

Our Ref: FBM-009-C

Date: 28th April 2025

Sent by email only

To whom it may concern,

**Land to the east of Cadeby and south of the existing Cadeby quarry works,
Leicestershire – Environmental DNA (eDNA) Surveys for Great Crested Newts (GCN)
Triturus cristatus.**

Introduction

This letter provides the results of further surveys on GCN, based on the recommendations within the Preliminary Ecological Appraisal (PEA) report by Heatons in 2025.

Background Information

Heatons were commissioned by FP McCann to undertake a Preliminary Ecological Appraisal (PEA) at the land to the east of Cadeby and south of the existing Cadeby quarry works, Leicestershire, hereafter referred to as 'the site' in 2025.

Relevant Legislation

All British amphibian species receive a degree of protection under the Wildlife & Countryside Act 1981 (as amended). The level of protection varies from protection from sale or trade only, as is the case with species such as common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris*, to full protection afforded to species such as GCN.

GCN is a European protected species and as such receives full protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence to:

- Deliberately capture, injure or kill a GCN;
- Deliberately disturb Great Crested Newts, including in particular any disturbance which is likely to:
 - Impair their ability to survive, reproduce or to rear or nurture their young;
 - Impair their ability to hibernate or migrate; or

- Significantly affect their local distribution or abundance.
- Deliberately take or destroy eggs of GCN;
- Damage or destroy a breeding site or resting place of GCN;
- Possess or control any live or dead specimen or anything derived from a GCN; and
- Sell, offer for sale, possess or transport a GCN (live or dead, part or derivative) for the purpose of sale or advertise for buying or selling.

Methodology

Desk Study

To accurately assess the potential ecological impacts of the scheme, a desk study has been undertaken to identify the presence of sensitive ecological receptors at the site and within the surrounding area. Data has been obtained from a range of information sources including:

- Multi-Agency Geographic Information for the Countryside (MAGIC); and
- Leicestershire and Rutland Environment Records Centre (LRERC).

LRERC and MAGIC has been used to locate ecological data and provide information on ecological receptors within and around the 2km site boundary.

Habitat Survey

The initial habitat survey was undertaken on the 27th November 2024, by Director of Ecology Rhia McBain BSc (Hons) and Senior Ecologist, Alicja Kordula MSc BSc (Hons).

Great Crested Newt eDNA Surveys

GCN eDNA surveys were undertaken by Heatons on 17th April 2025 and lead by Senior Ecologist Alicja Kordula MSc BSc (Hons), a suitably qualified ecologist, and assisted by Assistant Ecologist Joe Edinborough MSc BSc (Hons). GCN eDNA was undertaken on ponds 2, 5, 7, 8, 9, 17 and 18. D1 and D2 were also surveyed as they connected to the marshy grassland area, which was deemed suitable for GCN. D3 was not surveyed as it was deemed unsuitable for GCN and is not set to be directly impacted by the proposed works. See Figure 1 for exact locations.

The methodology used for surveying GCN eDNA is approved by Natural England following Defra funded research into the suitability of using this protocol to determine presence/likely absence of GCN. eDNA kits were supplied and analysed by SureScreen Scientifics.

The eDNA survey included taking 20 water samples from the pond spread out evenly around the pond edge. The samples were taken from both open water and vegetated areas, avoiding water less than 10cm deep. The water column was mixed gently avoiding stirring up sediment from the bottom.

All water samples were collected in a Whirl-Pak bag and shaken for 10 seconds to mix evenly. Using a clear plastic pipette, 15ml of water was taken from the Whirl-Pak bag and transferred into each of six conical tubes containing 35ml preserving fluid (i.e. filling the tube to the 50ml mark). The samples were then transported to the laboratory for analysis.

Accurate Lifespan of Ecological Data

The majority of the ecological data remains valid for only a short period due to the ever-changing surrounding environment. The survey results contained in this report are considered accurate for approximately two years, although considerable changes to the site may alter site conditions.

Results

Desk Study

LRERC returned 21 records for GCN within 2km of the site boundary. The closest record was located approximately 540m to the north of the site boundary.

