BSG ecology

Coltsdene Solar Farm

Great Crested Newt Report

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Client	Renewable Energy Systems Limited
Project	Coltsdene Solar Farm
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	Name	**Position**	**Date**
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Contents

1 Introduction

1.1 BSG Ecology were commissioned by Renewable Energy Systems Ltd. (RES) in March 2025 to conduct Great Crested Newt *Triturus cristatus* (GCN) surveys at the proposed Coltsdene Solar Farm, in Kibblesworth, centred on Ordnance Survey (OS) Grid Reference NZ232566. The red line boundary provided by the client, hereafter referred to as 'the Site', is provided in Figure 1.

1.2 GCN surveys were undertaken to inform potential impacts arising from the proposed Coltsdene Solar Farm development. This report provides results only, a full Ecology ES Chapter will detail significance of effects and subsequent impacts and mitigation as required.

Site description

1.3 The Site covers an area of approximately 92.5 ha of predominantly arable land directly west of the village of Kibblesworth, Gateshead, approximately 1.3 km west of the A1 corridor.

1.4 Habitats within the Site consist predominantly of arable land with associated margins and boundary hedgerows. Pockets of modified grassland, scrub and woodland are also present. Notably, Coltspool Burn flows in an easterly direction through the north of the Site and Strandy Burn is located offsite to the north, both of which are tributaries of the River Team (a statutory main river).

1.5 Habitats adjacent to the Site are dominated by arable and pastoral land with the village of Kibblesworth to the east. Four local wildlife sites (LWS) are present onsite or directly adjacent. Other habitats in the locality include pockets of deciduous woodland, connected through hedgerow networks and riparian corridors, semi-improved grassland and open mosaic habitat on previously developed land to the east.

1.6 The Site is located within the Gateshead Greenbelt (Gateshead Local Policy CS19) and the northern extent is sited within the designated Wildlife Corridor (Gateshead Local Policy 37). The Bowes Railway Line LWS runs through the centre of the Site (Gateshead Local Plan 2010-2030). The Site is also located within the Impact Risk Zone (IRZ) for three Sites of Special Scientific Interest (SSSI) (MAGIC accessed December 2024).

Description of project

1.7 It is understood that current proposals comprise of a 49.9 MW solar array and associated infrastructure, including access tracks, boundary fencing, inverters and a substation. At the time of writing, detailed plans were not available.

Personnel

1.8 Harry Glass an experience licenced newt ecologist carried out the HSI and eDNA surveys. Harry has undertaken numerous surveys for amphibians including GCN. Harry is an ecologist with BSG and has worked in consultancy for over 4 years.

1.9 The report was prepared by Jennifer Peacock an Assistant Ecologist with BSG who has over 2 year's experience in Ecological Consultancy and who has authored a number of protected species reports including GCN.

1.10 The report has been reviewed by Claire Dewson. Claire is an experienced professional ecologist with over 20 years' experience. Her survey and project management experience extends from small scale schemes to large scale infrastructure projects with multiple ecological considerations. She has undertaken GCN surveys and prepared GCN reports and managed and/or contributed to numerous projects over the years.

2 Methods

Desk study

2.1 Information on the presence of designated sites[1] and records of protected and notable[2] species in the vicinity of the Site was provided by Environmental Records Information Centre (ERIC) North East on 07/11/2024. The search area extended 2 km from Site's red line boundary, extending to 10 km for International sites.

2.2 The desk study made use of publicly available online mapping and aerial photography resources to assess the landscape and ecological context of the Site, and to identify any designated sites of nature conservation interest including:

- The Multi-Agency Geographic Information for the Countryside (MAGIC) database (http://www.magic.gov.uk/). This was used to identify any nearby statutorily designated sites (including Sites of Special Scientific Interest (SSSIs)), any granted European Protected Species Mitigation Licence (EPSM) applications[3], Defra eDNA survey results of ponds 2017-2019, and great crested newt survey licence returns within 2 km of the Site.
- Base mapping and aerial images from the MAGIC website were used to identify waterbodies up to 500 m from the Site to help inform an assessment of the potential for great crested newt to be present on Site.

