



ETIVE ECOLOGY Ltd

Proposed Solar Scheme
Pickhill Bridge Farm, Wrexham
Great Crested Newt Mitigation
Strategy

Produced for:



July 2015

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CONTENTS

1	INTRODUCTION	1
1.1	The Scheme	1
1.2	Previous Study	1
1.3	Scope of this Report	1
2	METHODOLOGY	2
2.1	Habitat Suitability Index	2
2.2	GCN Surveys	2
2.3	Limitations	3
3	RESULTS	4
3.1	Habitat Suitability Index	4
3.2	GCN Survey	5
4	GCN IMPACT ASSESSMENT	7
4.1	The Proposed Scheme	7
4.2	Short-term Impacts - Disturbance	7
4.3	Long-term Impacts – Site Modification	7
4.4	Long-term Impacts – Site Loss	8
4.5	Long-term Impacts – Fragmentation / Isolation	8
4.6	Post-development Interference Impacts	8
4.7	Predicted Scale of Impacts	8
4.8	GCN Derogation Licence	8
5	GCN MITIGATION STRATEGY	10
5.1	Capture and Exclusion	10
5.2	Receptor Site	10
5.3	Enhancements, Monitoring, Management and Maintenance	11
5.4	Timing of Works	11
6	THE “THREE TESTS”	13
6.1	The NEED	13
6.2	No SUITABLE ALTERNATIVE	13
6.3	No Impact on FAVOURABLE CONSERVATION STATUS	13
7	CONCLUSION	14
8	REFERENCES	15
	APPENDIX A	
	Figures	

Quality Assessment Record

Report Version	Written by	Date	Reviewed by	Date
1.0	Russell Grey	15 May 2015	Maddy Warriner	15 May 2015
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1 INTRODUCTION

1.1 The Scheme

- 1.1.1 Etive Ecology Ltd was commissioned by Caulmert Ltd on behalf of the landowner in April 2015 to develop a mitigation strategy in relation to great crested newts (GCN) and the proposed installation of a solar array scheme near Pickhill Bridge Farm, Wrexham. The proposed development site is centred on National Grid Reference SJ 387 486.
- 1.1.2 The site currently comprises a large field of improved grassland, an area of cultivated arable land and a small field pond, all of which are surrounded by species-poor hedgerows. The proposed scheme as detailed in planning application reference P/2015/0287 is to install solar panels across the open field, with a generating capacity of up to 4MWp.

1.2 Previous Study

- 1.2.1 An extended Phase 1 Habitat Survey of the site was undertaken in January 2015 which identified seven ponds within 500m of the site, as well as the on-site pond. The area surrounding the site and in the general vicinity of Wrexham Industrial Estate is renown as an important area for GCN. Records were identified of GCN within these ponds from the 1990s.
- 1.2.2 It was agreed with Wrexham's County Ecologist¹ that it was reasonable to assume GCN presence within at least some of the ponds within 500m of the site, for the purposes of the planning application. The Ecology Report² produced to support the planning application made the recommendations that full GCN surveys should be undertaken and that a derogation licence from Natural Resources Wales (NRW) would also *likely* be required.
- 1.2.3 GCN surveys have been undertaken in April and May 2015 on five of the eight ponds identified in the initial ecological survey. A small medium-sized meta-population has been found across all of these ponds and a derogation licence *will* therefore be required before and further development works can commence.

1.3 Scope of this Report

- 1.3.1 The report provides a summary of the survey findings, based on the recommended survey methods found in the *Great Crested Newt Mitigation Guidelines* (English Nature, 2001).
- 1.3.2 An impact assessment is provided in **Section 4**, identifying the likely impacts posed to GCN by the scheme and the magnitude of these impacts. Details of the proposed scheme are presented and key risk areas and activities are identified.
- 1.3.3 **Section 5** presents the GCN mitigation strategy. The mitigation measures proposed follow the *GCN Mitigation Guidelines* and aim to avoid any harm to GCN, to minimise disturbance to GCN and to ensure there is no long term impact on the Favourable Conservation Status of the species as a result of the proposed scheme.
- 1.3.4 A short section on the 'three tests' is provided in **Section 6**. This provides a summary of the key issues which is given to assist the LPA in determining whether the scheme satisfactorily passes these tests.

