
Legacy Substation – Battery Storage Facility
on behalf of Pelagic Energy
Full Great Crested Newt Mitigation Strategy



Document Control				
Project Name:		Legacy Battery Storage Facility		
Project Number:		AxisL-043-1215		
Report Title		Full Great Crested Newt Mitigation Strategy		
Issue	Date	Notes	Prepared	Reviewed
V1	10/11/2022	Draft for Client Comment	J. Stevens <i>BSc Hons</i>	A Logan <i>MSc MCIEEM</i>
V2	14/11/2022	Final	J. Stevens <i>BSc Hons</i>	A Logan <i>MSc MCIEEM</i>
V3	18/11/2022	Final	J. Stevens <i>BSc Hons</i>	A Logan <i>MSc MCIEEM</i>
V4	07/03/2023	Revised following NRW/ LPA comments	J. Stevens <i>BSc Hons</i>	A Logan <i>MSc MCIEEM</i>

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1 INTRODUCTION

1.1 Background

- 1.1.1 This document has been prepared in relation to the proposed Battery Storage Facility (BSF) at Legacy Substation (the 'Proposed Development'). It should be read in conjunction with the Ecological Assessment Report (Avian Ecology, May 2021) which contains relevant Figures and Photographs.
- 1.1.2 Permission for the Proposed Development (Ref: P/2021/0441) has been granted subject to conditions. The objective of this report is to provide adequate information in relation to great crested newt (GCN) *Triturus cristatus* mitigation, to enable the discharge of Condition 6 of the permission. Condition 6 is provided below.

No development shall commence until a GCN Mitigation Strategy has been submitted to and approved in writing by the determining authority. The GCN Mitigation Strategy should:

- *Build upon the principles outlined in the ecological report (reference Maginn, U. (2021). Outline Great Crested Newt Mitigation Strategy. Avian Ecology. Unpublished);*
- *Submission of further details and associated plans concerning GCN avoidance and mitigation measures including, but not limited to: fence design, specifications and locations; considerations of access issues (including PROW if applicable); monitoring and maintenance requirements; and supervised removal. Submission to include proposed timescales and reporting requirements;*
- *Submission of a long term site management (not less than 25 years) that includes defined aims and objectives; habitat management prescriptions; contingency measures if fish or invasive non-native species (INNS) are detected; proposals that are capable of being implemented in the event of failure to undertake or to appropriately undertake identified or contingency actions; site liaison and wardening; licensing requirements for undertaking habitat management and surveillance; current and any proposed changes to tenure of the compensation area; tenure of the compensation to be approved by the LPA in consultation with NRW; persons or bodies responsible for undertaking management and surveillance together with required skills and competencies; reporting requirements; and proposed dates for updating or revising the management plan;*
- *Submission of measures designed to prevent the accidental capture/killing of newts (amphibians) during operational (and decommissioning) phases of the scheme (ie post construction). This is essentially the installation and maintenance of an amphibian friendly surface water management system that does not include gully pots (or other similar features);*
- *Details of timing, phasing and duration of construction activities and conservation measures;*
- *Timetable for implementation demonstrating that works are aligned with the proposed development;*
- *Ecological Compliance Audit, including key performance indicators;*
- *Persons responsible for implementing the works; and,*
- *Post construction monitoring and record dissemination for a period of not less than 25 years. All ponds to be added to the Wales Great Crested Newt Monitoring Scheme, (see <https://www.cofnod.org.uk/LinkInfo?ID=7> with individuals/bodies being identified as being responsible for monitoring and reporting works. Methodology shall include annual [or biennial] abundance counts and Habitat Suitability Index (HSI) assessments. Each water body shall be*

individually numbered on site. In respect of biennial surveillance, frequency of monitoring visits shall be increased in the event of fish and or aquatic invasive non-native species are detected.

The Conservation Plan shall be carried out in accordance with the approved details

- 1.1.3 This GCN Mitigation Strategy details the measures that will be implemented for the protection of GCN during construction, and for habitat management and enhancement and does not infer the granting of a European Protected Species Mitigation (EPSM) Licence from Natural Resources Wales (NRW). Any subsequent licence application would draw heavily on the contents of this document and include as a minimum the measures contained herein.
- 1.1.4 The strategy and any subsequent licence application include measures to safeguard both individuals, and the favourable conservation status of the local population of this species in accordance with the Habitats Regulations 2017 (as amended), Wildlife and Countryside Act 1981 (as amended) and Policy EC6 of the Wrexham Unitary Development Plan.

