

Great Crested Newt Survey Report

Rat's Castle
Linchmere Road
Haslemere
GU27 3QG

Date: May 2023

1. Summary

Site	Rats Castle, Linchmere Road, Haslemere, GU27 3QG
Central OS Grid Reference	SU 88011 32344
Report Commissioned by	Inside Out Architectural Consultants
Date of survey	19 th April 2023
Author	Zenobia Hatch BSc (Hons), Ecologist
Reviewed & Approved by	Graeme Down BSc (Hons) PhD MCIEEM, Principal Ecologist

Considerations	Description	Comments & Recommendations
Great Crested Newt (GCN) Survey Results	Habitat Suitability Index (HSI) Assessment	Three water-bodies within 250m of the site were subject to an HSI assessment. Water-body 1 is of good suitability to support GCN, water-body 2 is of average suitability and water-body 3 is of poor suitability. A presence / likely absence Environmental-eDNA survey was undertaken for water-body 1.
	Presence / Likely Absence Survey	The Environmental-eDNA returned a negative result for water-body 1. Therefore, no further surveys are required.
Avoidance	Stop works immediately and seek advice from a suitably experienced ecologist in the event that a great crested newt is discovered during works.	
Enhancements	Habitat creation	Plant a native hedgerow on-site and create a log pile along the eastern site boundary.
Conclusion	Avoidance measures will enable the proposed development to proceed without impacts to great crested newts. The proposal offers opportunities for biodiversity enhancements for amphibians within the site.	

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2 Introduction

2.1 Background

David Archer Associates was commissioned by Inside Out Architectural Consultants to undertake great crested newt *Triturus cristatus* surveys at Rats Castle, Linchmere Road, Haslemere, GU27 3QG, hereinafter referred to as the 'site'. The surveys comprised a Habitat Suitability Index (HSI) assessment and eDNA sampling of all accessible and applicable water-bodies located on-site and within 250m of the site, where suitable connectivity was present. Recommendations for avoidance and enhancement measures for great crested newts are included in this report where applicable. This report will support a planning application for an underground extension of the existing dwelling on-site.

2.2 Site Location and Description

The site is situated to the west of Haslemere at central Ordnance Survey Grid Reference SU 88011 32344. The ownership boundary comprises one residential dwelling, with associated hard standing and ornamental planting, grassland, trees and shrubs and one pond.

The site is within a sub-urban location, surrounded by residential dwellings and associated garden space to the west, Linchmere Road to the south, and woodland to the north and east, with the on-site waterbody forming part of a chain of closely connected ponds to the north. The wider area comprises residential dwellings, agricultural land, woodland and grassland, interspersed by hedgerows and lines of trees.

2.3 Development Proposals

The proposed development is for an underground extension on the eastern aspect of the existing dwelling and associated landscaping above the extension (Figure 2.1 and 2.2). Additional hedge planting is also proposed to the north of the existing dwelling (Figure 2.3).

2.4 Legislation and Policy

Great crested newts and their habitats are strictly protected under European and UK legislation (Conservation of Habitats and Species (Amendment) Regulations 2017 (CHSR), and the Wildlife and Countryside Act, (1981) (WCA). Refer to Appendix 1 for further information about the legislation that protect great crested newts.

2.5 Objectives

The objectives of the surveys and this assessment are to:

- Assess presence / likely absence of great crested newts within accessible and suitable water-bodies within 250m of the site;
- Assess any impacts that the development may have on any great crested newts;
- Determine the need for a Natural England European Protected Species Mitigation (EPSM) licence; and
- Inform any avoidance, mitigation and enhancement measures, if required.