¹ Email communication between Etive Ecology and Emma Broad on 13th January 2015

² *Preliminary Ecological Appraisal - Pickhill Bridge Farm*. Etive Ecology Ltd, February 2015

2 METHODOLOGY

2.1 Habitat Suitability Index

- 2.1.1 The Habitat Suitability Index (HSI) is a ten score system used to rapidly assess the suitability of ponds for GCN based on ten environmental parameters that can be scored objectively. The criteria include pond size, water quality, pond shading and the area of suitable adjacent terrestrial habitat (Oldham et al, 2000).
- 2.1.2 The HSI was initially used to score all ponds within 500m of the site to assist in determining the need for GCN surveys. Other factors that were considered include habitat connectivity, barriers to GCN movements and sources of disturbance. The HSI results are presented again here to show how their calculated suitability compared to the survey findings. Following an inspection of Pond 7, the HSI score for this pond has been revised from that shown in the previous Ecology Report.

2.2 GCN Surveys

- 2.2.1 GCN surveys were undertaken in full accordance with the guidance set out in the *GCN Mitigation Guidelines*. The recommended survey protocol is to undertake survey work to determine presence/absence (4 survey visits) and/or population estimate surveys (6 survey visits) during the period mid-March to mid-June. Half of all survey visits should be undertaken within the 'peak' breeding period of mid-April to mid-May. On each survey visits three techniques should be employed to show reasonable survey effort – the relevant techniques used are described below.
- 2.2.2 GCN surveys may only be undertaken by suitably licensed ecologists. Licenses are issued by NRW and recognise the surveyor's skills and experience in amphibian ecology and survey.

Bottle Trapping

- 2.2.3 Bottle-trapping involves the setting of funnel-traps made from plastic bottles around the pond margins. The traps are set approximately one every two metres of suitable habitat and are left overnight. The surveyor returns to site the following morning, retrieves the bottles, records all amphibians captured and releases them.

Egg Search

- 2.2.4 Egg searches are carried out by checking aquatic vegetation, both alive and dead, for GCN eggs. Newts wrap their eggs inside such vegetation and the relative whiteness of the egg is used to determine whether it is from a GCN or a smooth or palmate newt. When GCN breeding has been confirmed, the egg search should cease for that pond to avoid unnecessary disturbance and impacts to breeding success.

Torch Survey

- 2.2.5 The torch survey involves the use of a high-powered torch (500,00 to 1,000,000 candle-power) to detect amphibians activity during darkness. The torch is used to systematically search the pond margins – and deeper areas where it is appropriate and feasible to do so – for amphibians. Counts of species and gender of all amphibians observed should be recorded.