Survey Area

2.3 Research commissioned by Natural England (Cresswell and Whitworth 2004), shows that GCN densities are very low over 100 m from the breeding pond, in fact the majority of individuals are present within 50 m of a pond. The same research concluded that it is inefficient to include significant mitigation measures for ponds over 250 m away from a proposed development footprint, as the majority of GCN movements are within 250 m of a breeding ponds.

2.4 Consequently, a 250 m buffer of the Site was considered a sufficient survey area. Five ponds and a suitable ditch were present onsite and within 250 m. Four ponds located outside of the 250 m buffer to the east of the Site were also included in the survey effort due to their proximity to ponds within the 250 m buffer and potential to form a metapopulation. All ponds and the survey area are shown in Figure 1.

Habitat Suitability Index

2.5 A total of nine offsite ponds and one onsite ditch were assessed for their potential to support GCN. These were assessed and subject to the Habitat Suitability Assessment Index (HSI) scoring method (Oldham et al 2000) on 28th April 2025 during suitable weather conditions.

2.6 The HSI assessment considered a range of features that affect the suitability of waterbodies to support a breeding population of GCN, e.g., size of pond, extent of shading, abundance of aquatic plants, presence of fish and quality of surrounding habitat. The assessment produces a score that helps determine the suitability and the need for further, more detailed surveys.

2.7 HSI scores are classified according to the thresholds shown in Table 1.

1 Statutory Sites: European Sites (SAC/SPA/Ramsar Sites), SSSIs, NNRs and LNRs; Non-statutory Sites: Local Wildlife Sites / County Wildlife Sites (and equivalent designations) and Ancient Woodland sites.
2 Notable Species - Species of Principal Importance (SPI) in England and species with other conservation significance (e.g. red or amber listed birds or species listed in relevant red data lists).
3 This data was most recently updated 13 January 2022, but provides contextual information.

Table 1: *Categorisation of HSI Scores*

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

Environmental DNA (eDNA)Surveys

2.8 Water samples were taken on 8th and 9th May 2025 in suitable weather conditions and in accordance with Natural England's approved method by a GCN licenced ecologist (Biggs et al 2014). Twenty water samples were taken from each waterbody; the location of each sample was spaced as evenly as possible using the sterile kits provided by SureScreen Scientifics. The surveyor used sterile gloves to avoid contamination and samples were treated as per instructions provided by the supplier. The sample kit was stored at ambient temperature (in the refrigerator) and returned promptly to SureScreen Scientifics for analysis.

Limitations

2.9 Spring 2025 experienced very little rainfall; at the time of the HSI surveys the following ponds were found to be dry: 2, 3, 8 and ditch 1, eDNA surveys were scheduled for 11 days later, in the intervening time, ponds 4 and 7 had also dried up. Dry ponds were not subject to eDNA survey and this is not considered to be a significant limitation to the assessment because April-May marks the beginning of the GCN breeding season (Froglife 2001), any ponds not holding water at this time are not suitable for breeding (and are unlikely to become suitable later in the season).

2.10 No access was granted to pond 6. Consequently, HSI was undertaken from a distance. Despite the suitability of the pond, eDNA survey was not undertaken due to the access constraints. Pond 6 is separated from the Site by 225 m of arable and pastoral land, largely unsuitable for commuting GCN, however the Coltspool Burn river corridor may provide some opportunity for GCN to commute onto the Site (should they be present).

3 Results and Evaluation

Desk Study

3.1 ERIC NE returned 182 records of great crested newt *Triturus cristatus* (GCN) within 2 km of the Site. The closest record is approximately 630 m east of Site at Birtley Sewage Treatment works, dated April 2022.

3.2 MAGIC returned two granted EPS licences for GCN within 2 km of the Site. These are described in Table 2.

3.3 Four local wildlife Sites (LWS) are present onsite or directly adjacent (full details are provided in the Preliminary Ecological Appraisal (BSG 2024)). None of which are designated due to the presence of GCN.