Figure 2.1: Existing elevations
 (Inside Out Architectural Consultants, Drawing number A.04),

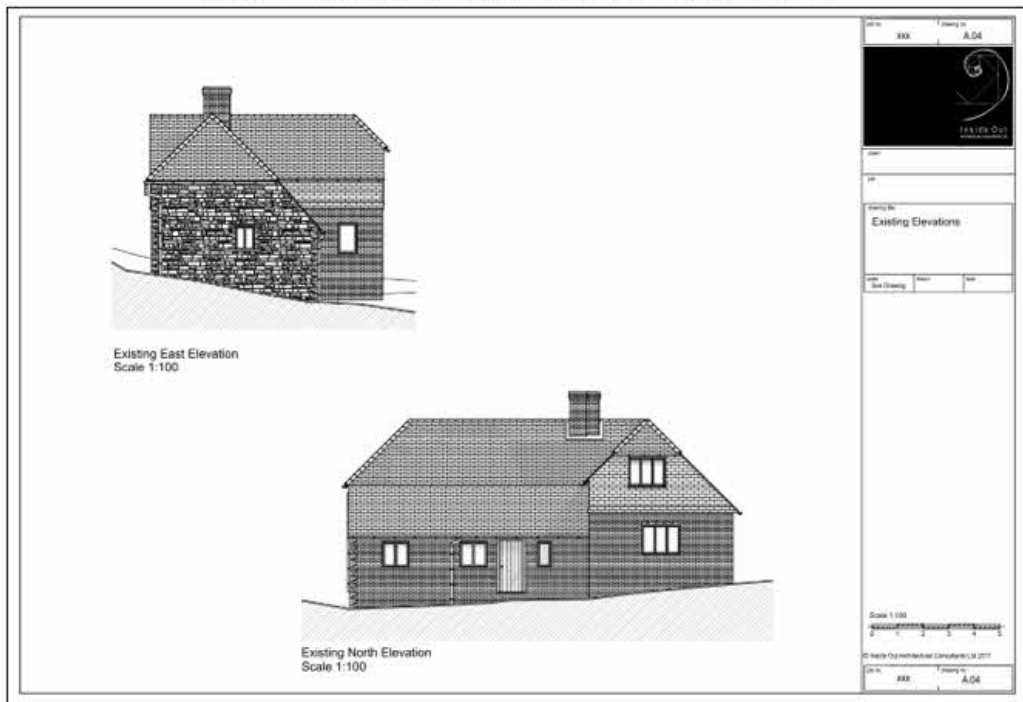


Figure 2.2: Proposed elevations
 (Inside Out Architectural Consultants, Drawing number A.09).