2.3 Limitations

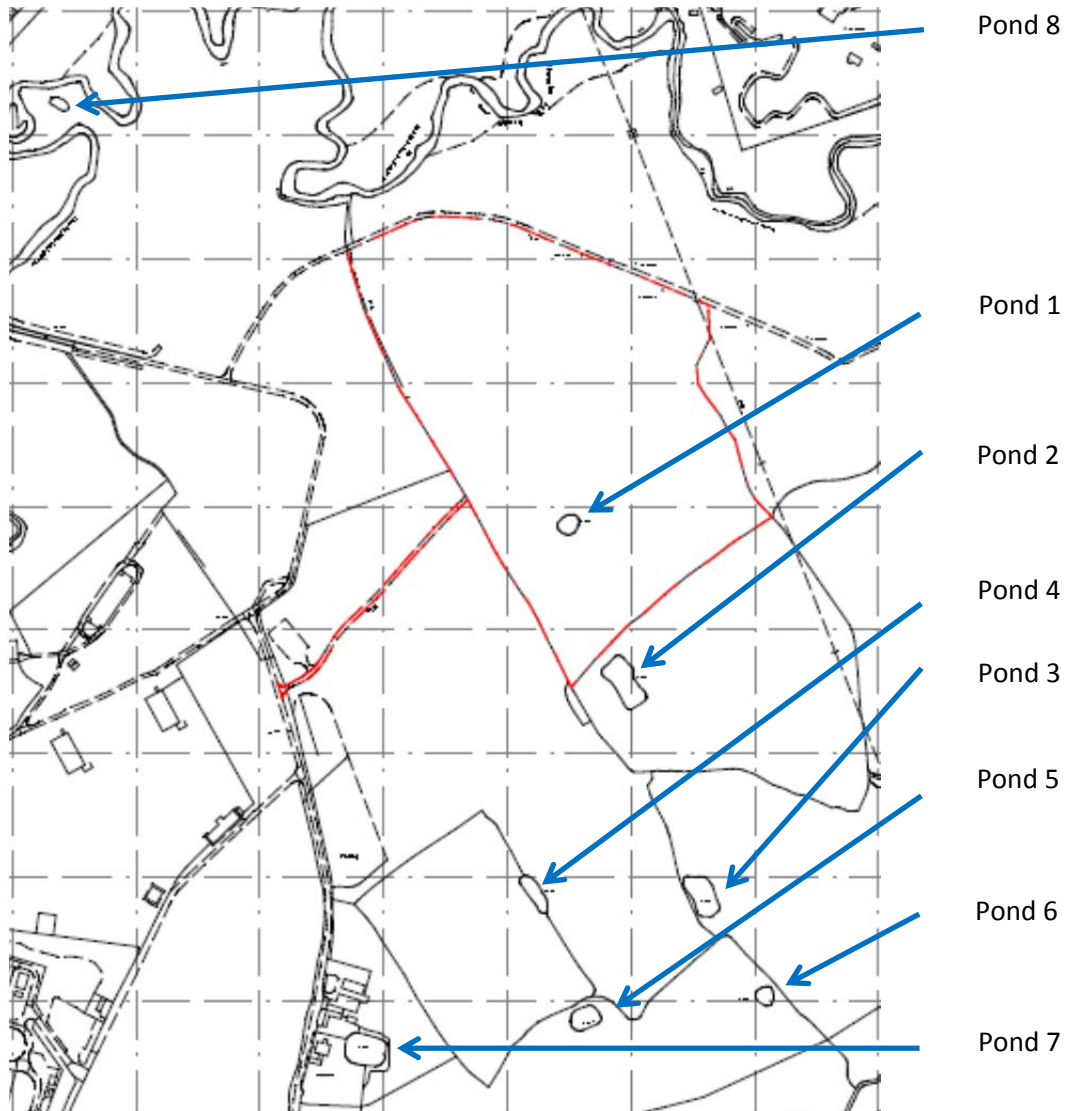
- 2.4.1 Access was provided to all of the ponds within 500m of the site, to allow surveys to take place where necessary.
- 2.4.2 Bottle-trapping of Ponds 2 and 3 was made difficult as a result of dense bankside vegetation which restricted access to approximately 50% of the pond surrounds, although the remaining 50% were largely unsuitable marginal habitat. Torching was feasible at all of the ponds but water visibility was poor in Ponds 2, 3 and 6. During surveys four, five and six large numbers of cattle were grazing the fields around Ponds 1, 3 and 4, with a noticeable impact on the bankside habitat in these ponds.
- 2.4.3 There are considered to be no significant limitations to the undertaking or accuracy of these GCN surveys.

3 RESULTS

3.1 Habitat Suitability Index

3.1.1 A total of 8 No. ponds are shown on Plate 3.1.1 below within 500m of the site. All of these ponds were subject to HSI assessment.

Plate 3.1.1 Ponds within 500m



3.1.2 The findings of these HSI assessments are presented in Table 3.2.1 below.

Table 3.2.1 HSI Assessment Summary

Pond	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	HSI
1	1	0.2	0.9	0.67	1	0.67	1	0.85	0.33	0.4	0.62
2	1	0.4	0.9	0.67	1	0.67	1	0.85	0.67	0.3	0.70
3	1	0.4	0.9	0.67	1	0.33	1	0.85	0.67	0.4	0.67
4	1	0.2	0.9	0.67	1	0.67	1	0.85	0.67	0.6	0.70
5	1	0.2	0.5	0.33	0.2	1	1	0.85	0.67	0.3	0.51
6	1	0.2	0.9	0.67	1	0.67	1	0.85	0.67	0.4	0.67
7	1	0.4	0.9	0.67	1	0.33	0.1	0.85	0.67	0.7	0.56
8	1	0.05	0.5	1	0.6	0.67	0.67	0.85	1	0.6	0.57

- 3.1.3 As a result of the HIS assessment, Ponds 5, 7 and 8 were excluded from the survey effort. These ponds offered habitat of the lowest suitability for GCN and were all in excess of 300m from the proposed development site.

3.2 GCN Survey

- 3.2.1 The GCN survey effort was led by Russell Grey (BSc, CEnv, MCIEEM), a licensed GCN surveyor in Wales. Russell has 11 years of experience undertaking GCN surveys, working on mitigation and translocation schemes and has a well-developed understanding of the species' ecology, habitat preference and usage.
- 3.2.2 All surveys were undertaken under suitable weather conditions for GCN activity. Details of survey conditions are detailed in Table 3.2.1 below.

