-	No further survey required
W45a	GCN assumed absent	Good	eDNA negative	N/A	41	-	No further survey required
W45b	GCN assumed absent	Poor	eDNA negative ¹³	N/A	0	-	No further survey required
W45c	Scoped out	N/A	N/A	N/A	41	Area of woodland with wet areas that were predominantly dry at time of HSI survey (February 2018). Not suitable for GCN as dry during the breeding season.	Scoped out - further survey not required
W45d	Scoped out	N/A	N/A	N/A	24	Area of woodland with wet areas that were predominantly dry at time of survey (February 2018). Not suitable for GCN as dry during the breeding season.	Scoped out - further survey not required
W45e	GCN assumed absent	Below average	eDNA negative	N/A	59	-	No further survey required
W46	Scoped out	N/A	N/A	N/A	323	Assessed as part of waterbody group with some waterbodies within 250 m. Not suitable. Hard engineered ornamental ponds stocked with large numbers of carp, little/no macrophyte cover, mostly surrounded by hardstanding and well used by water fowl.	Scoped out - further survey not required
W47	Scoped out	N/A	N/A	N/A	302	Assessed as part of waterbody group with some waterbodies within 250 m. Not suitable. Hard engineered ornamental ponds stocked with large numbers of carp, little/no macrophyte cover, mostly surrounded by hardstanding and well used by water fowl.	Scoped out - further survey not required
W48	Scoped out	N/A	N/A	N/A	101	Pond no longer present at time of HSI survey (January 2018)	Scoped out - further survey not required
W49	GCN assumed absent	Poor	2017: eDNA indeterminate 2018: eDNA negative	N/A	0	-	No further survey required
W50	GCN assumed absent	Below average	eDNA negative	N/A	80	-	No further survey required
W51	Scoped out	N/A	N/A	N/A	26	Flowing	Scoped out - further survey not required
W52	Scoped out	N/A	N/A	N/A	329	> 250 m from the Scheme	Scoped out - further survey not required
W53	Scoped out	N/A	N/A	N/A	289	> 250 m from the Scheme	Scoped out - further survey not required
W54	Assumed moderate population	-	-	-	165	No access permission	HSI & presence/likely absence survey
W55	Scoped out	N/A	N/A	N/A	254	> 250 m from the Scheme	Scoped out - further survey not required
W56	Scoped out	N/A	N/A	N/A	285	> 250 m from the Scheme	Scoped out - further survey not required
W57	Scoped out	N/A	N/A	N/A	279	> 250 m from the Scheme	Scoped out - further survey not required
W58	Scoped out	N/A	N/A	N/A	340	> 250 m from the Scheme	Scoped out - further survey not required
W59	Scoped out	N/A	N/A	N/A	430	> 250 m from the Scheme	Scoped out - further survey not required
W60	GCN assumed absent	Average	eDNA negative	N/A	66	-	No further survey required
W61	Scoped out	N/A	N/A	N/A	518	Separated from the Scheme by the River Wey > 250 m from the Scheme	Scoped out - further survey not required

¹³ Due to the size of the waterbody, 2x kits were used during the eDNA surveys. Both kits were returned as negative for the presence of great crested newt eDNA.

Waterbody reference	Survey result	HSI score	Presence/likely absence result ¹¹	Population estimate result	Approximate distance (m) from the Scheme	Reason waterbody scoped out/any other comments	Survey Requirements
W62	Scoped out	N/A	N/A	N/A	276	Separated from Scheme by the River Wey > 250 m from the Scheme	Scoped out - further survey not required
W63	Scoped out	N/A	N/A	N/A	162	Separated from Scheme by the River Wey	Scoped out - further survey not required
W64	Scoped out	N/A	N/A	N/A	165	Separated from Scheme by the River Wey	Scoped out - further survey not required
W65	Scoped out	N/A	N/A	N/A	194	Separated from Scheme by the River Wey	Scoped out - further survey not required
W66	Scoped out	Below average	eDNA negative	N/A	333	> 250 m from the Scheme	No further survey required
W67	Scoped out	N/A	N/A	N/A	170	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
W68	Scoped out	N/A	N/A	N/A	305	> 250 m from the Scheme	Scoped out - further survey not required
W69	Scoped out	N/A	N/A	N/A	637	> 250 m from the Scheme	Scoped out - further survey not required
W70	Scoped out	N/A	N/A	N/A	2	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
W71	Scoped out	N/A	N/A	N/A	188	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
W72	Scoped out	N/A	N/A	N/A	173	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
W73	Scoped out	N/A	N/A	N/A	222	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and	Scoped out - further survey not required