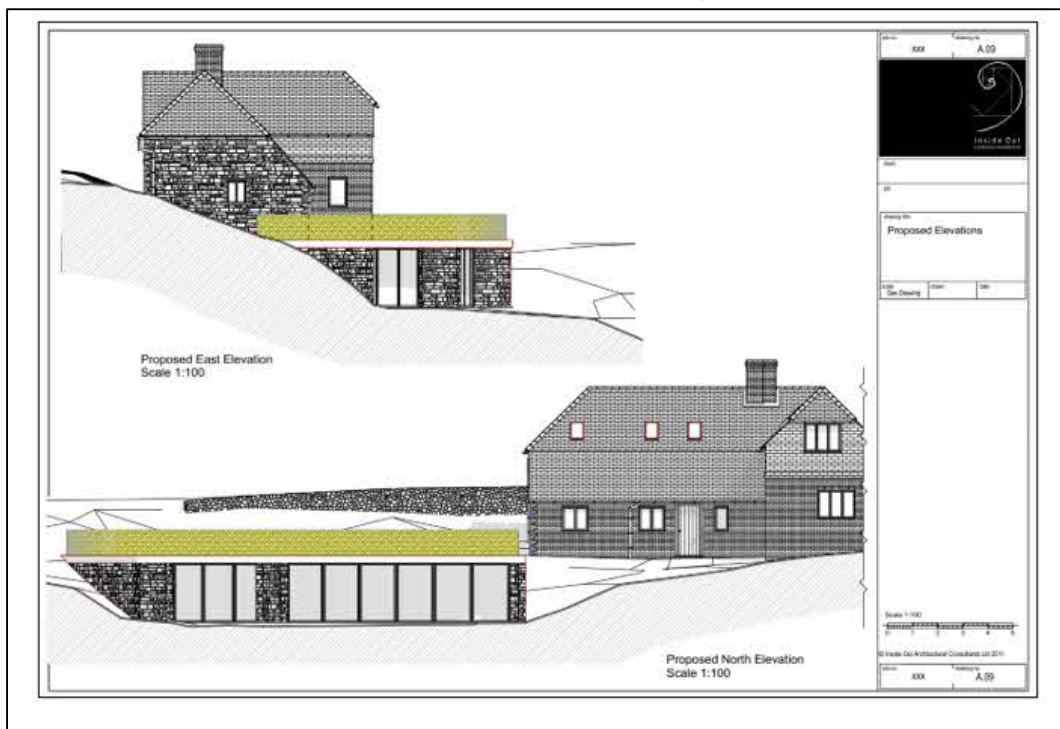
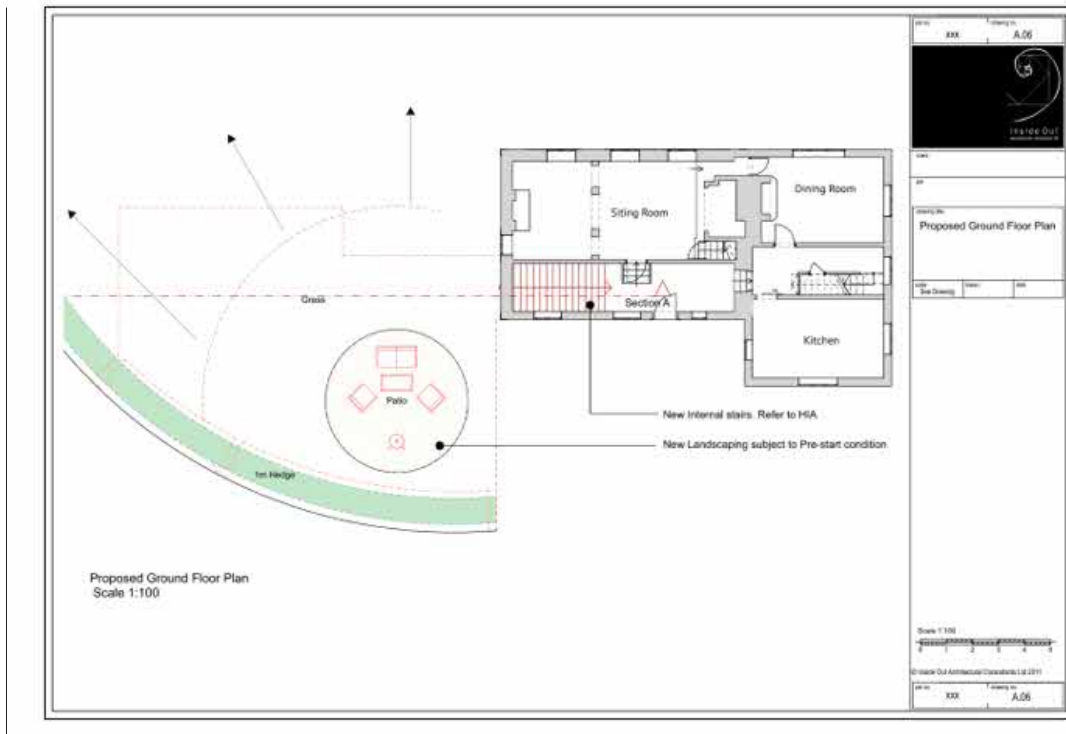


Figure 2.3: Proposed ground floor plan
(Inside Out Architectural Consultants, Drawing number A.06).



3 Survey Methodology

3.1 Summary of Survey Methods

Due to the presence of a water-body on-site a great crested newt survey of all accessible water-bodies on-site and within 250m of the site were therefore undertaken in line with current best practice guidelines.

