

Rush Wall Solar Park

Environmental Statement

Appendix 5.5

Great Crested Newt surveys

Rush Wall Solar Park Great Crested Newt Surveys May 2019

Report no: GCN-526.2

A report by

Colin Hicks BSc (Hons) MCIEEM, Principal Ecologist



Report details

Site name: Rush Wall Solar Park
Site address: Redwick, Newport
Grid reference: ST 416 853
Surveyor: Paul Gregory MCIEEM (Great Crested Newt licence number:
71183:OTH:SA:2016)
Survey date: 9th May 2019
Report date: 24th August 2021
Report author: Colin Hicks BSc (Hons), MCIEEM

Declaration of compliance

BS 42020:2013

This study has been undertaken in accordance with British Standard 42020:2013 Biodiversity, Code of Practice for Planning and Development.

Code of Professional Conduct

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of survey data and report

The findings of this report are valid for 12 months from the date of survey. If work has not commenced within this period, an updated survey by a suitably qualified ecologist will be required.

Revisions

Date	Report no:	Comment
11/06/2020	GCN-526.1	First draft
24/08/2021	GCN-526.2	Updated following consultee comments

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1. Introduction

Western Ecology has been commissioned to complete a Great Crested Newt Environmental DNA surveys of land for the proposed Rush Wall Solar Park near Redwick.

1.1. Survey aims

The survey aim is to determine presence of Great Crested Newt within 500metres of the proposed development. This will allow an assessment of likely impact, and where appropriate, recommendations will be made for impact avoidance, mitigation and post-development enhancement to ensure compliance with wildlife legislation and relevant planning policy.

2. Survey Methodology

2.1. Biological records search

The desktop survey from South East Wales Biodiversity Records Centre collated existing biological records for Great Crested Newt within 2km. The data search also included a search within 4km for statutory and non-statutory nature conservation sites selected for Great Crested Newt.

2.2. Habitat suitability Index (HSI)

On the 3rd and 4th April 2019, all accessible waterbodies within 500 metres of the site were evaluated for their potential to support Great Crested Newt by calculating a habitat suitability index (HSI) as per ARG UK Advice Note 5.

2.3. eDNA surveys

Water samples for eDNA analysis to determine presence of Great Crested Newt were collected from 7 waterbodies within the survey area on 9th May 2019 (Map 1). The survey visits were carried out within the optimum period of mid April to late June.

The eDNA sampling kits were supplied by SureScreen Scientifics and the survey methodology followed the Natural England protocol (Biggs et al, 2014).

For each water body, 20 samples of 30ml each were collected from the edge of the waterbody by a suitably licenced and qualified ecologist. These samples were then mixed after which 15ml was withdrawn and added to each of six tubes containing a preservative. Six tubes from each waterbody were sent for analysis by SureScreen Scientifics.

3. Results

3.1. Biological records search

The biological records search returned 2 records for Great Crested Newt. The records are from Country Council for Wales in 1993 and relate to a site at Whitson some 2.8km to the west.

There are no statutory or non-statutory nature conservation site selected for Great Crested Newt within 4km.

3.2. Habitat Suitability Index (HSI)

HSI was calculated for 1 shallow pond, 5 reens and 43 ditches (Table 1 and Map 1) during site visits on 3rd and 10th April 2019.

The majority of ditches lacked aquatic vegetation likely to support GCN, were shallow and obstructed with leaf-litter. In addition, most ditches were heavily shaded by scrubby hedgeline along both banks.

On the basis of HSI, a single ditch (Ditch A) beyond the northern site boundary was scoped-in for GCN eDNA sampling along with three ditches in the east of the site (Ditch 27/28, 33/35 and 50) a small pond along Ditch 30, Rush Wall North/South Reen and Cockenton Reen.

Table 1.

