LAND EAST OF THE MEMORIAL HALL, BRUNDALL

GREAT CRESTED NEWT SURVEY REPORT

Prepared for Quantum Group

by

Hankinson Duckett Associates

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HDA Document Control and Quality Assurance Record

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INTRODUCTION

1.1 Site location and summary description

1.1.1 This report describes a Great Crested Newt survey of approximately 17ha of land east of the Memorial Hall, Brundall hereinafter referred to as 'the site'. The site centre is located by National Grid Reference TG 327 087. The study was commissioned by Quantum Group in May 2016.

1.1.2 The site is located on the northern edge of the settlement of Brundall, Norfolk. The site is dominated by two arable fields bordered by hedgerows. Other habitats present include an area of grassland and wet meadow associated with the Run Dike corridor along the northern site margin and a farmyard in the north eastern corner of the site. The site is bordered to the north by the Run Dike beyond which lies further wet meadow and a golf course; to the west by the Brundall Memorial Hall and residential development; and to the east and south by residential development with associated gardens. The location and boundary of the site are shown in Appendix A. Detailed descriptions of the habitats within the site are given in the Ecological Appraisal (HDA, 2016).

1.3 The site is proposed for the construction of residential development and a formal sports pitch within the two arable fields in the south of the site. Access will be via a new road leading off Brundall Road to the north-east. The remainder of the site will be used for informal recreation, surface water drainage and landscape enhancement. Development proposals are shown on the Framework Development Plan and Development Parameters Plans accompanying the application (Barton Wilmore, 2016).

1.2 Background and legislative context

1.2.1 Five species of amphibian are widespread in England; the Common Frog *Rana temporaria*, Common Toad *Bufo bufo*, Smooth Newt *Lissotriton vulgaris*, Palmate Newt *Lissotriton helveticus* and Great Crested Newt *Triturus cristatus*. A sixth species of amphibian, the Natterjack Toad *Bufo calamita*, also occurs in England but this species has special habitat requirements that limit its range to certain sand dune and heathland sites.

1.2.2 Amphibians require aquatic habitat within which to breed and suitable terrestrial habitat to forage and hibernate. Suitable breeding ponds are usually well vegetated with still, shallow water that is not heavily shaded or very exposed. Terrestrial habitat includes woodland, scrub, field edges and gardens. Hibernation can occur under stone or log piles, in crevices or leaf litter and under the soil. Occasionally amphibians may be found hibernating in their breeding pools.
1.2.3 Over the last few decades all amphibians have suffered a decline in numbers. This is due to a combination of many factors, which include habitat destruction and fragmentation, loss of breeding pools through unsympathetic management and neglect, introduction of fish (which eat amphibian larvae) and pollution.

1.2.4 The Great Crested Newt is protected under The Conservation of Habitats and Species Regulations 2010 (as amended), which implements the EC Habitats Directive 92/43/EEC in the United Kingdom. In relation to European Protected Species (EPS), the 2010 Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS.
- Deliberately disturb wild animals of any such species, in particular any disturbance which is likely to: (i) impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or to hibernate or migrate; (ii) affect significantly the local distribution or abundance of the species to which they belong.
- Damage or destroy a breeding site or resting place of such an animal.
- To (a) be in possession of, or to control; (b) to transport any live or dead animal or any part of an animal; (c) to sell or exchange or (d) offer for sale or exchange any live or dead animal or part of an animal of an EPS.

1.2.5 In addition, Great Crested Newts are protected under the Wildlife and Countryside Act 1981 (as amended). The Great Crested Newt is listed on Schedule 5 of the Act and is subject to the provisions of Sections 9.4b and 9.4c, which make it an offence to:

- Intentionally or recklessly disturb a Great Crested Newt while it is occupying a structure or place which it uses for shelter or protection.
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a Great Crested Newt.

1.2.6 The Great Crested Newt, Natterjack Toad and Common Toad are also listed as Priority Species for conservation action under the UK Biodiversity Action Plan (BAP) and are listed as Species of Principle Importance under Section 41 of the 2006 NERC Act. Section 40 of the NERC Act, planning policy and guidance require listed species to be a material consideration in the planning process.

1.3 Scope and purpose of the report

1.3.1 The extended Phase 1 habitat survey and desktop study conducted as part of the Ecological Appraisal (HDA, 2016) identified 2 waterbodies within the site and a further 2 waterbodies located within 300m of the site that provide potential amphibian breeding habitat. During the desk study conducted for the assessment, no records of Great Crested Newt were supplied for the desk study area.