Table 3.2.1 Weather Conditions during surveys

Survey No.	Date	Conditions
1	13/04/15	12-9°C, still, warm and overcast
2	15/04/15	10-5°C, still, warm and clear
3	22/04/15	18-5°C, light breeze, dry and clear
4	28/04/15	7-4°C, still, dry and clear
5	04/05/15	14-6°C, light breeze, cloudy
6	06/05/15	11-7°C, light rain, moderate breeze

- 3.2.3 The results of the six GCN surveys are summarised in Table 3.2.2 below.

Table 3.2.2 GCN Survey Results

Survey No.	Pond 1	Pond 2	Pond 3	Pond 4	Pond 6	Peak Count
1	1 x ♂, 1 x ♀ (Torch) 4 x ♂ (Bottles)	1 x ♂ (Torch)	3 x ♂ (Bottles)	3 x ♂ (Torch) 1 x ♂ (Bottles)	1 x ♂ (Bottles)	13
2	4 x ♂ (Torch) 1 x ♀ (Bottles)	1 x ♂ (Torch)	1 x ♀ (Torch) 4 x ♂, 1 x ♀ (Bottles)	1 x ♂ (Torch) 3 x ♂ (Bottles)	1 x ♂, 4 x ♀ (Bottles)	19
3	2 x ♂, 1 x ♀ (Torch) 1 x ♂, 1 x ♀ (Bottles)	2 x ♂ (Torch)	1 x ♀ (Torch) 1 x ♂ (Bottles)	2 x ♂ (Torch)	1 x ♂, 3 x ♀ (Bottles)	13
4	1 x ♀ (Bottles)	1 x ♂ (Torch) 1 x ♂ (Bottles)	1 x ♀ (Torch) 1 x ♂, 1 x ♀ (Bottles)	-	2 x ♂ (Bottles)	6
5	1 x ♀ (Torch)	2 x ♂ (Torch)	-	-	3 x ♂ (Bottles)	6
6	1 x ♀ (Bottles)	-	-	-	6 x ♂ 8 x ♀ (Bottles)	15
Peak Count	5	2	5	3	14	

- 3.2.4 GCN eggs were found during the very first survey visit in Ponds 1, 2, 4 and 6, confirming breeding populations in all of these ponds. Pond 3 is also a potential breeding pond, with both male and female GCN found during the surveys, but the only suitable egg-laying material – brooklime and reedmace – were more difficult to search for eggs than vegetation in the other four ponds. Pond 6 was found to support the largest number of GCN.
- 3.2.5 It is very difficult to establish the true size of a GCN population, without extensive survey and capture effort. Survey techniques such as bottle-trapping and torching have been shown to identify between 2% and 30% of an actual population. However, an approximation of a populations' size is useful in determining the necessary mitigation effort and other licensing requirements. The following three size classes are broadly recognised:
- Small (maximum count of up to 10)
 - Medium (maximum counts between 11 and 100)
 - Large (maximum counts for over 100)
- 3.2.6 Therefore, using the peak counts shown in Table 3.3.2, the size class population for ponds within 250m of the Pickhill Farm solar site is Medium. The cluster of ponds surveyed are considered close enough and sufficiently well connected for the GCN numbers to form a meta-population, i.e. there is an interchange of amphibians from one pond to the next over time.
- 3.2.7 It should also be noted that other amphibians were recorded during the survey effort. These are shown in Table 3.3.3 below.

Table 3.3.3 Other Amphibians Survey Results (Peak counts per pond)

Pond	Smooth Newts	Palmate Newts	Common Frog	Common Toad
1	1 x ♂, 2 x ♀	-	-	-
2	2 x ♂, 1 x ♀	-	-	-
3	1 x ♂, 2 x ♀	-	-	-
4	3 x ♂, 2 x ♀	-	-	-
6	3 x ♂, 6 x ♀	-	-	-

- 3.2.8 The overall survey data indicates small GCN breeding populations in Ponds 1, 2, 3 and 4 and a medium sized GCN breeding population in Pond 6. Activity was at a small medium-sized population level for the first three surveys, before it dropped off in correlation with an increased use in the fields by cattle and an associated disturbance to pond margins by poaching. The final survey visit saw the lowest GCN counts in Ponds 1, 2, 3 and 4, but a sharp spike in the GCN count in Pond 6, which is the only pond not accessible to cattle and therefore undisturbed.