Type	Number	HSI
Ditch	A	0.71
Ditch	1	0.47
Ditch	2	0.47
Ditch	3	0.47
Ditch	4	0.39
Ditch	5	0.47
Ditch	6	0.47
Ditch	7	0.47
Ditch	8	0.47
Ditch	9	0.47
Ditch	10	0.47
Reen - Ynys Mead	11	0.39
Ditch	12	0.47
Ditch	13	0.47
Ditch	14	0.47
Ditch	15	0.47
Ditch	16	0.47
Ditch	17	0.39
Ditch	18	0.39
Ditch	19	0.49
Ditch	20	0.47
Ditch	21	0.39
Ditch	22	0.46
Ditch	23	0.47
Ditch	24	0.47
Ditch	25	0.47
Ditch	26	0.47
Ditch	27	0.71
Ditch	28	0.71
Ditch	29	0.47

Ditch	30	0.66
Ditch	31	0.47
Ditch	32	0.47
Ditch	33	0.71
Ditch	34	0.47
Ditch	35	0.66
Ditch	36	0.47
Ditch	37	0.47
Ditch	38	0.46
Ditch	39	0.47
Ditch	40	0.47
Ditch	41	0.47
Ditch	42	0.47
Ditch	43	0.46
Ditch	44	0.47
Ditch	45	0.47
Reen - Rush Wall	46	0.69
Reen - Blackwall West	47	0.69
Reen - Cockenton	48	0.69
Reen - Longlands	49	0.46
Ditch	50	0.69

Ditch A - HSI = 0.69 (average)

Section of ditch close to the A410 and 180 metres to the north of the site with good water quality, emergent vegetation and minimal shading. Likely presence of fish and waterfowl.



Ditch A (10/04/2019)

Ditch 27/28 HSI = 0.71 (excellent)

Section of adjoining ditches/reen in the east of the site with emergent vegetation and good water quality. Likely presence of fish and waterfowl.



Ditch 27 (10/04/2019)

Ditch 50 and Blackawall West Reen HSI = 0.69 (average)

Section of adjoining ditches/reen in the east of the site with emergent vegetation and good water quality. Likely presence of fish and waterfowl.



Ditch 50 (10/04/2019)

Ditch 33/35 HSI = 0.66 to 0.71 (average to excellent)

Section of adjoining ditches in the east of the site with emergent vegetation and good/moderate water quality. Some shading and likely presence of fish and waterfowl.



Ditch 35 (03/04/2019)

Rush Wall reen - HSI = 0.69 (average)

Managed reen at the northern site boundary with aquatic plants, limited emergent vegetation and good water quality. Likely presence of fish and waterfowl.



Rush Wall reen (10/04/2019)

Cockenton reen HSI = 0.69 (average)

Managed reen at the southern site boundary with abundant duck weed, limited emergent vegetation and moderate water quality. Likely presence of fish and waterfowl and some shading.



Cockenton reen (10/04/2019)

Pond on ditch 30 HSI = 66 (average)

Small pond in the east of the site with some willow *Salix* sp. along its edge and Common Reed *Phragmites australis* at its margins. Evidence of poaching by cattle.



Pond on ditch 30 (03/04/2019)

The HSI provides an indication of the likelihood of a pond supporting Great Crested Newt:

- Only 3% of ponds with 'poor' HSI scores are likely to be occupied by Great Crested Newt.
- Twenty percent of ponds with 'below average' scores are likely to be occupied by Great Crested Newt.
- More than half of ponds (55%) with 'average' scores are likely to be occupied by Great Crested Newt.
- Seventy-nine percent of ponds with 'good' scores are likely to be occupied by Great Crested Newt.

3.3. eDNA surveys

eDNA surveys were completed on the 7 water bodies within the survey area on 9th May 2019. DNA extraction was started on 15th May 2019 and reported on 22nd May 2019 (Appendix 1).

Detail of the results are given in Table 2 and the technical report from SureScreen Scientifics is included as Appendix 2.

Table 2. Results of analysis for Great Crested Newt DNA

Reference	Result	Positive replicates
Ditch A	Negative	0
Ditch 27/28	Negative	0
Ditch 50/Blackawall West Reen	Positive	1
Ditch 33/35	Negative	0
Rush Wall reen	Negative	0
Cockenton reen	Negative	0
Pond on ditch 30	Negative	0

In the above table, **negative** means that GCN DNA was not detected, or is below the threshold detection level. Such a test results should be considered as no evidence of GCN presence.