MAGIC detailed two records for GCN Class Survey Licence Returned (CSLR) within 2km of the site boundary. The closest was located approximately 520m to the north of the site boundary. The CSLR was made up of six records, which returned positive presence for GCN, dated from 2017.

MAGIC returned one record for GCN pond surveys 2017-2019, which was located approximately 1.7km to the north-west of the site boundary. The record was dated from the 26th April 2019, the pond has a HSI score of 0.69 (average) with an inclusive GCN presence.

Habitat Survey

The habitat survey undertaken in November 2024 suggested 17 waterbodies were located within 500m of the site boundary, see Figure 1, overleaf. Pond 11 - 16 were discounted due to the presence of significant barriers (A447 – Ashby Road). Due to access restrictions Pond 3, 4, 8, 9 and 10 could not be assessed. Pond 6 did not exist at the time of the Habitat Survey (November 2024), due to existing quarry workings. The other ponds were subject to HSI assessment.

In summary, ponds 1, 2, 5 and 17 were assessed as good suitability and pond 7 was assessed as average suitability. The ditches within the site boundary were not considered suitable for GCN.

Suitable terrestrial habitat for GCN and other amphibians was present within the site boundary, however, limited to the perimeter of the site (i.e hedgerow bases, marshy grassland and scrub). Due to the grazing regime/management of the grassland, it is considered less likely that GCN will utilise this habitat due to the homogeneity of the sward.