3.2 Surveyor Information

The Habitat Suitability Index (HSI) assessment and Environmental-DNA (eDNA) surveys were undertaken by the following suitably experienced and licensed staff:

- Graeme Down BSc (Hons) PhD MCIEEM (WML-CL09- Level 2 great crested newt licence number: 2015-19299-CLS-CLS); and
- Zenobia Hatch BSc (Hons) (Level 1 great crested newt licence number: 2022-10685-CL08-GCN).

3.3 Data Search

3.3.1 Designated Sites

The Multi-Agency Geographical Information for the Countryside (MAGIC) website was accessed on the 26th April 2023 for information on the location of any statutory sites designated for great crested within 2km of the application site.

3.3.2 Great Crested Newt Records

MAGIC was accessed on the 26th April 2023 to identify any great crested newt European Protected Species Mitigation (EPSM) licences granted by Natural England within a 2km radius.

3.4 Habitat Surveys

Based on Natural England (2015) guidance, surveys of land greater than 250m from the nearest water-body are normally appropriate when all of the following conditions are met:

- a) Maps, aerial photos, walkover surveys or other data indicate that the water-body(ies) has/have potential to support a large great crested newt population;
- b) The development footprint contains particularly favourable habitat, especially if it constitutes the majority available locally;
- c) The development would have a substantial negative effect on that habitat; and
- d) There is an absence of dispersal barriers.

The proposed development does not meet criterion c above, and therefore consideration was given to water-bodies on and within 250m of the site using OS maps and aerial images.

3.4.1 Habitat Suitability Index (HSI) Assessment

An HSI assessment was applied to water-bodies on and within 250m of the site on 19th April 2023. The HSI provides a method for assessing the suitability of a water-body to support great crested newts and gives an index between zero and one.

Low scores indicate unsuitable habitat and one indicates optimal habitat (Oldham, et al., 2000). Ten suitability indices are used to calculate the score, each representing a factor considered to affect the probability of great crested newts breeding within a water-body. The final scores were then compared against a categorical scale of habitat suitability for breeding great crested newts, as per Table 3.1 (ARG UK, 2010).

Table 3.1: HSI indicating suitability of water-bodies for great crested newt.

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

The HSI index is only a guide to the likely presence or absence of great crested newts and should be interpreted in conjunction with background information on known populations in the area and knowledge of great crested newts' ecology. The water bodies surveyed are shown in Appendix 2.

3.4.2 Presence / Likely Absence Survey

Following the HSI, water-body 1, an accessible water-body with potential to support great crested newts, was surveyed for great crested newt presence / likely absence using environmental-DNA (eDNA) testing survey method, as outlined below.

Sterile survey kits were obtained from an approved laboratory; these were used to collect water samples from water-body 1 on 19th April 2023, following Natural England accepted guidance (Biggs et al, 2014) as follows:

- One kit was used.
- The sterile ladle was used to collect a 30mL water sample from locations around the pond margin (total c. 600mL). Surveyors did not enter the water whilst collecting samples.
- The samples were pooled into a single sample in a sterile bag and homogenised by gently shaking the bag to ensure the eDNA was evenly mixed.
- Six sub-samples of 15ml were then pipetted into sterile tubes containing 35mL of ethanol to preserve the eDNA sample.
- Samples were then couriered at ambient temperature to the ADAS laboratory for analysis.

3.5 Evaluation and Impact Assessment

The scale of impacts to great crested newt populations as a result of development is made with reference to Great Crested Newts: Surveys and Mitigation for Development Projects (Natural England, 2015) as per Table 3.2. Mitigation measures are needed even for low impacts.

Table 3.2: Scale of impacts on great crested newt populations.