4 GCN IMPACT ASSESSMENT

4.1 The Proposed Scheme

4.1.1 The scheme will include the following components and activities:

- Improvement works to the existing access track leading to the site from the west, e.g. levelling and temporary surfacing.
- The removal of a 5m length of species-poor hedgerow at the existing field entrance in the western boundary of the site.
- The installation of four inverter/transformer kiosks around the periphery of the site, each approximately 6m x 2.5m in footprint.
- The installation of solar panels in rows across the site, using numerous vehicles and some heavy plant to lift, carry and insert the panels into the ground.
- A 12m buffer zone will be established around Pond 1 and fenced to ensure no direct impacts on its ecological value and function.
- A 7m buffer zone will be established inside all of the boundary hedgerows to ensure no long term impacts on their ecological function.
- Measures to improve the quality of habitat provided by Pond 1, its newly created 'buffer zone' and the 7m wide boundary corridors have all been included in the planning permission and form an integral part of the scheme, regardless of the presence of GCN.

4.1.2 **Figure 1** shows the existing site layout pre-development and highlights the anticipated impacts without mitigation, as described below. **Figure 2** shows the proposed layout of the developed site and highlights the mitigation and compensation strategies detailed in Section 5.

4.2 Short-term Impacts - Disturbance

4.2.1 The construction of the scheme will result in short-term and temporary disturbance to 5.1ha of terrestrial habitat comprising improved grassland and species-poor hedgerow. Any GCN present within these habitats will also be subject to disturbance and risk of harm. The impacts on GCN will include reduced foraging, restrictions to dispersing/commuting and a loss of refugia (hedgerow only).

4.3 Long-term Impacts – Site Modification

4.3.1 The main body of the site will continue to be managed and grazed for a low stocking density of sheep, but the area of this grassland pasture will be reduced and the quality of the sward cover is also likely to be lower as a result of the solar panels reducing the level of sunlight reaching the sward.

4.3.2 There will be an improvement in the biodiversity value of the site boundaries, with the 7m wide buffer corridors being allowed to establish naturally and develop a more diverse vegetation structure. Hedgerows will also be subject to a conservation management regime, as detailed in the Ecology Report submitted with the planning application (Etive Ecology, 2015).

4.3.3 The 12m buffer around Pond 1 will also result in an improved habitat as there will be a reduced and controlled level of grazing. There will also be restricted access for livestock to drink from the pond, allowing marginal vegetation to establish and persist throughout the

growing season without being trampled by drinking cattle.

4.4 Long-term Impacts – Site Loss

- 4.4.1 Direct impacts to Pond 1 are anticipated to be minor as a result of the 12m buffer zone but other impacts do pose risks to harming and disturbing GCN. These impacts pose a risk of losing Pond 1 as a GCN breeding site but do not pose a risk of site loss as the local GCN population is spread over Ponds 1, 2, 3, 4 and 6. The scale of the likely impacts is such that they will not affect GCN in the remaining ponds.

4.5 Long-term Impacts – Fragmentation / Isolation

- 4.5.1 No fragmentation impacts are anticipated as there is only a very minor loss in semi-natural habitat on site – a temporary 5m loss of hedgerow and a permanent 60m² loss of grassland. All boundary habitats will be enhanced as part of the scheme and should therefore provide improved connectivity between all of the ponds.

4.6 Post-development Interference Impacts

- 4.6.1 There will be very little change in the use of the site post-construction. Sheep will continue to be used to graze the grassland pasture, but cattle will not be able to graze beneath the solar panels. There will also be occasional human activity and the use of vehicles around the periphery of the site to enable maintenance to take place. Neither of these impacts are considered to be significant in their potential impact on GCN or GCN habitat.

4.7 Predicted Scale of Impacts

- 4.7.1 At the site level, the impact on GCN without any mitigation works would be medium in magnitude. This is because although there would be a large area of habitat (improved grassland pasture) subject to significant disturbance during construction, the habitat is of relatively low value to GCN and will not be permanently lost. In addition, the 12m buffer zone protects the immediate terrestrial habitat around the pond and the hedgerow buffer corridors also protect key dispersal routes and refugia habitat.
- 4.7.2 At the 2km level, the impact on the GCN population would be no greater than minor. Pond 1 supports GCN which form part of a meta-population spread across a number of ponds within 250m, none of which will be directly impacted by the scheme and all of which are confirmed or likely breeding sites for the species. Therefore any impacts are very minor.
- 4.7.3 At the local level and above, the scheme poses no significant adverse impacts.