1.2 Management Period

- 1.2.1 This GCN Mitigation Strategy details the mitigation and enhancements to be undertaken with regards to GCN in relation to the construction of the Proposed Development and long-term monitoring and management to be undertaken for the benefit of GCN for a period of no less than 25 years, following completion of the BSF.

1.3 Responsibilities & Tenure

- 1.3.1 The implementation of this GCN Mitigation Strategy and the associated habitat enhancement and creation will be the responsibility of the Site Developer (HD639LEG Ltd), the Site Manager (TBC) and their appointed contractors under the direction of a suitably qualified (GCN licensed) and experienced ecologist, as required.
- 1.3.2 The proposed habitat enhancements will be delivered off-Site but within land owned by National Grid, and leased to Pelagic Energy (The applicant). Pelagic Energy (or an appointed contractor or specialist conservation body) will be responsible for the maintenance of any mitigation for a period of no less than 25 years, following construction of the development. This responsibility will transfer to any subsequent site owner in the event of a change in ownership during the 25-year period.
- 1.3.3 The appointed contractor will require the necessary experience and certificate of competence to undertake landscape and ecological management operations on Site. The management organisation will ensure that management complies with this GCN Mitigation Strategy and conditions of any EPSM licence issued in relation the Proposed Development. The management organisation is also responsible for complying with the provisions of the Health and Safety at Work Act and will ultimately be responsible for the health and safety of any habitat features created and will review health and safety as part of their regular inspections.
- 1.3.4 Should there be changes to the tenure of the land where compensation habitat are to be provided, this will be first approved by Wrexham Borough Council in consultation with NRW.

1.4 Legislation and Policy

- 1.4.1 GCN are European Protected Species (EPS) and they and their habitat are fully protected under the Wildlife & Countryside Act 1981 (as amended) and the Habitats and Species Regulations 2017 (as amended). The combined legislation makes it illegal to:
 - intentionally or deliberately capture, kill or injure a GCN;

- intentionally or recklessly damage, destroy or obstruct access to any place used for shelter and protection including resting and breeding places, whether occupied or not;
- deliberately, intentionally or recklessly disturb a GCN when in a place of shelter;
- possess a GCN, or any part of it, unless acquired lawfully;
- sell, barter, exchange or transport or offer for sale GCN or parts of them.

1.4.2 Anyone carrying out activities which may affect EPS must consider the presence of EPS, their breeding sites and resting places.

1.5 Baseline Information

1.5.1 The Site occupies an area of land within the National Grid Legacy Substation, which is also designated as a Local Wildlife Site (LWS). The Johnstown Newt Sites SAC and the constituent Stryt Las a'r Hafod SSSI are located 2.03km south-east of the Site and are designated for their amphibian interests, including GCN. No other statutory designated sites for GCN are located within 10km of the Site.

1.5.2 The Site comprises neutral semi-improved grassland with areas of willow *Salix* sp. scrub at the western boundary. The grassland is relatively diverse, damp in places but much drier towards the east and north. This has developed as secondary grassland on an area previously subject to earthworks during the construction of the substation, when earthworks and soil movement along with bund creation took place. There appears to have been limited management of this grassland in recent years, with scrub encroachment across the grassland.

1.5.3 Immediately adjacent, to the north, east and west, are further areas of scrub and grassland, leading on to broad-leaved plantation woodland which covers the bund slopes. To the south of the Site there is the main Substation, comprising structures, hardstanding and bare ground.

1.5.4 A large bund forms the north, east and west boundaries of the Legacy Substation, the lower slopes of which is grassland and scrub, leading in to young/semi-mature broad-leaved plantation woodland which has colonised the bund slopes. The woodland contains frequent young self-seeded trees and supports a limited ground flora, with species present predominantly mosses, bramble *Rubus fruticosus*, and ivy *Hedera helix*.

1.5.5 The south facing inner slope of the bund and lower-lying land adjacent to the Substation, including the land within and surrounding the Site, consist of a mosaic of scrub and unmanaged grassland. The scrub is predominantly hawthorn *Crataegus monogyna* with some willow *Salix* sp., seedling birch and ash, dog rose *Rosa canina* and bramble. In some areas, particularly to the east, this mosaic includes tall ruderal species such as nettle *Urtica dioica* and willowherb *Chamerion angustifolium*. There is also a small area of partly bare ground with ephemeral/short perennial vegetation.