Impact Type	Habitat Type				
	Breeding ponds	Other ponds used by GCN	Terrestrial habitat <50m from breeding pond	Terrestrial habitat 50m-250m from breeding pond	Terrestrial habitat >250m from breeding pond
Destruction	High	Medium	High	Medium	Low
Isolation caused by fragmentation	High	Medium	High	Medium	Low
Partial destruction / modification	Medium	Low	Medium	Low	Low
Temporary disturbance	Low	Low	Low	Low	Low
Post-development interference	High	Low	Medium	Low	Low
Temporary destruction and reinstatement	N/A	N/A	Low	Low	Low
Modified management, resurfacing etc.	N/A	N/A	Medium	Low	Low

3.6 Limitations and Assumptions

Access to take eDNA samples from pond 2 was not possible at the time of the survey. However, as the eDNA results from pond 1, much close to the proposed development have come back negative, and pond 3 is considered unsuitable in accordance with the HIS assessment, with no further ponds within 250m of the site, it is not considered to be a significant constraint.

It was not possible to access pond 4 to undertake a HSI assessment. It is not considered to be a significant constraint due to the close proximity between ponds 1 and 4, it is considered that if great crested newts are present within pond 4, they would also be within pond 1.

The survey results are therefore not significantly limited and considered to represent a valid assessment of great crested newts within the site.

On the assumption that the site conditions and habitats remain unchanged, the results of this assessment will remain valid for 12 months from the date of the survey i.e. until April 2024, after which the assessment should be updated, if a planning application has not been submitted within this timeframe.

4 Results and Evaluation

4.1 Desk Study

4.1.1 Designated Sites

No statutory sites designated for great crested newts are located within 2km of the site (MAGIC, 2023).

4.1.2 Great Crested Newt Records

No European Protected Species Mitigation (EPSM) licences for great crested newts have been granted by Natural England within 2km of the site (MAGIC, 2023).

4.2 Proposed Development Site

The water-body on-site (Photo 4.1) is not within the proposed development construction zone. It is understood that an area of terrestrial habitat to the south of the pond will be landscaped, and will be subject to temporary loss and disturbance during construction. The pond on-site is to be retained and protected during the construction period.

Photo 4.1: Water-body on-site.



4.3 Habitat Suitability Index Assessment

The HSI results for each accessible water-body are summarised in Table 4.1. Full HSI calculations are detailed in Appendix 3, and water-bodies locations are shown in Appendix 2.

Table 4.1: Summary of the HSI Assessments

Water-body No.	HSI Score	Suitability for great crested newts	Distance from site	Connectivity to site
1	0.75	Good	On-site	On-site
2	0.63	Average	c. 165m northeast	Connected via woodland and grassland
3	0.33	Poor	c. 210m east	Connected via woodland and grassland. Shottermill road in between is not

				considered to represent a barrier to commuting great crested newts
4	Not accessible		c. 10m north	Connected via woodland

4.4 Presence / Likely Absence

The full results of the eDNA presence / likely absence survey are included in Appendix 4. A negative eDNA result was returned for water-body 1 (on-site). As such, great crested newts are likely to be absent from this water-body and no further surveys were conducted.

4.5 Evaluation

Habitats to be impacted at the proposed development site are of moderate quality for foraging and commuting great crested newts (Photos 4.2 and 4.3), with opportunities for shelter and hibernation within the landscaped garden, but with limited undisturbed habitat for foraging and commuting.

No great crested newt populations are known to be on-site and within the surrounding area, in accordance with the results of the eDNA survey and desk-based survey utilising MAGIC 2023. Therefore, it is considered unlikely that great crested newts will be present on-site.

Photo 4.2: Terrestrial area on-site to be impacted by the proposed development.



Photo 4.3: Terrestrial area on-site to be impacted by the proposed development.



5 Impact Assessment

Potential impacts of the proposed development in the absence of mitigation during construction and operation are discussed below.

5.1 Designated Sites

No statutory sites designated for great crested newts are located within 2km of the application site and therefore no impacts are expected. No further mitigation is required.

5.2 Great Crested Newt Breeding Ponds

There are no known great crested newt breeding ponds on-site or within the surrounding area. Therefore, no impacts to great crested newt breeding habitats are expected. No further surveys or mitigation are required.

5.3 Other Ponds used by Great Crested Newts

There are no known great crested newt non-breeding ponds on-site or within the surrounding area. Therefore, no impacts to great crested newt breeding habitats are expected. No further surveys or mitigation are required.