Table 2: *Granted EPS (GCN) licenses within 2 km*

Species	Distance and direction (from nearest point)	Description
GCN	1250m east of Site	Destruction of a resting place at Tyne Yard, dated September 2017 – December 2028
GCN	1250m east of Site	Destruction of a resting place at Tyne Yard, dated September 2019 – December 2028

Habitat Survey

3.4 The majority of terrestrial habitats onsite are arable and considered unsuitable for amphibians, however the woodland, scrub and hedgerow network present provide suitable terrestrial habitat and connectivity throughout the Site. Various rubble piles throughout the Site also provide suitable opportunities for sheltering amphibians.

3.5 Reptile surveys were also undertaken throughout the 2025 season. Whilst toads *Bufo Bufo* were observed, no GCN were recorded throughout the duration of the reptile surveys.

HSI survey

3.6 All ponds holding water were subject to HSI assessment. Results are shown in Table 3 overleaf with pond locations and their suitability to support GCN presented in Figure 1.

eDNA survey

3.7 Ponds 1, 5 and 9 were subject to eDNA survey. All returned negative results, confirming that at the time of survey they did not support GCN. Full results are provided in Appendix 1.

Table 3: *HSI calculation*

Waterbody Number	1		2 (dry)		3 (dry)		4		5		6		7		8 (dry)		9	
Map location	A	1.00	A	1.00	A	1.00	A	1.00	A	1.00	A	1.00	A	1.00	A	1.00	A	1.00
Area (m^2)	1815.42	0.84	116.88	0.20	2000	0.81	1094.25	1.00	5147.72	0.80	241.24	0.45	100	0.10	660.7	1.00	40	0.05
Dessication rate	never	0.90	frequently	0.10	frequently	0.10	sometimes	0.50	rarely	1.00	never	0.90	frequently	0.10	frequently	0.10	never	0.90
Water quality	good	1.00	moderate	0.67	moderate	0.67	moderate	0.67	good	1.00	poor	0.33	moderate	0.67	moderate	0.67	bad	0.01
Shade (% of margin shaded 1m from bank)	60	1.00	60	1.00	100	0.20	75	0.70	65	0.90	40	1.00	80	0.60	35	1.00	20	1.00
Waterfowl	minor	0.67	absent	1.00	absent	1.00	absent	1.00	minor	0.67	minor	0.67	major	0.01	major	0.01	minor	0.67
Fish population	possible	0.67	absent	1.00	absent	1.00	absent	1.00	possible	0.67	possible	0.67	absent	1.00	absent	1.00	possible	0.67
Number of ponds within 1km	3	0.65	9	0.90	9	0.90	10	0.95	8	0.89	7	0.85	9	0.90	9	0.90	0	0.10
Terrestrial habitat	good	1.00	good	1.00	good	1.00	good	1.00	good	1.00	poor	0.33	good	1.00	good	1.00	moderate	0.67
Macrophyte cover (%)	39	0.70	70	1.00	80	1.00	55	0.86	44	0.75	75	1.00	50	0.81	50	0.81	20	0.51
HSI score =	**0.83**		**0.64**		**0.63**		**0.85**		**0.86**		**0.66**		**0.35**		**0.47**		**0.30**	
Pond Suitability	**Excellent**		**Average**		**Average**		**Excellent**		**Excellent**		**Average**		**Poor**		**Poor**		**Poor**	

4 Conclusions

4.1 No watercourses onsite are suitable to support GCN all are either flowing, or in the case of ditch 1, dry for the majority of the year. The Site is predominantly arable and less suitable for GCN, however small corridors of suitable terrestrial GCN habitat are present throughout the Site.

4.2 Offsite ponds 1-6 have suitability to support GCN. Ponds 7-9 were suboptimal. Of those (except for pond 6, where direct access was not confirmed), only ponds 1, 5 and 9 held water at the time of the eDNA survey, all returned negative results.

4.3 As demonstrated by Cresswell and Whitworth (2004), GCN densities are very low over 100 m from the breeding pond, and the majority of individuals are present within 50 m of a pond. No pond with an average or excellent suitability for GCN was located within 100 m of the Site.