1.5.6 A pond (P1) is present on land to the east of the Site as shown on **Figure 2**. This pond is approximately 10m by 10m in size, containing a variety of marginal species including purple loosestrife *Lythrum salicaria*, bulrush *Typha latifolia*, bryophytes as well as occasional willow scrub and a small amount of New Zealand pygmyweed *Crassula helmsii* (a non-native invasive aquatic species listed under Schedule 9 of the Wildlife and Countryside Act 1981, as amended).

1.5.7 Another pond (P2) is present approximately 250m south of the Site (**Figure 2**). This was approximately 3m by 10m and associated species include bramble and willow scrub. This pond contained minimal amounts of water (less than 5cm) in September 2019 and was completely dry when surveyed in May 2020, appearing completely silted up and filled with leaf litter and plant debris.

2 POTENTIAL IMPACTS AND LICENCE REQUIREMENTS

2.1 Impacts

- 2.1.1 The Site lies within Legacy Substation LWS and the Proposed Development will result in direct land take (approximately 0.4ha) and permanent loss of terrestrial habitat comprising scattered scrub and species-rich grassland likely to be used by GCN for foraging and shelter. There will also be localised temporary disturbance and habitat loss, however once constructed, vegetation in these areas would be reinstated and would be available to GCN.
- 2.1.2 The Proposed Development is relatively small within the overall Substation and LWS. Habitat connectivity within the Legacy Substation and to terrestrial and aquatic habitat in the wider area will remain available outside the construction area, limiting the potential for adverse impacts on GCN movement, breeding and foraging opportunities.
- 2.1.3 Pond P1, confirmed as supporting GCN, will not be directly affected, but its proximity places it at some risk of indirect effects from construction due to surface water runoff and pollution, if not suitably controlled. Pond P2 is dry and overgrown and is not currently suitable for GCN; this pond also lies outside the Proposed Development area. No other waterbodies are affected by the proposal.
- 2.1.4 This process is briefly outlined below with approximate timescales for a 30-week construction programme (anticipated to be):
- Enabling Works: Initial site clearance, laying of permeable geotechnical membrane, such as Terram. The permeable hard surfacing and access track would then be built up on top of this membrane using hardcore aggregates (weeks 1-4);
 - Main Construction Phase: laying of support foundations and installation of the containers, which are pre-fabricated off-site and delivered as complete units; installation of the energy related components (e.g. transformers, inverters, switchgear etc), which would also arrive at the Site pre-fabricated (weeks 4-25);
 - Finishing Phase: Installation of fencing, completion of all electrical engineering connections and remedial landscaping works (weeks 25-30).
- 2.1.5 No additional surface water management or drainage is considered necessary as part of the Proposed Development (i.e. there will be no requirement for gully pots)..

2.2 Licence Requirements

- 2.2.1 An assessment of potential impacts of the Proposed Development on GCN and the provision of this GCN Mitigation Strategy has been undertaken with reference to the NRW' *Template Method Statement to be used within a Great Crested Newt Development Licence Application*.
- 2.2.2 Anyone carrying out activities which may affect EPS must consider their presence, breeding sites and resting places. Based on the knowledge that GCN are likely to be present within the Site and the local area, construction activity and habitat loss associated with the development could result in an offence in the absence of mitigation and would therefore require a licence. The potential impacts (in the absence of mitigation) can be summarised as:

Short-term impacts: disturbance to terrestrial sheltering and foraging habitat and risk of killing and/or injuring GCN resulting from vegetation clearance works and construction activity.

Long-term impacts: loss of an area of potential foraging habitat and places of shelter and refuge resulting from removal of grassland/scrub vegetation.

Post-development impacts: no discernible impacts likely.

- 2.2.3 The predicted impacts are considered to be localised within the curtilage of the Legacy Substation, involving the loss of an area of good quality terrestrial habitat close to a confirmed GCN breeding pond.
- 2.2.4 A EPSM licence is likely to be required from NRW to allow the development to proceed lawfully.
- 2.2.5 Future monitoring would be undertaken by a surveyor in possession of a Great crested Newt Survey Licence, or an accredited agent.