4.8 GCN Derogation Licence

- 4.8.1 GCN are legally protected under the *Conservation of Habitats and Species Regulations 2010* (the Habitat Regulations). These Regulations protect GCN against being captured, killed, injured or disturbed and protect their habitat (any breeding site or resting place) from being damaged or destroyed. Provision is made within the Habitats Directive for the derogation of this protection, providing certain conditions are met and this process is managed through a licensing process managed by Natural Resources Wales (NRW). To attain a license for an otherwise unlawful activity the applicant must satisfy three tests, relating to the need for the activity, the lack of any suitable alternative and the favourable conservation status (FCS) of the species.

- 4.8.2 The proposed development of the site for solar power has been identified as posing a significant risk of short-term disturbance and harm to GCN during construction activities. Long-term impacts are all assessed to be minor. A derogation license will be required in order for the scheme to progress.

5 GCN MITIGATION STRATEGY

5.1 Capture and Exclusion

- 5.1.1 The GCN mitigation strategy is based upon the goal of excluding all GCN from the entire construction zone required to install the solar scheme. To achieve that goal, a line of perimeter fencing will be installed, according to best practise standards, around the working area as shown on **Figure 2**. Pitfall traps will be installed every 10m along the inside of this fence line and will be used to capture GCN, and any other amphibian species, for a period of 30 consecutive days. Once the trapping period has been completed and no GCN are caught for a minimum of 5 consecutive days, the area will be deemed clear of GCN.
- 5.1.2 To improve the trapping efficiency, a number of drift fences are also proposed, to increase the chances of amphibians encountering a pitfall trap. Drift fencing will be positioned as shown on **Figure 2**.
- 5.1.3 Pond 1 is known to support a small breeding population of GCN. However, no construction activity is required within 12m of the pond as this has been defined as a conservation buffer in the planning application. It is therefore proposed that the pond should be ring-fenced by amphibian fencing around the 12m radius for the duration of the installation process, to minimise disturbance to GCN already in and around the pond. Pitfall traps will be installed at 10m intervals around the external side of the ring-fencing, to capture any amphibians within the construction zone but moving towards the pond. To ensure there is sufficient terrestrial habitat available to GCN within Pond 1, a corridor of land will also be fenced to connect the pond to the nearest hedgerow to the southwest.
- 5.1.4 Once the construction zone has been cleared of GCN, the perimeter fence, the corridor fence and the fencing around Pond 1 will remain in situ for the duration of installation works. These fences will only be removed upon full commissioning of the solar scheme. To facilitate construction access across the site, a crossing point through the corridor fence line will be established. The design of the crossing point will be confirmed within the licence application, but will be such that it will allow access for construction during the day whilst still posing a barrier to GCN movement overnight.
- 5.1.5 All industry standard GCN pitfall trapping protocols as described in the GCN Mitigation Guidelines will be fully adhered to. These include the checking of traps by GCN licenced ecologists, trapping only during suitable weather conditions and ensuring that the traps are set-up to provide shelter for amphibians and a means of egress for small mammals.

5.2 Receptor Site

- 5.2.1 To minimise disturbance impacts on GCN movement and dispersal across and around the site, no single Receptor Site is allocated. Instead, it is proposed that any GCN caught in pitfall traps around Pond 1 are placed inside the pond fencing, as it is assumed that these animals would be heading towards the pond. All other GCN trapped around the perimeter fencing will be placed outside of the exclusion zone and released into suitable terrestrial habitat, i.e. offering adequate shelter and connectivity away from the site.

5.3 Enhancements, Monitoring, Management and Maintenance

- 5.3.1 Enhancement works to Pond 1 will be undertaken during the hibernation period; November to February inclusive. Works will comprise the removal of up to 75% of the reedmace, removal of the small willow tree and the extension of the pond area where the willow is removed.
- 5.3.2 The boundary corridor, i.e. the 7m strip between the hedgerow and the security fence, will be enhanced through a hands-off management approach in Year 1, followed by a conservation hedgerow maintenance programme as described in the Ecology Report for the scheme. This will apply for the southern, eastern and western boundaries. Along the northern section of the site, this boundary will be over-sown with an arable field-edge seed mix, to generate a pollen and nectar-rich sward.
- 5.3.3 As noted above, boundary corridors will be managed according to the conservation regime described in the Ecology Report. This will include alternate annual cutting and other measures with the aim of increasing the hedgerow height, width and species diversity. It is recommended that a small volume of hedgerow material is harvested and used to create brash pile hibernacula for GCN, approximately every 25m within the boundary corridor.
- 5.3.4 Annual maintenance and management of Pond 1 will be required as part of the scheme, to ensure that the enhancement measures are successful and that it delivers high quality breeding habitat and core terrestrial habitat for GCN. Maintenance will include checking and repairing the integrity of all stock-proof fencing, light grazing of the terrestrial habitat for the months of June-August and the removal of any undesirable marginal or aquatic vegetation.
- 5.3.5 As part of the licencing requirements, there will need to be a schedule of monitoring put in place to assess the GCN population in Pond 1 and the habitat enhancement and management works. This should comprise four GCN surveys in each of the two years following the completion of the scheme. A review of the habitat enhancements will also be undertaken during these visits and any necessary alterations to the management regime will be made.