Positive means that GCN DNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed.

3.4. Survey constraints

The surveys were completed on 9th May 2019 in the period within which Natural Resources Wales will accept DNA evidence to support a European Protected Species licence application.

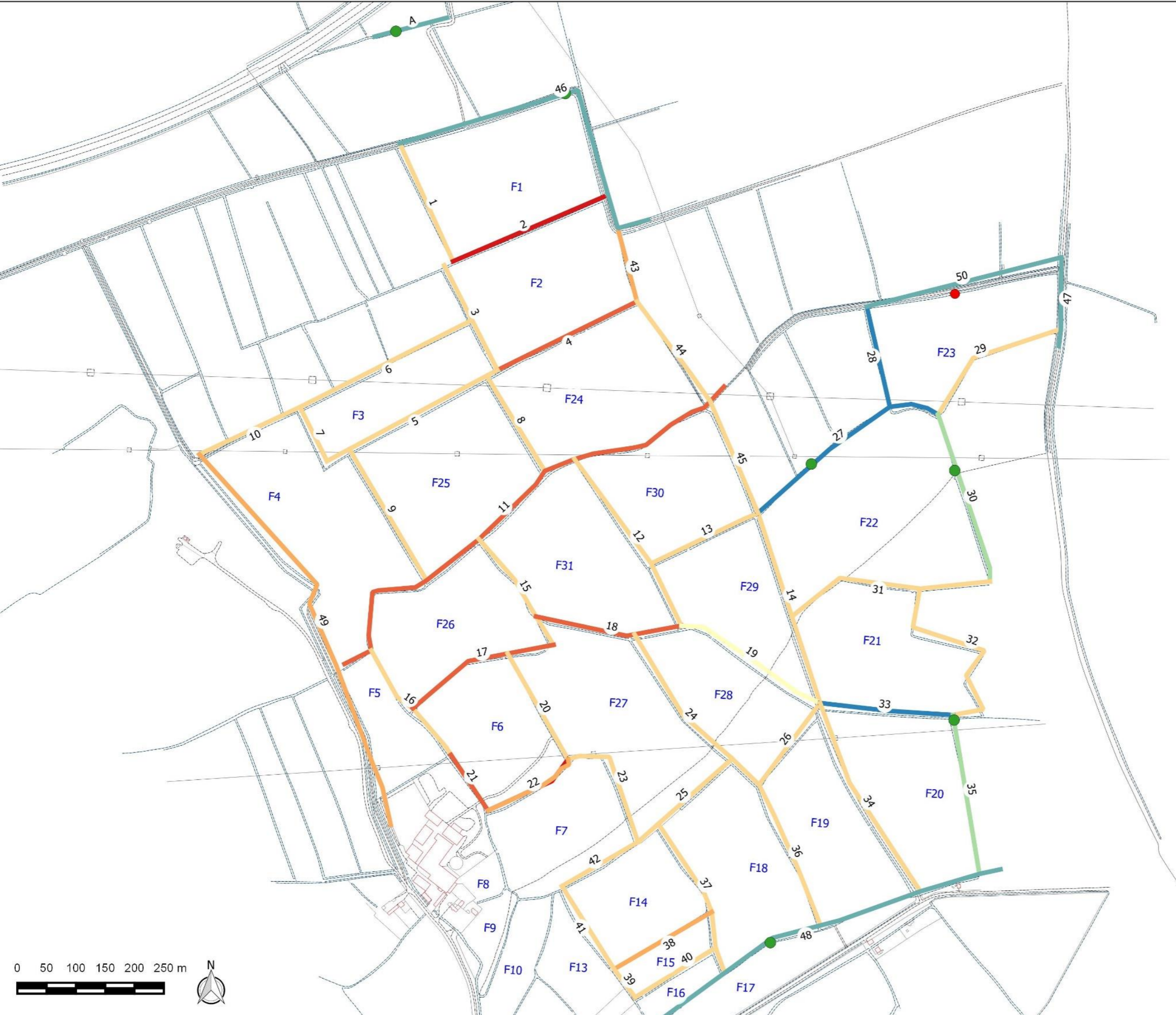
All areas were accessible and full assessment was made. There are no significant constraints to the survey results at this site.