6 Recommendations for Avoidance and Enhancement

6.1 Avoidance

No great crested newts are to be impacted by the development and therefore no further mitigation is required. In the unlikely event that a great crested newt is discovered, works should stop immediately and the advice of a suitably experienced ecologist should be sought.

6.2 Enhancements

The recommendations below are designed to enhance the value of the site for wildlife, as encouraged through the National Planning Policy Framework (2021), and to help achieve meaningful biodiversity net gain in the context of both national and local biodiversity priorities and targets:

- 1) Plant native species within the proposed hedgerow on-site. Locally sourced, native fruit and berry bearing species are recommended. Refer to Appendix 5 for further suitable species.
- 2) Create a log pile, by filling a hole (c. 2m by 1m in extent and up to 50cm deep) with rubble and wood from native hardwood species to provide reptile and amphibian refuge and hibernation opportunities. Locate this on the eastern site boundary, in an area that will be minimally disturbed on completion. Dead wood habitats provide important egg laying and larval habitat for invertebrates and refugia / foraging for small mammals and amphibians.

7 Conclusion

The development can proceed with minimal impact to great crested newts if the avoidance measures outlined within Section 6.1 are implemented. The measures outlined in Section 6.2 will also enhance the development for amphibians in the long-term.

8 References

ARG UK (2010), Great Crested Newt Habitat Suitability Index, ARG UK Advice Note 5, May 2010.

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Natural England (2015), Great crested newts: surveys and mitigation for development projects. Standing Advice. Available online at <https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects>.

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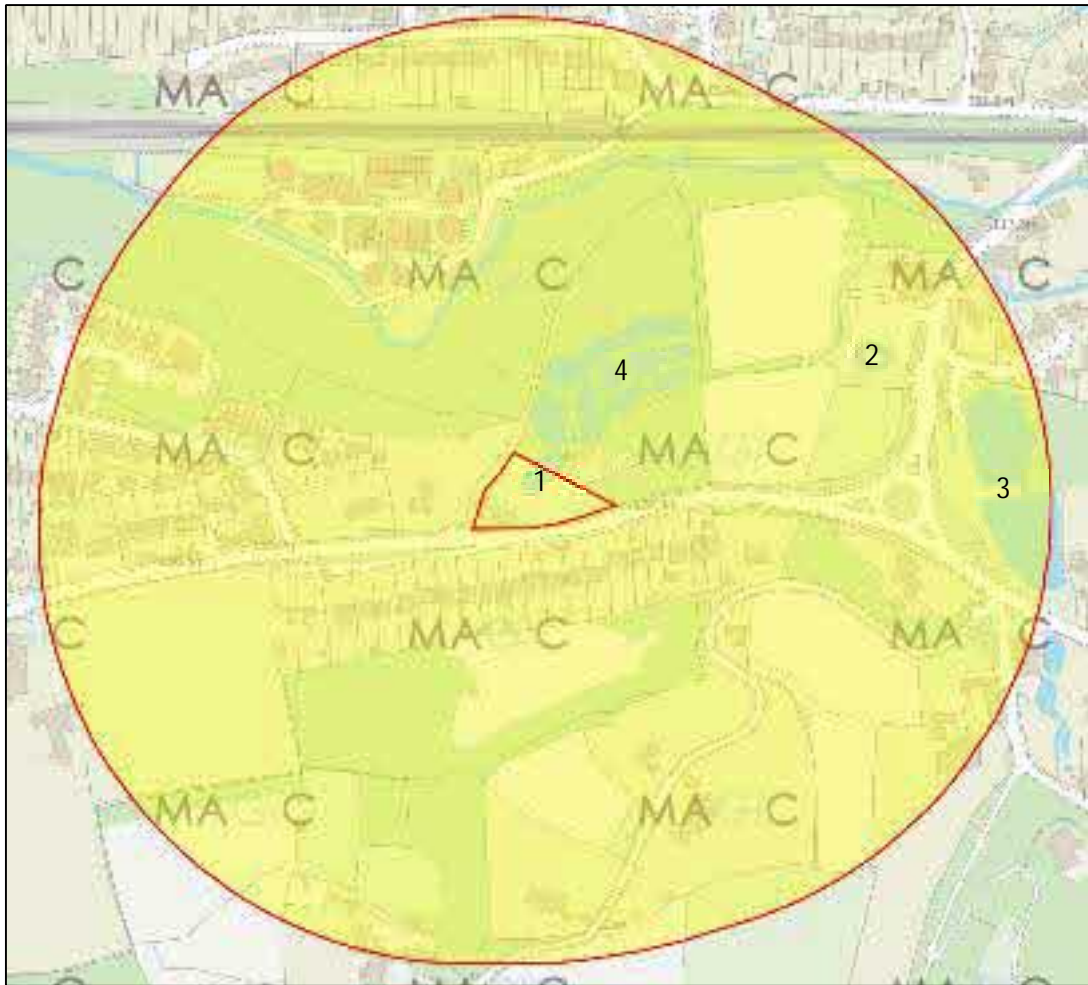
Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000). Evaluating the Suitability of Habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* Vol. 10 pp. 143-155