5.4 Timing of Works

- 5.4.1 Table 5.4.1 below gives an indication of the likely programme of works for the GCN mitigation, construction and post-development monitoring.

Table 5.4.1 Outline Programme of Works

Year	Date	Activity	To Be Undertaken By
2015	Early-July	Planning Permission granted	Wrexham CBC
	Early-July	Submit GCN Derogation Licence application to NRW	Ecologist
	Early-August	GCN Derogation Licence application approved	NRW
	Early to mid-August	Installation of GCN fencing and pitfall traps on site	Recognised and experienced GCN fencing contractor

Year	Date	Activity	To Be Undertaken By
	Mid-August to mid-September	30 days of pitfall trapping	GCN-licenced ecologist
	Mid-September to mid-December	Installation, construction and commissioning works	Contractor / Earthworm
2016	March	Removal of GCN fencing under ecological supervision	Fencing contractor / GCN-licenced ecologist
	April-June	4 x GCN monitoring surveys & habitat assessment	GCN-licenced ecologist
	September	Hedgerow management	Maintenance contractor
2017	March-June	4 x GCN monitoring surveys & habitat assessment	GCN-licenced ecologist
	June	GCN Licence Report submitted to NRW	GCN-licenced ecologist

6 THE “THREE TESTS”

6.1 The NEED

- 6.1.1 The NEED for the scheme is the delivery of renewable energy to the National Grid. The UK Government has targeted to achieve 15% of its energy generated by renewable sources by 2020. In 2013, renewable generation accounted for approximately 5% of total energy generation.
- 6.1.2 Wrexham County Borough Council has recognised the need to increase renewable energy generation and cut carbon emissions in line with UK Government policy. The Council has acknowledged that the new Local Development Plan should play a part in “promoting renewable methods of energy production” and should “support the development of renewable energy” (LDP Topic Paper 9; Climate Change and Energy, March 2014).

6.2 No SUITABLE ALTERNATIVE

- 6.2.1 Preparation of the 2013-2028 LDP is undergoing but the plan is not due to be completed, approved or adopted until 2018. As a result, there are no formal policies or allocated sites for renewable energy generation within the Wrexham CBC area.
- 6.2.2 The “Do Nothing” scenario would pose no adverse impacts to GCN but would not help to meet the NEED for renewable energy generation.
- 6.2.3 The proposed scheme is considered to be highly suitable in its proposed location and the site has been identified as economically viable and technically feasible. Suitable sites for solar power schemes are often difficult to identify due to the requirements relating to generating capacity, grid connections, construction access and availability of land. Therefore the site offers a relatively rare but suitable opportunity to deliver renewable energy.

6.3 No Impact on FAVOURABLE CONSERVATION STATUS

- 6.3.1 The proposed solar array development has been identified as posing a significant risk of disturbing, injuring and killing GCN during construction activities. However, as a result of the habitat protection and enhancement measures included within the design of the scheme, i.e. the 12m pond buffer, 7m boundary corridors and associated conservation management measures, there will be no significant long-term impacts on the GCN population. Therefore, the proposed scheme of capture and exclusion is adequate in mitigating the risk posed by construction activities, by removing and excluding GCN from the working area until all construction activities have been completed. The proposed monitoring should show this strategy to be successful in ensuring no short-term impacts on the species and therefore no impact on Favourable Conservation Status (FCS).