Waterbody reference	Survey result	HSI score	Presence/likely absence result ¹¹	Population estimate result	Approximate distance (m) from the Scheme	Reason waterbody scoped out/any other comments	Survey Requirements
						these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	
W74	Scoped out	N/A	N/A	N/A	441	> 250 m from the Scheme	Scoped out - further survey not required
W75	Scoped out	N/A	N/A	N/A	295	> 250 m from the Scheme	Scoped out - further survey not required
W76	Scoped out	N/A	N/A	N/A	386	> 250 m from the Scheme	Scoped out - further survey not required
W77	Scoped out	N/A	N/A	N/A	84	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
W78	Scoped out	N/A	N/A	N/A	473	> 250 m from the Scheme	Scoped out - further survey not required
W79	Scoped out	N/A	N/A	N/A	481	> 250 m from the Scheme	Scoped out - further survey not required
W80	GCN assumed absent	Below average	eDNA negative	N/A	10	-	No further survey required
W81	Scoped out	N/A	N/A	N/A	143	Separated from the Scheme by the River Wey	Scoped out - further survey not required
D1	Scoped out	N/A	N/A	N/A	4	Dry at time of HSI/eDNA survey (May 2018)	Scoped out - further survey not required
D2	GCN assumed absent	Average	eDNA negative	N/A	3	-	No further survey required
D3	Scoped out	N/A	N/A	N/A	18	Dry at time of eDNA survey (June 2018)	No further survey required
D4	Assumed moderate population	-	-	-	2	No access permission	HSI & presence/likely absence survey
D5	Scoped out	N/A	N/A	N/A	0	Flowing	Scoped out - further survey not required
D6	GCN assumed absent	Good	eDNA negative	N/A	0	-	No further survey required
D7	Scoped out	N/A	N/A	N/A	261	> 250 m from the Scheme	Scoped out - further survey not required
D8	Scoped out	N/A	N/A	N/A	341	> 250 m from the Scheme	Scoped out - further survey not required
D9	Scoped out	N/A	N/A	N/A	0	Located within A3 central reservation. Not suitable for GCN as the A3 acts as a physical barrier to GCN movement either side of the ditch.	Scoped out - further survey not required
D10	GCN assumed absent	Below average	eDNA negative	N/A	0	-	No further survey required
D11	Scoped out	N/A	N/A	N/A	0	Dry at time of HSI survey	Scoped out - further survey not required
D12	Scoped out	N/A	N/A	N/A	117	Dry at time of eDNA survey (May 2018)	Scoped out - further survey not required
D13	GCN assumed absent	Average	eDNA negative	N/A	0	-	No further survey required
D14	GCN assumed absent	Below average	eDNA negative	N/A	24	-	No further survey required
D15	GCN assumed absent	Good	eDNA negative	N/A	0	-	No further survey required
D16	GCN assumed absent	Good	eDNA negative	N/A	0	-	No further survey required
D17	Scoped out	N/A	N/A	N/A	0	Flowing	Scoped out - further survey not required
D18	GCN assumed absent	Excellent	eDNA negative	N/A	195	-	No further survey required