4.4 It is concluded that GCN are likely absent from the Site, owing to the predominantly suboptimal arable habitat, negative eDNA results for offsite ponds holding water and the distance separating any suitable pond from the Site boundary.

4.5 Common toad are present onsite. Toads are listed on Section 41 of the NERC Act (see Appendix 2). A precautionary approach to safeguard toads (and other amphibian species) will be required throughout construction, this will be detailed in the Ecology ES Chapter.

5 References

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. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA*. Freshwater Habitats Trust, Oxford.

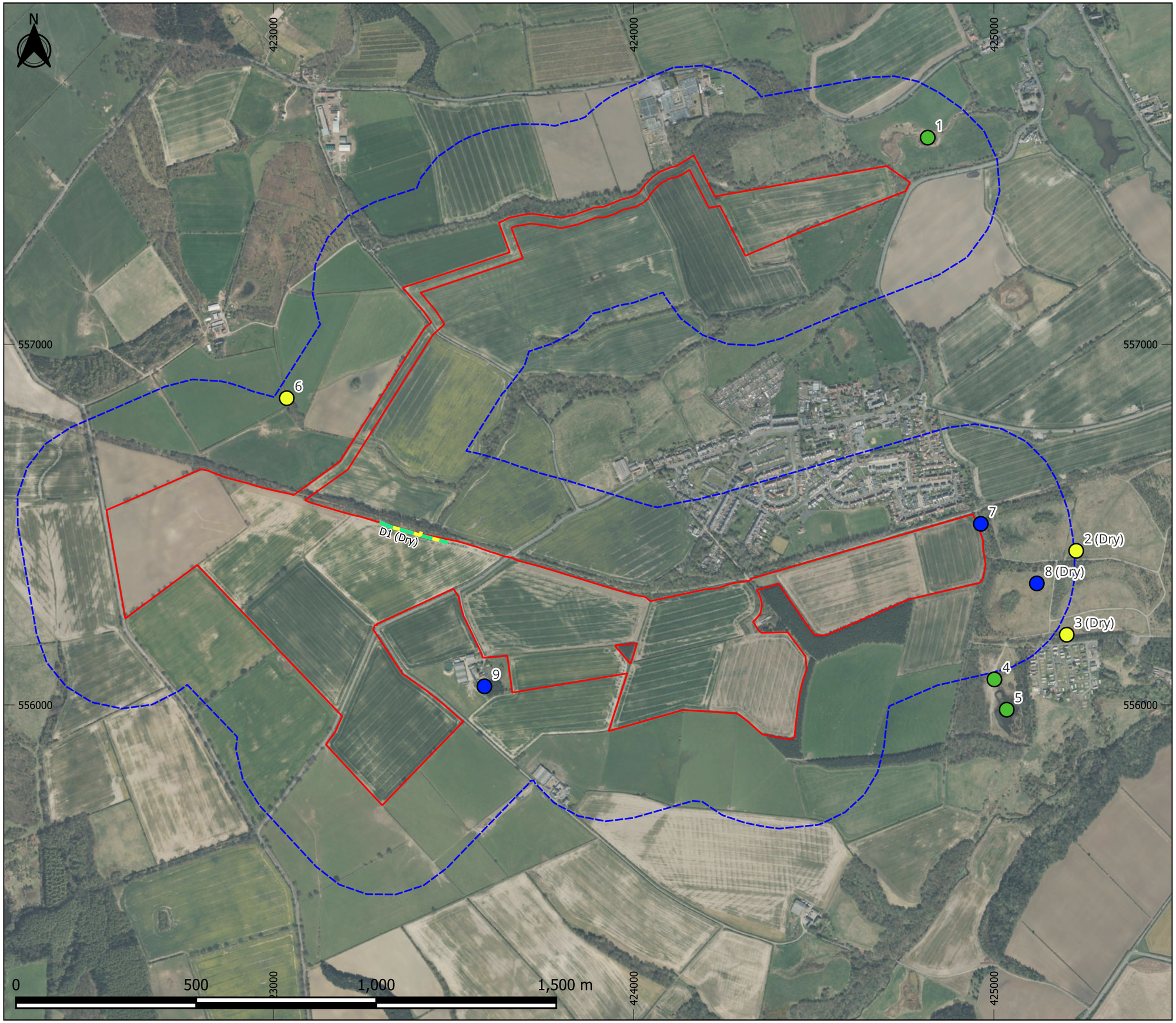
BSG Ecology (2024) *Coltsdene Solar, Preliminary Ecological Appraisal*. December 2024.