1.3.2 Suitable terrestrial and aquatic habitat for Great Crested Newts occurs within the site, and within the legislative context set out in Section 1.2, a Great Crested Newt survey was
subsequently undertaken to confirm the presence / likely absence of this species at the site, and to identify the need for any licensing or mitigation in relation to Great Crested Newts arising as a result of the proposed development. The findings of the Great Crested Newt survey are presented in this report.

Specifically, the aims of the study are:

i. To establish the presence/ likely absence of Great Crested Newts breeding in suitable waterbodies within 300m of the site;

ii. To determine requirements for further surveys to provide an estimate of Great Crested Newt populations that could be using the site;

iii. To record other amphibian populations occurring in the vicinity of the site; and

iv. To predict likely impacts of the proposed development on Great Crested Newts and give recommendations for impact avoidance, minimisation and/or mitigation.

2 METHODOLOGY

2.1 The methodology has been devised to accord with the requirements of all relevant legislation, guidelines and good practice guidance, including the Wildlife and Countryside Act 1981, the Herpetofauna Worker’s Manual (Gent & Gibson, 1998), the Great Crested Newt Mitigation Guidelines (English Nature, 2001) and subsequent research (Cresswell and Whitworth, 2004). The survey was conducted by Adrian Meurer MCIEEM, Michael Berwick and Kelly Brown GradCIEEM of HDA, assisted by Kate Isger, between May and June 2016.

2.2 The locations of waterbodies on the site and within a 300m radius of the site boundary (hereinafter referred to as the “extended survey area”) were identified from a 1:10,000 scale Ordnance Survey map. Wherever possible, relevant local landowners were contacted in advance of the survey in order to gain access to waterbodies within the extended survey area.

2.3 Where access was permitted, waterbodies within the site and the extended survey area were surveyed on at least four separate visits in suitable climatic conditions. Dates of survey visits, weather conditions and personnel are shown in the table below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Weather conditions</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.05.2016</td>
<td>Clear, calm, dry, 12°C</td>
<td>Adrian Meurer, Michael Berwick</td>
</tr>
<tr>
<td>18.05.2016</td>
<td>Overcast, dry, 12°C</td>
<td>Kelly Brown, Kate Isger</td>
</tr>
<tr>
<td>25.05.2016</td>
<td>Overcast, light shower, 10°C</td>
<td>Michael Berwick, Kate Isger</td>
</tr>
<tr>
<td>08.06.2016</td>
<td>Clear, calm, dry, 11°C</td>
<td>Michael Berwick, Kate Isger</td>
</tr>
</tbody>
</table>

2.4 A combination of four survey methods were used:
i) Sweep-netting. A hand held net, fitted with 2mm amphibian mesh, was used around waterbody margins with a survey effort of 15 minutes per 50m of shoreline.
ii) Egg searching. Submerged and floating vegetation and leaf litter was inspected for newt eggs at each waterbody. In addition, egg strips made from bamboo canes and strips of black polythene were placed in selected waterbodies and checked during later survey visits for the presence of Great Crested Newt eggs.
iii) Torch surveys. These were carried out after dark using 1,000,000 candlepower torches. Each waterbody was circumnavigated and searched by torchlight for amphibians.
iv) Bottle trapping. Traps, assembled from bamboo canes and plastic bottles, were placed overnight around waterbody margins with a survey effort of one every 2m of shoreline and checked early the following morning for the presence of newts.

2.5 Where possible, all waterbodies that retained sufficient water for the duration of the survey were visited on four occasions during which at least three recognised methodologies were employed on each occasion in order to determine the presence/likely absence of Great Crested Newts in the waterbodies in accordance with Natural England guidelines. Where this was not possible (e.g. due to access restrictions), details are provided in Section 2.8 below.

2.6 Details of the pond characteristics (size, depth, turbidity etc) and bankside, marginal and aquatic vegetation were also recorded.

2.7 The size of amphibian populations within the waterbodies surveyed was assessed using the scoring system given in the Herpetofauna Workers Manual (Gent & Gibson, 1998).

2.8 Limitations

2.8.1 Following the first survey visit it was not possible to employ three survey methodologies at Waterbody 2 which comprises a ditch due to low water levels that made it unsuitable for bottle trapping and netting. To compensate for these restrictions, extra effort was put into the egg search and torch survey methodologies that were used during the final three surveys of this waterbody.