Waterbody reference	Survey result	HSI score	Presence/likely absence result ¹¹	Population estimate result	Approximate distance (m) from the Scheme	Reason waterbody scoped out/any other comments	Survey Requirements
D19	GCN assumed absent	Excellent	eDNA negative	N/A	3	-	No further survey required
D20	Scoped out	N/A	N/A	N/A	5	Flowing	Scoped out - further survey not required
D21	Scoped out	N/A	N/A	N/A	6	Scoped out due to lack of connectivity	Scoped out - further survey not required
D22	Scoped out	N/A	N/A	N/A	176	Dry at time of eDNA survey (April 2019)	Scoped out - further survey not required
D23	Scoped out	N/A	N/A	N/A	0	Dry at time of eDNA survey (May 2018)	Scoped out - further survey not required
D24	Scoped out	N/A	N/A	N/A	0	Dry at time of eDNA survey (June 2018)	Scoped out - further survey not required
D25	Scoped out	N/A	N/A	N/A	14	Dry at time of HSI survey (February 2018)	Scoped out - further survey not required
D26	Scoped out	N/A	N/A	N/A	0	Dry at time of HSI survey (February 2018)	Scoped out - further survey not required
D27	Scoped out	N/A	N/A	N/A	398	> 250 m from the Scheme	Scoped out - further survey not required
D28	Scoped out	N/A	N/A	N/A	0	Dry at time of HSI/eDNA survey (May 2017)	Scoped out - further survey not required
D29	Scoped out	N/A	N/A	N/A	3	Flowing shallow ditch	Scoped out - further survey not required
D30	Scoped out	N/A	N/A	N/A	9	Heavily shaded, flowing ditch with little emergent vegetation, not considered suitable for great crested newts.	Scoped out - further survey not required
D31	Scoped out	N/A	N/A	N/A	5	Flowing ditch	Scoped out - further survey not required
D32	GCN assumed absent	Below average	eDNA negative	N/A	0	-	No further survey required
D33	Scoped out	N/A	N/A	N/A	135	Flowing shallow ditch	Scoped out - further survey not required
D34	Scoped out	Average	N/A	N/A	0	Dry at time of eDNA survey (May 2018)	Scoped out - further survey not required
D35	Scoped out	N/A	N/A	N/A	0	Dry at time of HSI survey	Scoped out - further survey not required
D36	GCN assumed absent	Poor	eDNA negative	N/A	0	-	No further survey required
D37	Scoped out	N/A	N/A	N/A	342	> 250 m from the Scheme	Scoped out - further survey not required
D38	Scoped out	N/A	N/A	N/A	304	> 250 m from the Scheme	Scoped out - further survey not required
D39	Scoped out	N/A	N/A	N/A	0	Flowing with no emergent vegetation.	Scoped out - further survey not required
D40	Scoped out	N/A	N/A	N/A	314	> 250 m from the Scheme	Scoped out - further survey not required
D41	Assumed moderate population	Average	-	-	78	Ditch now within 250 m following DF3.1. No access for further surveys required.	Presence/likely absence survey
D42	Scoped out	Good	N/A	N/A	262	> 250 m from the Scheme	Scoped out - further survey not required
D43	Scoped out	N/A	N/A	N/A	270	> 250 m from the Scheme	Scoped out - further survey not required
D44	Assumed moderate population	-	-	-	114	No access permission	HSI & presence/likely absence survey
D45	Scoped out	N/A	N/A	N/A	0	Dry at time of HSI survey (February 2018)	Scoped out - further survey not required
D46	Scoped out	N/A	N/A	N/A	485	Separated from the Scheme by the River Wey > 250 m from the Scheme	Scoped out - further survey not required
D47	Scoped out	Poor	N/A	N/A	53	Dry at time of HSI survey (March 2017)	Scoped out - further survey not required
D48	GCN assumed absent	Poor	Assumed absent*	N/A	0	-	No further survey required
D49	Scoped out	N/A	N/A	N/A	501	Separated from the Scheme by the River Wey > 250 m from the Scheme	Scoped out - further survey not required