Appendix 1: Legislation

Species	Relevant Legislation	Level of Protection
Great Crested Newt	European protected species under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Full protection under Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended).	It is an offence to: <ul style="list-style-type: none">intentionally kill, injure, or take great crested newts intentionally or recklessly disturb great crested newts.intentionally or recklessly disturb great crested newts.intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection.

Appendix 2: Water-body Locations

Figure A2: Water-bodies within 250m of the site (red line).



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Appendix 3: Habitat Suitability Index Scores

Table A3: Waterbody Habitat Suitability Index Scores

Suitability Index	Pond 1	Pond 2	Pond 3
Field location	1	1	1
Pond area	0.25	0.1	0.9
Pond drying	0.9	0.5	0.9
Water quality	1	0.33	1
Shade	1	1	1
Fowl	1	1	0.01
Fish	1	1	0.01
Ponds	0.6	0.6	0.6
Terrestrial habitat	1	1	1
Macrophytes	0.4	1	0.35
HSI SCORE:	0.75	0.63	0.33
Pond Suitability:	Good	Average	Poor

Appendix 4: Environmental e-DNA results

Sample ID: ADAS-465 Condition on Receipt: Good Volume: Passed
Client Identifier: P1, Rats Castle Description: pond water samples in preservative
Date of Receipt: 21/04/2023 Material Tested: eDNA from pond water samples

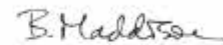
Determinant	Result	Method	Date of Analysis
Inhibition Control*	2 of 2	Real Time PCR	25/04/2023
Degradation Control*	Within Limits	Real Time PCR	25/04/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	25/04/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/ μ L)*	4 of 4	Real Time PCR	As above for GCN

Report Prepared by: Dr Helen Rees Report Issued by: Dr Ben Maddison

Signed:



Signed:



Position:

Director: Biotechnology

Position:

MD: Biotechnology

Date of preparation:

25/04/2023

Date of issue:

25/04/2023

Appendix 5: Wildlife Friendly Planting

Table A5.1: Native and wildlife-friendly shrubs (Natural England, 2008).