2.8.2 Access was not obtained for the survey of Waterbody 4, which is a pond in the garden of a residential property approximately 300m south-east of the site within a residential area of Brundall. Assuming that this pond still exists (it was not visible from adjacent publically accessible land) this is not considered a significant limitation to the survey as:

- The maximum routine migratory distance of Great Crested Newts from breeding ponds is 250m (Cresswell and Whitworth, 2004). Waterbody 4 is located 300m
from the site and is therefore well beyond the maximum routine migratory distance.

- In addition to its distance from the site, interlying properties and residential roads comprise a constraint to the dispersal of newts between the Waterbody 4 and the site.
- Garden ponds are less likely to support Great Crested Newts due to the frequent presence of fish which predate Great Crested Newt larvae.
- Great Crested Newts are generally associated with a metapopulation located across a number of waterbodies. Therefore if Great Crested Newts are present in the waterbody it would be expected that they would also occur in at least some of the other waterbodies surveyed.

2.8.3 Further details of any specific constraints inherent to each waterbody are discussed in Section 3. In summary, no significant limitations were encountered during the survey that would otherwise compromise a robust assessment of the likely presence, population size and distribution of Great Crested Newts at the site. The survey therefore provides a robust baseline on which to conduct an assessment of the impact of the proposed development on Great Crested Newts and to inform impact avoidance, mitigation and compensation measures where appropriate.

3 HABITAT DESCRIPTION

3.1 The waterbodies identified as having potential to support Great Crested Newts are described below. The locations of these waterbodies are given in Appendix A. Waterbodies 1 and 2 are both located within the boundary of the site. In addition, two further waterbodies are located within 300m of the site boundary (Waterbodies 3 and 4) which could provide potential Great Crested Nest breeding habitat were also assessed, where access was possible.

3.2 Waterbody 1
A recently dug u-shaped pond, approximately 250m², located in the north of the site, between Waterbody 2 and the Run Dike. The pond is located within an area of fen meadow adjacent to a small willow dominated copse. The pond was approximately 50cm deep at the time of survey and appears to hold water throughout the year. The base of the pond comprises bare silt and aquatic vegetation is absent. Marginal vegetation is restricted to rushes and tall ruderal species including Common Nettle and Greater Willowherb.

3.3 Waterbody 2
A 750m drainage ditch running east-west across the northern area of the site running parallel to the Run Dike which lies approximately 50m to the north. The steep sided
channel through which it runs is generally at least 1m deep, a water depth of 10cm at the time of the survey, with silt below. Sections of the ditch are heavily shaded by adjacent scrub and trees including Willow, Hawthorn, Elder, Alder and Bramble beyond which lies areas of fen meadow to the north and wet grassland to the south. The base of the ditch comprises silt and leaf litter. The aquatic and marginal species recorded include Water Starwort, Fool’s Watercress, Greater Willow-herb and Common Nettle. Stickleback fish are present.

3.4 Waterbody 3
Waterbody 3 comprises a pond located within an area of woodland with adjacent meadow approximately 30m east of the site. The pond is approximately 600m² and is fed by a diversion of water from the Run Dike creating a water depth of approximately 40cm. The base of the pond comprises deep silt and leaf litter and aquatic and marginal plants are largely absent due to heavy shading. The pond is used by waterfowl and fish are abundant, including sticklebacks and various coarse fish.

Survey methodologies on the ditch were restricted to egg searching and torch surveying after the first survey as the channel was too shallow to bottle trap or net effectively. This is not considered to present a significant limitation to the effectiveness of the overall survey as extra effort was put into the egg searching and torch survey techniques and the ditch is generally unsuitable for breeding Great Crested Newts. Similar ditches are located within the meadow grassland to the north of the site on the opposite side of the Run Dike but these were not subject to survey due to their unsuitability for Great Crested Newts.

3.5 Waterbody 4
A pond located in the garden of a residential property, approximately 300m to the south-east of the site. No access to this waterbody was obtained. This is not considered a significant constraint to the survey for the reasons outlined in Section 2.8.

4 RESULTS
4.1 The results of the Great Crested Newt survey are summarised in Table 2 below, with recorded amphibians and lifestage shown. The findings are summarised on the plan in Appendix A and the full survey results are given in Appendix B.
### Table 2: Summary of Great Crested Newt Survey Results

<table>
<thead>
<tr>
<th>Waterbody</th>
<th>Great Crested Newt</th>
<th>Smooth Newt</th>
<th>Palmate Newt</th>
<th>Common Frog</th>
<th>Common Toad</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>Adult</td>
<td>-</td>
<td>Larvae</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Larvae</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Adult, Larvae</td>
<td>-</td>
</tr>
</tbody>
</table>

4.2 No Great Crested Newts (adults, larvae or eggs) were recorded during the survey.

4.3 Waterbodies within the survey area were found to support populations of Common Frog and Smooth Newt, both of which are common and widespread in England. Based on the scoring system given in the Herpetofauna Worker’s Manual (Gent & Gibson, 1998):

- Low populations of Smooth Newt were recorded in Waterbody 1; and
- Low populations of Common Frog were recorded in Waterbodies 1, 2 and 3.