Legend

- Sample collection area:
Negative for GCN eDNA
- Sample collection area:
Positive for GCN eDNA

Ditch habitat suitability index

- 0.39
- 0.46
- 0.47
- 0.49
- 0.66
- 0.69
- 0.71



Title: Map 1. Great Crested Newts HSI and eDNA results

Project: Rush Wall Solar Park

Checked by: CDH Version: 01
Date: 11/06/2020



4. Legislation

Great Crested Newt and their breeding sites and resting places (during all parts of their lifecycle), are fully protected under the Wildlife and Countryside Act 1981 (as amended), and The Conservation of Habitats and Species Regulations 2010. They are identified as European Protected Species. Under these laws it is an offence to:

- capture, kill, disturb or injure Great Crested Newts (on purpose or by not taking enough care);
- damage or destroy a breeding or resting place (even accidentally);
- obstruct access to their resting or sheltering places (on purpose or by not taking enough care);
- possess, sell, control or transport live or dead newts, or parts of them; or
- take Great Crested Newt eggs.

Great Crested Newt are listed under Section 7 of the Environment (Wales) Act 2016.

Any development activities which could result in the accidental killing, injury or disturbance of GCN may constitute an offence under the Habitats Regulations. GCN breed in ponds and other waterbodies but they occupy terrestrial habitats such as grassland, scrub, woodland and hedgerows for much of the year, and they may be found at distances of 250m or more from their breeding ponds. GCN may shelter and hibernate in natural or artificial habitats including tree roots, mammal holes, earth banks, rubble and wood piles and ground fissures. They may also be found sheltering under surface debris, plastic sheeting etc. This means there is the potential for a wide range of development activities to result in an offence under the Regulations.

Natural Resources Wales (NRW) may issue a licence to permit activities that would otherwise give rise to an offence under the Regulations. A European Protected Species Licence (EPSL) can be issued for a number of purposes, including “imperative reasons of overriding public interest” (known as IROPI), which covers development activities affecting GCN. Licences can only be issued where there is (a) no satisfactory alternative and (b) the action authorised will not adversely affect the favourable conservation status of the species.

However, in low-risk situations NRW encourages developers and their consultants to consider whether non-licensed avoidance measures can be implemented to reduce or avoid the risk of harming newts. Such measures can help to avoid the need for highly precautionary licence applications in situations where there is a very low risk of harming newts, or in some cases can mean that only part of a site needs to be subject to a licence.

5. Conservation strategy

5.1. Assessment of potential impacts

GCN eDNA was found within ditch 50 along the northern boundary of field F23. Other watercourses to the immediate west and south of the adjacent field F22 provided negative results, indicating that GCN are not present elsewhere with the eastern part of the development site. This GCN eDNA is likely to be the result of a population centred to the east of the development site, or a single migrating animal.

The proposed development will not lead to the loss of suitable breeding ponds or watercourses.

Activities that could adversely impact GCN during the construction phase, relate to the installation of the solar PV array, fencing, access tracks and electrical cabinets/cable routes within 500 metres of ditch 50. These could result in harm/injury and disturbance and mitigation is required.

During the operational phase, there will be permanent loss of habitat associated with access tracks and panel mounting systems. Habitat within 250 metres and within the development footprint is of Poor quality for GCN when considered as a whole: *Habitat with poor structure (e.g. amenity grassland, improved pasture and arable) that offers limited opportunities (less than 25% of available area) for foraging and shelter*¹.

Within 250 metres, the permissioned development will result in a small loss of improved grassland and arable to site infrastructure such as an access track (340m²) and panel mounting structures (unknown) from a total 46,000m² solar farm habitat within this zone.

Beyond 250 metres and within 500 metres the permissioned development will result in a loss of improved grassland and arable to site infrastructure such as an access track (6560m²) and panel mounting structures (unknown) from a total 187,000m² solar farm habitat within this zone.