Cresswell and Whitworth (2004) *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt.* English Nature Research Report No. 576.

English Nature (2001): Great Crested Newt Mitigation Guidelines. English Nature.

Froglife, (2001): Great Crested Newt Conservation Handbook (T. Langton, C. Beckett & J. Foster). Published by Froglife, Surrey.

6 Figures



Legend

- Site boundary
- 250 m buffer
- Ditch (standing water)

Pond Suitability

- Excellent
- Average
- Poor

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PROJECT TITLE

KIBBLESWORTH / COLTSDENE SOLAR PROPOSAL

DRAWING TITLE

Figure 1: GCN HSI

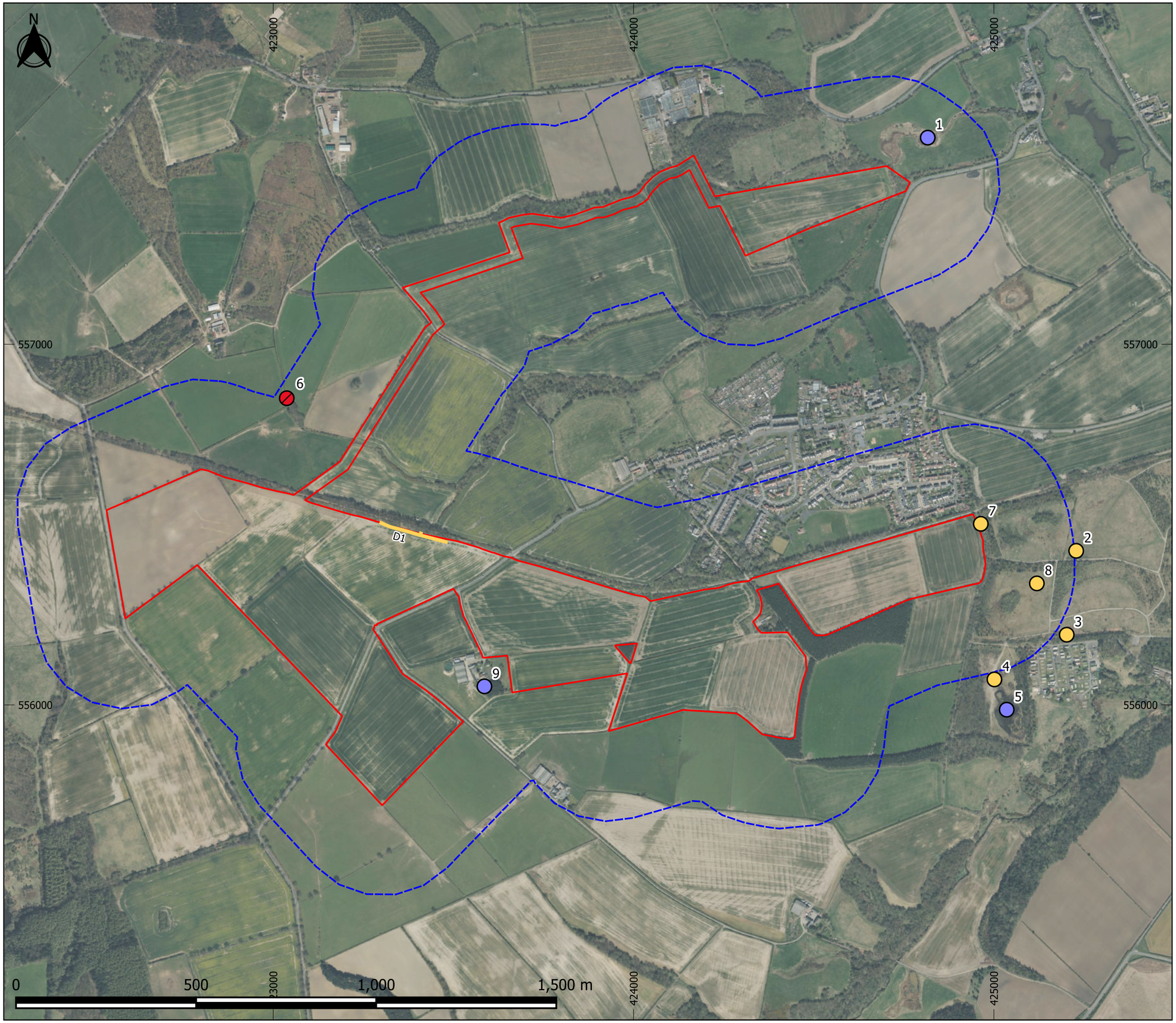
DATE: 10/06/2025 CHECKED: JP SCALE: 1:10,000