5 **RECOMMENDATIONS AND CONCLUSION**

5.1 The results of the Great Crested Newt survey indicate that the species is absent from all waterbodies within the site and the extended survey area. With due regard to the limitations set out in Section 2.8, development of the site is considered highly unlikely to have any adverse impact on Great Crested Newts and therefore no requirement for mitigation or licencing specific to Great Crested Newts has been identified.

5.2 Although the site is considered to be of limited interest for amphibians, supporting only low numbers of Common Frog and Smooth Newt, it is recommended that development proposals seek to maintain and, where possible, enhance opportunities for locally recorded amphibians. This could be achieved through the maintenance of breeding opportunities through retention or replacement of the existing waterbodies and the suitable design of attenuation features within the development surface water drainage strategy. Where suitable breeding habitat is retained or created within the scheme, this should be complimented by well-connected areas of retained or newly created terrestrial habitats in the form of rough grassland, scrub, fen meadow and woodland, together with the retention and/or creation of refugia and hibernacula, such as log or brick piles. Subject to the inclusion of these measures it is considered unlikely that development of the site would have any adverse effects on local amphibian populations and may in fact enhance opportunities currently provided by the site for this group.
6 REFERENCES


HDA Document Control and Quality Assurance Record

Project Title: Land east of Memorial Hall, Brundall
Project Reference: 800.1
Document Title: Great Crested Newt Survey
Commissioning Party: Quantum Group

<table>
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<th>Issue</th>
<th>Description</th>
<th>Date of Issue</th>
<th>Signed</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Great Crested Newt Survey</td>
<td>September 2016</td>
<td></td>
</tr>
</tbody>
</table>

Personnel
Author: Clare Parker MCIEEM
Approved for issue: Adrian Meurer MCIEEM

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APPENDIX A

Great Crested Newt Survey Results Plan
### Great Crested Newt Survey Data

<table>
<thead>
<tr>
<th>Waterbody</th>
<th>Date</th>
<th>Air temp (°C)</th>
<th>Egg search</th>
<th>Netting</th>
<th>Torch survey</th>
<th>Bottle trapping</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16.05.2016</td>
<td>12</td>
<td>None</td>
<td>None</td>
<td>Rt larvae</td>
<td>NC</td>
<td>Egg strips placed in waterbody.</td>
</tr>
<tr>
<td></td>
<td>18.05.2016</td>
<td>12</td>
<td>None</td>
<td>NC</td>
<td>1 Lv female, Rt larvae</td>
<td>1 Lv female</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25.05.2016</td>
<td>10</td>
<td>None</td>
<td>NC</td>
<td>Rt larvae</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>08.06.2016</td>
<td>11</td>
<td>None</td>
<td>NC</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>16.05.2016</td>
<td>12</td>
<td>None</td>
<td>Rt larvae</td>
<td>1 Rt adult, Rt larvae</td>
<td>NC</td>
<td>Egg strips placed in waterbody. Ditch too shallow too net or bottle trap for the last 3 surveys.</td>
</tr>
<tr>
<td></td>
<td>18.05.2016</td>
<td>12</td>
<td>None</td>
<td>NC</td>
<td>None</td>
<td>NC</td>
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<tr>
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<td>25.05.2016</td>
<td>10</td>
<td>None</td>
<td>NC</td>
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<td>11</td>
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<td>NC</td>
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<td></td>
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<tr>
<td>3</td>
<td>16.05.2016</td>
<td>12</td>
<td>None</td>
<td>1 Rt larvae</td>
<td>None</td>
<td>NC</td>
<td>Egg strips placed in waterbody.</td>
</tr>
<tr>
<td></td>
<td>18.05.2016</td>
<td>12</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<tr>
<td></td>
<td>25.05.2016</td>
<td>10</td>
<td>None</td>
<td>NC</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>08.06.2016</td>
<td>11</td>
<td>None</td>
<td>NC</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Waterbody not accessible for survey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Species: Smooth Newt *Lissotriton vulgaris* (Lv), Common Frog *Rana temporaria* (Rt)  
NC – Methodology not carried out.