However, once operational, habitats within the solar farm will improve significantly for GCN with land taken out of intensive agricultural management and instead managed by light grazing under solar panels, and by a late summer hay cut within the buffer zone between the security fence and field boundaries. This will allow a more diverse sward to develop which in turn will provide additional food items and significant areas of enhanced habitat structure for GCN. No additional compensatory habitats are required for this impact.

As part of enhancement associated with Gwent Levels SSSI, during the first 7 years of the operational phase a number of ditches will be improved across the site, and this will involve the removal of shading scrub. If this is timed incorrectly, there is potential to adversely impact GCN and mitigation is recommended.

¹ ARG UK (2010), Advice Note 5: Great Crested Newt Habitat Suitability Index

5.2. Protective measures to minimise impacts

The following measures will be adopted, and where necessary funded, by the solar farm owners.

A 7 metre un-developed buffer will remain adjacent to ditch 50 with a 12.5 metre buffer to Blackwall Lane West reed to the eastern edge of F23. This will ensure that aquatic habitats and the immediately adjacent vegetation are unlikely to be adversely affected.

A suitable fence will be erected to prevent GCN from ditch 50 gaining access into the development site during the construction phase. This fence should be sited at the limit of construction approximately 7 metres from ditch 50 and should ideally be erected during hibernation period; habitats within the development footprint comprise compacted agricultural soil with improved grassland with negligible potential for hibernating GCN, which are likely to be present in holes and fissures along the upper limits of the reeds and in root systems associated with nearby trees and hedgerows.

Habitat within the development footprint is of poor quality for GCN and all areas to be developed within 250 metres of ditch 50 should be included within this fence, including the access track.

A scheme of pitfall trapping and removal from inside this fence should be completed prior to works as follows:

- Trapping should be completed in suitable weather conditions and when newts are active in the landscape.
- Captured newts should be placed outside the fence, within suitable habitat.
- Pitfall traps should be checked every day.
- A European Protected Species Licence for fencing and trapping will be required, along with a supporting method statement.

Areas of better-quality habitat within 500 metres are limited to a narrow tract 1.2 metres wide along ditches and reeds and comprise woody scrub, lightly managed grassland and ruderals. These will be protected during the construction phase by fencing and will not require trapping or translocation of GCN.

Removal of scrub during ditch enhancement in years 1-7 will need to be completed as follows to minimise any adverse effect on GCN:

- Scrub will be cut back to 30cm proud of the ground during the winter months, with stems cut back to ground level and treated with eco plugs during the following May/June.
- Casting of ditches in the east of the site (Ditches 27, 28, 31, 32 & 33) will be completed in the period 1st November to 31st January to avoid impacts on GCN whilst they are active in water courses.

5.3. Compensatory habitats

Habitat within 250 metres and within the development footprint is of Poor quality for GCN when considered as a whole: *Habitat with poor structure (e.g. amenity grassland, improved*

pasture and arable) that offers limited opportunities (less than 25% of available area) for foraging and shelter².

Within 250 metres, the permissioned development will result in a small loss of improved grassland and arable to site infrastructure such as an access track (340m²) and panel mounting structures (unknown) from a total 46,000m² solar farm habitat within this zone.

Beyond 250 metres but within 500 metres the permissioned development will result in a loss of improved grassland and arable to site infrastructure such as an access track (6560m²) and panel mounting structures (unknown) from a total 187,000m² solar farm habitat within this zone.

However, once operational, habitats within the solar farm will improve significantly for GCN with land taken out of intensive agricultural management and instead managed by light grazing under solar panels, and by a late summer hay cut within the buffer to ditch 50 and Blackwell West Reen. This will encourage a more diverse sward to develop which in turn will provide additional food items and significant areas of enhanced habitat structure for GCN.

In addition, ditch enhancement targeted at the Gwent Levels SSSI will improve the site for GCN providing additional aquatic habitats, food items and dispersal routes.

No additional compensatory habitats are required.

5.4. Timings of GCN conservation measures

Construction in the east of the site will need to take account of activities detailed in this conservation strategy.