3 MITIGATION STRATEGY

3.1 Rationale and Approach

- 3.1.1 Taking into consideration the baseline conditions at the Site, combined with an understanding of GCN habitat preferences and likely dispersal behaviours, it is considered possible to protect individual GCN potentially present and ensure the favourable conservation status of the local population through an appropriate mitigation strategy enacted under licence from NRW.
- 3.1.2 The Proposed Development will be undertaken under a EPSM licence for GCN granted by NRW, including detailed mitigation measures and Method Statement to ensure the continued favourable conservation status of local population of the species. Compensation and enhancement proposals will aim to replace the habitats that are to be lost or, where a lesser area of habitat is provided, provide enhancements to increase the carrying capacity of habitats. Any net loss of terrestrial habitat will be justified in the EPSM licence application and proposed mitigation and/or compensation measures will be provided.
- 3.1.3 The licence will contain a detailed description of how impacts will be addressed to ensure no detriment to the maintenance of the population at a favourable conservation status. The main elements of the proposed approach will include:
 - capture and exclusion measures for construction area, under licence;
 - supervision, monitoring and biosecurity;
 - off-site habitat compensation measures; and,
 - 'newt friendly' design features.
- 3.1.4 This mitigation will be assessed against the key performance indicators for stage of the development, to be outlined within an Ecological Compliance Audit document, which will also document any action required. The final audit form to be used will be submitted with the licence application, however a template document is provided as **Appendix 1**.

3.2 Capture and Exclusion Under licence

- 3.2.1 The construction area (including temporary works compound etc.) will be subject to the capture and exclusion of amphibians undertaken on receipt of a EPSM licence issued by NRW. Exclusion fencing (temporary amphibian fencing or TAF) will be installed around the area to be cleared, with pitfall

traps installed along the internal wall of the fence at a minimum 10m intervals, carpet tiles will also be used to assist the efficiency of the capture process.

- 3.2.2 The final fencing and pitfall trapping design and layout would be as agreed with NRW as part of a EPSM licence Method Statement for the Proposed Development, however it is initially proposed that fencing would follow the Site boundary with a central running north-south to split the site into two compartments of approximately 0.2ha each, as shown on **Figure 3**. Fencing and pitfall trap specifications would follow those outlined within Section 8.4.2 of the Great Crested Newt Mitigation Guidelines¹, an extract of which is reproduced as **Appendix 2**.
- 3.2.3 Fencing would utilise polythene sheets, woven polypropylene and/ or black polythene DPC or similar such material and be installed by a specialist contractor under supervision by a suitably licenced and experienced ecologist. Prior to the installation of fencing a fingertip search for amphibians would be undertaken by the ecologist, prior to vegetation clearance if required.
- 3.2.4 Pitfall traps would be placed at intervals of 10m to ensure a minimum trapping density of 50 traps per ha. In addition, refugia tiles would also be placed at 10m intervals between the pitfall traps. A summary of the pitfall trap density is given in **Table 3.1** below.

Table 3.1: Summary of pitfall trap density

	Compartment 1	Compartment 2	Total
Length of fencing	173m	182m	355m
Fenced area	0.19ha	0.20ha	0.39ha
No. Traps (10m spacing)	17	18	35
No. refuges (10m spacing)	17	18	35
Equivalent traps per ha	89 traps/ha	90 traps/ha	90 traps/ha

- 3.2.5 Pitfall traps and carpet tiles will be searched on a daily basis (before 10am) with caught individuals relocated to an agreed receptor location as outlined in the final EPSM licence Method Statement granted by NRW, likely to be the nearby on-Site pond and adjacent terrestrial habitat outside the construction area which has confirmed GCN presence, identified on **Figure 3**. The capture of amphibians will be recorded and a log maintained to provide accurate accounts for licence returns. The standard trapping effort for a small GCN population is likely to require approximately 30 days in suitable weather conditions (temperatures above 5°C), however capture effort will be discussed and agreed with NRW as part of the consultation process.
- 3.2.6 Once reasonable capture and exclusion effort has been exhausted and the development area is considered clear of amphibians, all pitfall traps and carpet tiles will be carefully removed (under the watch of the project ecologist) and the Site released for development. The perimeter exclusion fence will be maintained throughout the development or until such time it is no longer required to prevent amphibians moving back into working areas. Fences will be regularly checked while in place to ensure their integrity and to maintain them in good repair.