Waterbody reference	Survey result	HSI score	Presence/likely absence result ¹¹	Population estimate result	Approximate distance (m) from the Scheme	Reason waterbody scoped out/any other comments	Survey Requirements
D50	Scoped out	N/A	N/A	N/A	89	Separated from the Scheme by the River Wey	Scoped out - further survey not required
D51	Scoped out	N/A	N/A	N/A	197	Separated from the Scheme by the River Wey	Scoped out - further survey not required
D52	Scoped out	N/A	N/A	N/A	198	Separated from the Scheme by the River Wey	Scoped out - further survey not required
D53	Scoped out	N/A	N/A	N/A	345	Separated from the Scheme by the Rover Mole > 250 m from the Scheme	Scoped out - further survey not required
D54	Scoped out	N/A	N/A	N/A	0	Dry at time of eDNA survey (May 2017)	Scoped out - further survey not required
D55	Scoped out	N/A	N/A	N/A	1	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
D56	Scoped out	N/A	N/A	N/A	515	> 250 m from the Scheme	Scoped out - further survey not required
D57	Scoped out	N/A	N/A	N/A	40	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
D58	Scoped out	N/A	N/A	N/A	370	> 250 m from the Scheme	Scoped out - further survey not required
D59	Scoped out	N/A	N/A	N/A	673	> 250 m from the Scheme	Scoped out - further survey not required
D60	Scoped out	N/A	N/A	N/A	606	> 250 m from the Scheme	Scoped out - further survey not required
D61	Scoped out	N/A	N/A	N/A	69	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
D62	Scoped out	N/A	N/A	N/A	0	Within 250 m of the Scheme, however, this waterbody is in the vicinity of an area where the works are limited to cabling and gantries within the existing highways boundary. Taking this into account, the works would have no impact on great crested newts even if present as any vegetation clearance would be minimal, and these would be done under a PMW to ensure no harm to great crested newts. Therefore, there is no need to survey ponds for these extension areas.	Scoped out - further survey not required
D63	GCN assumed absent	Not available	eDNA negative	N/A	0	-	No further survey required

Table 7.1.3: 2017 Presence/likely absence (using conventional survey methods) and population class size survey results

Waterbody reference	Number of surveys conducted	Survey dates	Survey methodology ^{14/15}	Great crested newt (GCN) results ^{16/17}	Other amphibian's recorded	GCN peak count	Population size class assessment	Comment
W9 & W9a	6	02/05/2017 10/05/2017 15/05/2017 18/05/2017 22/05/2017 01/06/2017	T/BT/ES/N	T: 0 BT: 0 ES: No GCN eggs N: 0	Smooth newt Palmate newt Common frog	0	N/A	Due to a reduction in water levels it was not possible to place bottle traps in the wet area (W9a) around Bolder Mere after the second survey visit.
W10	6	02/05/2017 10/05/2017 15/05/2017 18/05/2017 22/05/2017 01/06/2017	T/BT/ES/N	T: 0 BT: 6 GCN ES: No GCN eggs N: 0	Smooth newt Palmate newt Common frog	6	Small	Both male and female great crested newts were recorded across these surveys.
W11	6	02/05/2017 10/05/2017 15/05/2017 18/05/2017 22/05/2017 01/06/2017	T/BT/ES/N	T: 0 BT: 1 GCN ES: GCN egg present N: 0	Smooth newt Palmate newt Common frog	1	Small	Both male and female great crested newts were recorded across these surveys.
W28	4	03/05/2017 04/05/2017 11/05/2017 18/05/2017	T/BT/ES	T: 0 BT: 0 ES: No GCN eggs	Smooth newt Common frog	0	N/A	
D48	4	03/05/2017 04/05/2017 11/05/2017 18/05/2017	T/ES/N	T: 0 ES: No GCN eggs N: 0	None	0	N/A	Bottle trapping not possible due to water levels.

¹⁴ T = torching; BT = bottle trapping; ES = egg search; RS = refuge search; N = netting

¹⁵ Methodology applies to population assessment surveys undertaken on waterbodies found to support great crested newts.

¹⁶ T = torching; BT = bottle trapping; ES = egg search; RS = refuge search; N = netting

¹⁷ The peak count from the surveys is provided for each method used. These may have been recorded during surveys on separate days (e.g. the peak count recording using torching methods at any one waterbody may have been recorded on a separate survey to the peak count recorded using bottle traps).

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