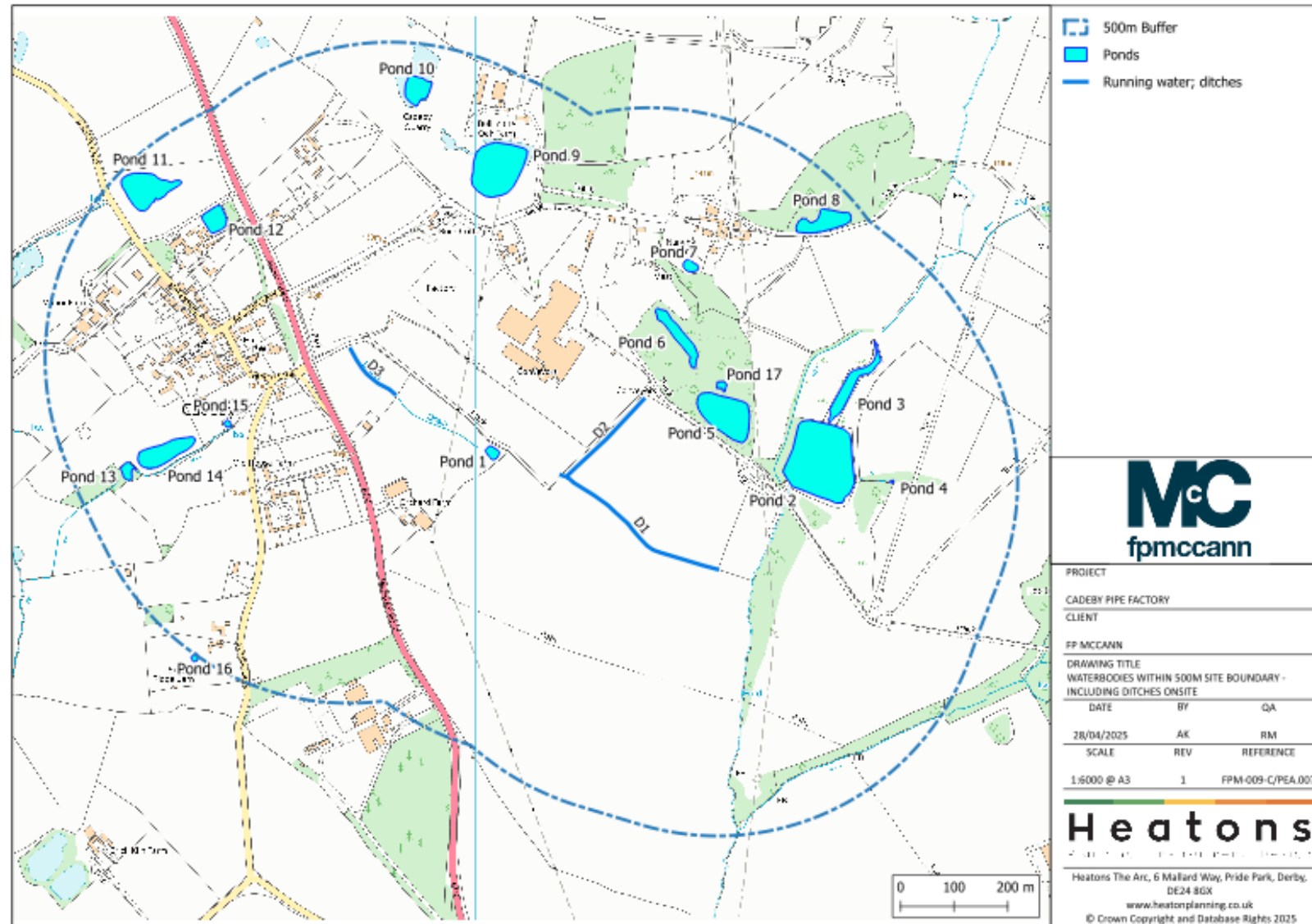


Figure 1: Waterbodies within 500m of the site boundary – including the ditches located within the site boundary.

eDNA Survey Results

GCN eDNA surveys were undertaken by Heatons in April 2025, see table below for results and appendix for full SureScreen eDNA Survey Report.

Table 1: Great Crested Newt eDNA Survey Results undertaken in April 2025.

Pond Number	eDNA Survey Results
Pond 2	Negative
Pond 5	Negative
Pond 7	Negative
Pond 8	Negative
Pond 9	Negative
Pond 17	Negative
Pond 18	Negative
Ditch (D1 and D2)	Negative

Conclusion and Recommendations

The desk study confirmed the presence of GCN within 2km of the site boundary.

During the 2025 survey effort, no GCN DNA was recorded in any of the surveyed waterbodies within 500m of the site boundary.

Based on the above, it is likely that GCN are absent from the site boundary and no further survey effort is required. It is considered that the proposed works will not cause a significant adverse impact to GCN.

To ensure that any opportunistic GCN found on site are protected from harm during the works, it is recommended that the Precautionary Working Method Statement (PWMS) detailed within the PEA is adhered to and a licence is sought after if any GCN are found.

Enhancements

As part of the post-development scheme, creation and enhancement of habitat is proposed which will increase future terrestrial habitat for GCN and increase habitat connectivity. A Biodiversity Enhancement Area (BEA) is set to be created in the north-western field of the site. This will include the creation of suitable terrestrial habitat for GCN (including other neutral grassland, marshy grassland and scrub). As well as this, a linear area of ponds, reedbed and other neutral grassland is set to be created along the southern boundary of the site.

To enhance the site for GCN it is recommended that artificial habitat features should be created, including:

- Log and brash piles – from managed hedgerows and/or scrub areas; and
- Artificial hibernacula should be created within areas of suitable habitat to provide refuge for amphibian and reptile species.

The above enhancements, depending on LPA comments, will be detailed within a Biodiversity Enhancement Management Plan (BEMP) or a Construction Ecological Management Plan (CEMP).

Kind regards,

Alicja Kordula

Senior Ecologist



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APPENDIX – SureScreen Scientifics GCN eDNA Technical Report

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GCN Report

Technical Report



SureScreen Scientifics

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GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN25 3347	Cadeby Pipe - P2		Pass	Pass	Negative	0/12
GCN25 3351	Cadeby Pipe - P5	SK 43498 02183	Pass	Pass	Negative	0/12
GCN25 3352	Cadeby Pipe - P8		Pass	Pass	Negative	0/12
GCN25 3353	Cadeby Pipe - P9		Pass	Pass	Negative	0/12
GCN25 3355	Cadeby Pipe - P18		Pass	Pass	Negative	0/12
GCN25 3356	Cadeby Pipe - P7		Pass	Pass	Negative	0/12
GCN25 3357	Cadeby Pipe - Ditch		Pass	Pass	Negative	0/12
GCN25 3358	Cadeby Pipe - P17		Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Lauryn Jewkes

Approved by: -

Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check:

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check:

Pass/Fail. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check:

Pass/Fail. The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result:

Presence of GCN eDNA (Positive/Negative/Inconclusive)

Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.