¹ English Nature (2001) Great Crested Newt Mitigation Guidelines
Legacy Substation Full GCN Mitigation Strategy

3.3 Site Clearance

- 3.3.1 Once the development site has been cleared for development, the site will be cleared of vegetation. This will be undertaken under a watching brief by the project ecologist (or authorised agent) following Reasonable Avoidance Measures (RAMS) to include undertaking clearance of suitable vegetation under a two-stage cut method. While it is anticipated that GCN would be excluded from the site, these RAMs address any residual risk of encountering GCN. Outline RAMs are provided as **Appendix 3**.
- 3.3.2 Vegetation clearance will only commence after a careful inspection by the Project Ecologist has determined no animals are present. Any potential refugia (e.g., grass tussocks) will be hand searched. Following completion of the inspection, vegetation should be reduced to a height no less than 150mm, at which point it will be left to allow animals to move away. A further inspection will be undertaken prior to clearance to ground level. Vegetation should be maintained at ground level for the duration of the development to ensure the development site is unsuitable for amphibians. Additionally, any potential refugia (e.g., log piles) should be dismantled by hand.
- 3.3.3 Further measures are provided within the outline RAMs provided as **Appendix 3**.

3.4 Supervision, Monitoring and Biosecurity

- 3.4.1 Licensed works will be supervised by a licensed ecologist who will liaise as necessary with the client team and site contractors. Supervision and monitoring will be set out in detail in the EPSM licence Method Statement.
- 3.4.2 Site staff will be informed via tool box talks of the licensed measures in place to safeguard GCN, and alerted to the requirement to avoid defined exclusion zones outside the construction area, in particular around pond P1. Exclusion zones will be identified on Site with clear fencing and signage and monitored as necessary by the licensed ecologist.
- 3.4.3 Tools and vehicles have the potential to transfer pests and disease from site to site and therefore site staff will be required to comply with bio-security measures outlined within Appendix A of the Construction and Environment Management Plan (CEMP) whilst undertaking works on site.
- 3.4.4 *Crassula helmsii* has been noted within P1. In addition, there is a risk to GCN and other amphibians through the spread of Chytrid fungus.
- 3.4.5 Any works in proximity to P1 or P2 will be undertaken in accordance with strict biosecurity procedures. This will include the use of a suitable disinfectant (e.g., Virkon) to clean all equipment and footwear prior to and following any activities in proximity to P1.
- 3.4.6 Should the use of funnel traps be required (e.g., as part of post-development monitoring), they will be used for one pond only, or thoroughly disinfected with a suitable disinfectant solution prior to re-use. All clothing and equipment used through the construction and monitoring phases of the Proposed Development will adhere to the Stop the Spread – Check, Clean, Dry procedure after each use. Any crassula removed from P1 will be placed at a distance of approximately 10m from the pond and allowed to compost naturally.
- 3.4.7 If any further invasive plant species are discovered on Site (such as Himalayan balsam *Impatiens glandulifera* or Japanese knotweed *Reynoutria japonica*), works in that location will cease and the project ecologist will be contacted immediately for specialist advice, in order to prevent the accidental spread of such species. The potential presence of invasive non-native species will be addressed as part of the induction tool box talk delivered to all site based operatives immediately prior to the commencement of site works.

3.5 Habitat Compensation and Enhancement Measures

- 3.5.1 Mitigation for the Proposed Development addresses permanent terrestrial habitat loss potentially used by GCN, and the effects of temporary habitat disturbance during construction, as set out in the Ecological Assessment Report.
- 3.5.2 This will focus on the provision of enhanced habitats for GCN (and other wildlife) within the LWS. The GCN Mitigation Strategy will underpin any future licence application to NRW. As part of the licence application itself, a detailed Method Statement will set out measures for the protection of GCN during construction, and for habitat management and enhancement over the long term to maintain the favourable conservation status of GCN in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended).
- 3.5.3 Mitigation within the Legacy Substation will be achieved through targeted habitat enhancement and management, aimed at maintaining and enhancing habitats suitable for GCN (and other wildlife) within the LWS over the long term. Such measures will be agreed with National Grid as landowner, and are consistent with national Grid's own biodiversity objectives including driving biodiversity net gain and enhancing natural assets. Such measures will include:
- restoration of pond P2, which is currently dried out and unsuitable for GCN, to provide additional breeding and foraging habitat and strengthen habitat links to the local pond network;
 - Long term management of P1 and P2; and,
 - New hibernacula in proximity to ponds within the Legacy Substation.
- 3.5.4 Pond restoration and habitat enhancement will provide increased opportunities for GCN and other amphibian species within and around the Site, providing favourable breeding, refuge and foraging habitat and strengthening habitat linkages.
- 3.5.5 Due to the relatively limited scale of habitat loss and other impacts, along with the mitigation and enhancement that will be delivered, construction and operation of the BSF is not considered likely to detrimentally affect the status of local populations of GCN.