In particular, sufficient time will need to be allowed for European Protected Species Licence application, installation of the GCN fence and the trapping and removal of GCN from within 250 metres.

Table 3. Timing of GCN conservation measures

Phase	Activity	Comments
Pre-construction	European Protected Species Licence (EPSL) application for GCN	<p>EPSL can only be applied for once permission to develop is given and all relevant planning conditions discharged.</p> <p>EPSL application will need to be supported by updated GCN surveys if it is made after early 2021. These can only be completed in the period Mid-March to June.</p> <p>EPSL applications can take up to 10 weeks</p>
Pre-construction in fields 22 and 23	Development area within 250m of ditch 50 fenced with GCN fence and translocation of GCN to outside of fence completed	Fencing and translocation can take up to 3 months and can only start once the EPSL is in place

² ARG UK (2010), Advice Note 5: Great Crested Newt Habitat Suitability Index

Pre-construction	Boundary areas within 500 metres protected from damage by suitable fence	Approved by Ecological Clerk of Works (ECoW)
Construction	Build-out within fields 22 and 23	Prior to the start of works
Construction	Removal of taller vegetation associated with access tracks within 500 metres	Under direct guidance of ECoW
Completion of build-out within fields 22 and 23	Removal of GCN fence	Under direct guidance of ECoW
Operational phase	Buffer habitats to reens and ditches managed by late summer hay cut	
Operational phase	Areas under panels managed by light grazing	
Operational phase - Ditch management	<p>Scrub will be cut back to 30cm proud of the ground during the winter months, with stems cut back to ground level and treated with eco plugs during the following May/June.</p> <p>Ditches in the east of the site will be cast in winter months</p>	

5.5. Long-term monitoring

Other than any requirements within the EPSL, no additional long-term monitoring of GCN is required for this development.

6. Ecological compliance audit

Table 4 provides measures to ensure ecological compliance is maintained. At each stage measures will be checked and sign-off by the Site Manager or Ecological Clerk of Works and will be submitted to competent authorities, if requested.

Table 4. Ecological compliance audit form

Phase of development	Timing (Year following completion of development)	Measure	Name	Date	Signature
Pre- construction	Y0	EPSL in place			
Pre- construction	Y0	Development area within 250m of ditch 50 fenced with GCN fence and translocation of GCN to outside of fence completed			
Pre- construction	Y0	Boundary areas within 500 metres protected from damage by suitable fence			
Post construction	Y1	Removal of GCN fence under direct guidance of ECoW			
Post construction	Y1	Removal of scrub during ditch enhancement to minimise any adverse effect on GCN: <ul style="list-style-type: none"> Scrub will be cut back to 30cm proud of the ground during the winter months, with stems cut back to ground level and treated with eco plugs during the following May/June. 			
Post construction	Y3	Removal of scrub during ditch enhancement to minimise any adverse effect on GCN: <ul style="list-style-type: none"> Scrub will be cut back to 30cm proud of the ground during the winter months, with stems cut back to ground level and treated with eco plugs during the following May/June. 			
Post construction	Y5	Removal of scrub during ditch enhancement to minimise any adverse effect on GCN: <ul style="list-style-type: none"> Scrub will be cut back to 30cm proud of the ground during the winter months, with stems cut back to ground level and treated with eco plugs during the following May/June. 			
Post construction	Y7	Removal of scrub during ditch enhancement to minimise any adverse effect on GCN: <ul style="list-style-type: none"> Scrub will be cut back to 30cm proud of the ground during the winter months, with stems cut back to ground level and treated with eco plugs during the following May/June. 			
Post construction	Y7	Ditches 27, 28, 31, 32 and 33 cast in the period 1 st November to 31 st January. See Ditch Management Plan for detail			

Legend

- Development footprint
- Target note
- Access track
- GCN fence enclosing area to be cleared of GCN prior to construction



Title: Map 2. Great Crested Newt mitigation plan

Project: Rush Wall Solar Park

Checked by: CDH Version: 02
Date: 24/08/2021

6. 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. Defra Project WC1067. Freshwater Habitats Trust: Oxford.