Common Name	Scientific Name
Hazel	<i>Corylus avellana</i>
Elder	<i>Sambucus nigra</i>
Goat willow	<i>Salix caprea</i>
Hawthorn	<i>Crataegus monogyna</i>
Dog rose	<i>Rosa canina</i>
Guelder rose	<i>Viburnum opulus</i>
Gorse	<i>Ulex europaeus</i>
Broom	<i>Cytisus scoparius</i>
Wayfaring tree	<i>Viburnum lantana</i>
Shrubby cinquefoil	<i>Potentilla fruticosa</i>
Raspberry	<i>Rubus idaeus</i>
Alder buckthorn	<i>Frangula alnus</i>
Wild privet	<i>Ligustrum vulgare</i>
Barberry	<i>Berberis × stenophylla</i>
Barberry	<i>Berberis vulgaris</i>
Bell heather	<i>Erica cinerea</i>
Bilberry	<i>Vaccinium myrtillus</i>
Black currant	<i>Ribes nigrum</i>
Blackthorn	<i>Prunus spinosa</i>
Buckthorn	<i>Rhamnus catharticus</i>
Butcher's-broom	<i>Ruscus aculeatus</i>
Cowberry	<i>Vaccinium vitis-idaea</i>
Cross-leaved heath	<i>Erica tetralix</i>
New Zealand holly	<i>Olearia macrodonta</i>
Daphne	<i>Daphne odora</i>
Dogwood	<i>Cornus sanguinea</i>
Field rose	<i>Rosa arvensis</i>
Firethorn	<i>Pyracanthus angustifolia</i>
Flowering Currant	<i>Ribes sanguineum</i>
Gooseberry	<i>Ribes uva-crispa</i>
Hebe 'Midsummer Beauty'	<i>Hebe</i> sp.
Himalayan honeysuckle	<i>Leycesteria formosa</i>
Holly	<i>Ilex aquifolium</i>
Japanese quince	<i>Chaenomeles japonica</i>
Lilac	<i>Syringa vulgaris</i>
Mexican orange	<i>Choisya ternata</i>
Mezereon	<i>Daphne mezereum</i>
Midland hawthorn	<i>Crataegus laevigata</i>
Oregon grape	<i>Mahonia aquifolium</i>
Osier	<i>Salix viminalis</i>
Portugal laurel	<i>Prunus lusitanica</i>
Privet	<i>Ligustrum ovalifolium</i>
Purple willow	<i>Salix purpurea</i>

Common Name	Scientific Name
Snowy mespilus	Amelanchier canadensis, Amelanchier lamarckii
Spindle	Euonymus europaeus
Spurge laurel	Daphne laureola
Sweet briar	Rosa rubiginosa
Wild privet	Ligustrum vulgare

Table A5.2: Native and wildlife-friendly trees (Natural England, 2008).

Common Name	Scientific Name
Pedunculate oak	Quercus robur
Ash	Fraxinus excelsior
Wych elm	Ulmus glabra
Whitebeam	Sorbus aria agg.
Rowan	Sorbus aucuparia
Aspen	Populus tremula
Apple	Malus domestica
Bird cherry	Prunus padus
Common alder	Alnus glutinosa
Crab apple	Malus sylvestris
Crack willow	Salix fragilis
Downy birch	Betula pubescens
Field maple	Acer campestre
Hornbeam	Carpinus betulus
Juniper	Juniperus communis
Large-leaved lime	Tilia platyphyllos
Small-leaved lime	Tilia cordata
Pear	Pyrus communis
Scots pine	Pinus sylvestris
Sessile oak	Quercus petraea
Silver birch	Betula pendula
Sweet chestnut	Castanea sativa
Wild cherry	Prunus avium
Wild service-tree	Sorbus torminalis
Yew	Taxus baccata

Table A5.3: Moth pollinator species (Butterfly Conservation, 2019).

Common Name	Scientific Name
Honeysuckle	Lonicera periclymenum
Jasmine	Jasminum officinale
Evening primrose	Oenothera biennis
Sweet rocket	Hesperis matronalis
Night-scented stock	Matthiola bicornis
Aubretia	Aubretia sp.
Cuckooflower	Cardamine pratensis
Forget-me-not	Myosotis sp.

Honesty	Lunaria annua
Pansy	Viola sp.
Primrose	Primula veris
Wallflower	Erysimum sp.
French marigold	Tagetes sp.
Ice plant	Sedum sp.
Knapweed	Centaurea sp.
Lavender	Lavendula sp.
Marjoram	Origanum vulgare
Michaelmas daisy	Aster amellus
Mint	Mentha sp.
Scabious	Scabiosa sp.
Thyme	Thymus sp.