DRAWN: CS APPROVED: HS VERSION:1.3

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 10768



Legend

Site boundary

250 m buffer

eDNA

Dry - Ditch

Dry - Pond

eDNA negative - Pond

No Access - Pond

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PROJECT TITLE

KIBBLESWORTH / COLTSDENE SOLAR PROPOSAL

DRAWING TITLE

Figure 2: eDNA Survey Results

DATE: 22/05/2025 CHECKED: JP SCALE: 1:10,000

DRAWN: RSM APPROVED: HS VERSION:1.0

Projection: OSGB 1936/British National Grid - EPSG 27700

Sources: BSG Ecology survey data

Graphics Ref. No.: 10991

Appendix 1: eDNA Results

Folio No:	1466-2025
Purchase Order:	P24-742
Contact:	BSG Ecology Ltd
Issue Date:	16.05.2025
Received Date:	14.05.2025

SureScreen Scientifics

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
R25 0251	Kibblesworth - P5	NZ 25031 55980	Pass	Pass	Negative	0/12
R25 0255	Kibblesworth - P1	NZ 24816 57573	Pass	Pass	Negative	0/12
GCN25 2992	Kibblesworth - Farm	NZ 24816 57573	Pass	Pass	Negative	0/12

Matters affecting result: none

Appendix 2: Summaries of Relevant Policy, Legislation and Other Instruments

6.1 This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England)

6.2 The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.

6.3 The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the 'Biodiversity Duty.'

6.4 Guidance for public authorities on implementing the Biodiversity Duty[4] has been published by Defra. One of the key messages in this document is that 'conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.' In England the administration of the planning system and licensing schemes are highlighted as having a 'profound influence on biodiversity conservation.' Local authorities are required to take measures to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that 'the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.'

6.5 In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework[5], which covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained 1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.

6.6 In England, there are 56 Habitats of Principal Importance and 943 Species of Principal Importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

European protected species (Animals)

6.7 The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

6.8 "European protected species" (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

[4] Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf)

[5] JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (http://jncc.defra.gov.uk/page-6189)

a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species

b. Possess or control any live or dead specimens or any part of, or anything derived from a these species

c. deliberately or recklessly disturb wild animals of any such species

d. deliberately take or destroy the eggs of such an animal, or

e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

6.9 For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

a. to impair their ability—

i. to survive, to breed or reproduce, or to rear or nurture their young, or

ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or

b. to affect significantly the local distribution or abundance of the species to which they belong.

6.10 Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:

a. The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'

b. 'There is no satisfactory alternative'

c. The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Definition of breeding sites and resting places

6.11 Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.[6] Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that 'The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.' Further the guidance states: 'It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.'

[6] Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.

Competent authorities

6.12 Under Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended) a "competent authority" includes "any Minister of the Crown…, government department, statutory undertaker, public body of any description or person holding a public office.

6.13 In accordance with Regulation 9, "a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the [Habitats and Birds] Directives. This means for instance that when considering development proposals a competent authority should consider whether EPS or European Protected Sites are to be affected by those works and, if so, must show that they have given consideration as to whether derogation requirements can be met.