English Nature (2001), Great crested newt mitigation guidelines. English Nature

Natural England, 2016. Method statement template for great crested newt mitigation licence. Downloaded 6th June 2016 from: <https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence>

7. Appendix 1

SureScreen Scientifics Technical Report



Folio No: E5123
Report No: 1
Order No: 2019-18
Client: WESTERN ECOLOGY
Contact: Colin Hicks, Kari Bettoney
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kari@westernecology.co.uk
Date: 22/05/2019

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

Date sample received at Laboratory: 15/05/2019 Date Reported: 22/05/2019 Matters Affecting
Results: None

RESULTS

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
2191	Rush Wall (1)	ST 419 849	Pass	Pass	Pass	Negative	0
2186	Rush Wall (2)	ST 420 852	Pass	Pass	Pass	Negative	0
2277	Rush Wall (3)	ST 421 856	Pass	Pass	Pass	Negative	0
2192	Rush Wall (4)	ST 419 857	Pass	Pass	Pass	Negative	0
2276	Rush Wall (5)	ST 421 860	Pass	Pass	Pass	Positive	1
2188	Rush Wall (6)	ST 413 862	Pass	Pass	Pass	Negative	0
2190	Rush Wall (7)	ST 411 864	Pass	Pass	Pass	Negative	0

SUMMARY

When Great Crested Newts (GCN); Triturus cristatus inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (eDNA) traces to confirm GCN habitation, or establish GCN absence.

The water samples detailed below were submitted for eDNA analysis to the protocol stated in DEFRA WC1067 (Latest Amendments). Details on the sample submission form were used as the unique sample identity.

Forensic Scientists and Consultant Engineers
SureScreen Scientifics Division Ltd, Morley Retreat, Church Lane, Morley, Derbyshire, DE7 6DE
UK Tel: +44 (0)1332 292003 Email: scientific@surescreen.com
Company Registration No. 08950940

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RESULTS INTERPRETATION

Lab Sample No.- When a kit is made it is given a unique sample number. When the pond samples have been taken and the kit has been received back in to the laboratory, this sample number is tracked throughout the laboratory.

Site Name- Information on the pond.

O/S Reference – Location/co-ordinates of pond.

SIC- Sample Integrity Check. Refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. Inspection upon receipt of sample at the laboratory. To check if the Sample is of adequate integrity when received. Pass or Fail.

DC- Degradation Check. Analysis of the spiked DNA marker to see if there has been degradation of the kit since made in the laboratory to sampling to analysis. Pass or Fail.

IC- Inhibition Check- PCR inhibitors can cause false results. Inhibitors are analysed to check the quality of the result. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Result- **NEGATIVE** means that GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence. **POSITIVE** means that GCN eDNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed. Positive or Negative.

Positive Replicates- To generate the results all of the tubes from each pond are combined to produce one eDNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. 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 Natural England protocol, even a score of 1/12 is declared positive.

METHODOLOGY

The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great Crested Newt, Version 1.1

The analysis is conducted in two phases. The sample first goes through an extraction process where all six tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (also called q-PCR). This process amplifies select part of DNA allowing it to be detected and measured in 'real time' as the analytical process develops. qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signals during the exponential phase of the reaction is measured for fast and objective data analysis. The point at which amplification begins (the Ct value) is an indicator of the quality of the sample. True positive controls, negatives and blanks as well as spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared so they act as additional quality control measures.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 and means there should be no detection of closely related species. We have tested our system exhaustively to ensure this is the case in our laboratory. We can offer eDNA analysis for most other species including other newts.

Forensic Scientists and Consultant Engineers
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Company Registration No. 08950940

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Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. Kits are manufactured by SureScreen Scientifics to strict quality procedures in a separate building and with separate staff, adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd also participate in Natural England's proficiency testing scheme and we also carry out inter-laboratory checks on accuracy of results as part of our quality procedures.

Reported by: Troy Whyte

Approved by: Jennifer Higginbottom

End Of Report

Forensic Scientists and Consultant Engineers
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