7 CONCLUSION

- 7.1 Etive Ecology Ltd was commissioned by Caulmert to undertake GCN Surveys of ponds within 250m of land proposed for renewable energy generation near to Pickhill Bridge Farm, Wrexham. The site is proposed for a solar array with a generating capacity of up to 4MWp.
- 7.2 The need for GCN surveys was identified following a preliminary ecological appraisal of the site earlier in 2015. A total of eight ponds were found within 500m of the site, five of which were suitable to support the species and were subject to survey. The GCN survey methodology employed followed industry standard guidelines and included six survey visits to all ponds between the 13th April and the 6th May 2015. Three survey techniques were employed on each occasion where possible.
- 7.3 All five of the surveyed ponds (Ponds 1, 2, 3, 4 and 6) were found to support GCN. Ponds 1, 2, 4 and 6 were confirmed to support breeding activity, with GCN eggs found during the survey effort. Ponds 1, 2, 3 and 4 supported small GCN populations (a peak count of <10 individuals) and Pond 6 supported a medium sized GCN population with a peak count of 14. The ponds are close enough and with suitable habitat connectivity to be considered a meta-population, with a combined peak count of 19 individual GCN.
- 7.4 The main impact identified from the proposed scheme is the risk of disturbing, injuring and killing GCN during the installation phase. Long-term post-construction impacts are anticipated to be very minor and not significant as the scheme includes the protection and enhancement of Pond 1 within the development area and the boundary hedgerows which are a key GCN habitat.
- 7.5 A derogation license will need to be obtained from Natural Resources Wales (NRW) in order for the scheme to progress. As part of that license it will be necessary to implement appropriate mitigation to avoid the impacts identified. It is proposed that the entire site will be fenced off using amphibian exclusion fencing and that a trapping scheme will be implemented to remove all amphibians from the working area prior to the start of works. The duration of trapping is to be confirmed with NRW but will be a minimum of 30 days.
- 7.6 Habitat enhancement works will be undertaken to Pond 1 and the boundary corridors around the site. These enhancements will be maintained through appropriate habitat management prescriptions, which have been detailed herein and in the previous Ecology Report. Pond 1 and the habitats retained on site will be subject to monitoring for two years post-construction.
- 7.7 It is concluded that, if the proposed mitigation, enhancement and management measures are implemented, the scheme will pose no adverse effects to the Favourable Conservation Status of GCN in the local area.

8 REFERENCES

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Appendix A – Figures

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Figure 1 - GCN Impacts

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Co Const, Asly Const & ED Bldg

ERM - DISTURBANCE

TERRESTRIAL HABITAT.

HARMING - CAN

Track

Hydrant

Hydrant

Hydrant

Hydrant

Hydrant

5.1 ha TERRESTRIAL HABITAT.

RISK OF HARMING GUN.

AFFECT ON FORAGING/
DISPERSAL/REFUGIA.

RM - MODIFICATION
D GRAZING PASTURE.
AREA + SWARD COVER.

INTERFERENCE

POST-DEVELOPMENT - INTERFERENCE

CONTINUED SHEEP GRAZING

MINOR HUMAN DISTURBANCE

SITE LEVEL IMPACTS
MEDIUM

- LONG TERM - FRAGMENTATION
- MINOR LOSS OF HABITAT.
- SIGNIFICANT ENHANCEMENTS TO ALL BOUNDARY CORRIDORS.

- LONG TERM - SITE LOSS
- LOW RISK OF LOSING POND 1 AS A BREEDING SITE.
- NO RISK TO GCN META-POPULATION.
- PONDS 2, 3, 4 + 6 - NO IMPACTS.

2KM SCALE IMPACTS
MINOR

LOCAL LEVEL IMPACTS
NOT SIGNIFICANT

FIGURE 1
GCN IMPACTS

Figure 2 - GCN Mitigation Strategy

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FIGURE 2
GCN MITIGATION STRATEGY

Station	Easting	Northing	Level
FF1	348662.463	348622.284	28.12
FF2	348646.316	348765.377	24.15

- EXCLUSION FENCE LINE
- DRIFT FENCE LINE
- PITFALL TRAPS (INDICATIVE)
- || BOUNDARY CORRIDOR

30 DAY TRAPPING PERIOD.
12M OFFSET FENCE
AROUND POND 1.
DRIFT FENCING TO IMPROVE
TRAPPING EFFICIENCY.
POND 1 CONNECTED TO
SOUTHWEST HEDGEROW.

POST- CONSTRUCTION
REMOVAL OF EXCLUSION FENCE.
GCN SURVEYS OF POND 1.
REVIEW OF HABITAT WORKS.

ENHANCEMENTS TO POND 1
POST- CONSTRUCTION.
MANAGEMENT REGIME FOR
POND 1 + BOUNDARY
CORRIDORS.