Restoration of Pond P2

- 3.5.6 The pond will be re-profiled to provide a range of depths and will have an irregular shape. A shallow wetland shelf of less than 30cm will encourage a diversity of pond plants which in turn provides for invertebrates and egg laying substrate for newts. A bentonite liner will be used to provide a permanent waterbody, if required.
- 3.5.7 The pond re-profiling will be undertaken by a long-reach excavator (or similar), in order to undertake the works with the minimal amount of impact to immediately surrounding habitats as possible.
- 3.5.8 All works will be supervised and preceded by a fingertip search of habitats within and surrounding the dry pond (impact zone) by an Ecological Clerk of Works (ECoW). Contractors will be provided with a toolbox talk prior to works commencing. Works will be timed to minimise the potential for impacts, being undertaken in within the time-period when GCN are least likely to be present in ponds and when newt activity is at a minimum (November to February).

Hibernacula Construction

- 3.5.9 Habitat creation and compensation specifically for amphibians but also benefiting other wildlife will also include the creation of four artificial hibernacula which will also be constructed within the LWS; these will provide safe refuge for amphibian (and other) species. These will follow the standard

design as detailed in the *Great Crested Newt Mitigation Guidelines* (English nature 2001) and reproduced in **Diagram 1**.

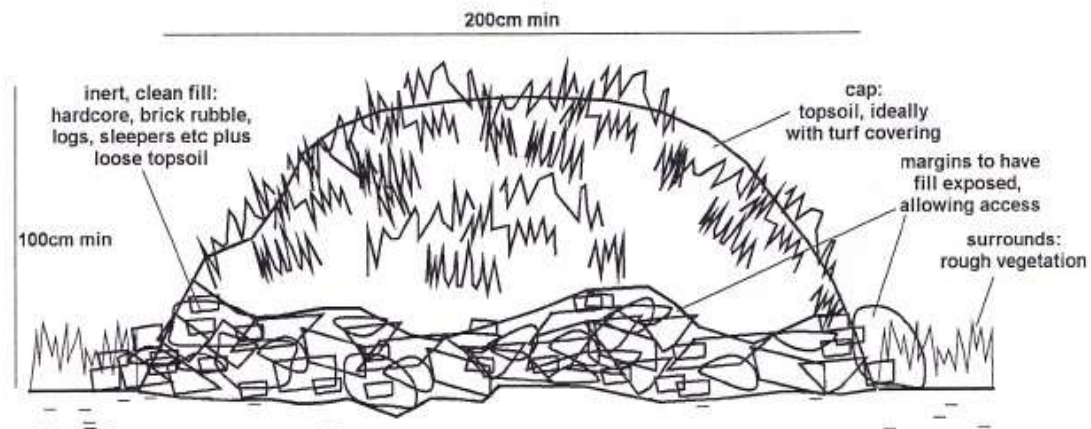


Diagram 1 *Hibernacula design taken from the Great Crested Newt Mitigation Guidelines (English Nature 2001).*



Photo 1 – *Example of a hibernacula created based on the Great Crested Newt Mitigation Guidelines (English Nature 2001).*

3.5.10 The hibernacula will be set within grassland/marginal vegetation or woodland edge near to ponds to provide extra shelter. Each will comprise a mound of brick / stone rubble, boulders and logs capped with topsoil and turf (see Photo 1). Margins will be left exposed allowing amphibians to access the feature.

3.5.11 The development is not considered to result in barriers to dispersal for GCN.

3.6 Ongoing Habitat Management

Pond Management

- 3.6.1 P1 and P2 will be subject to annual routine management to maintain open water habitat with marginal vegetation.
- 3.6.2 Overly vigorous plant species may need to be cut back or removed from the pond. Management of aquatic vegetation should be undertaken annually (little and often) with vegetation thinned rather than removed. The pond should be managed to retain at least 35% to 60% of the surface as open water. Removed vegetation should be hand sorted to ensure no animals are caught up in the vegetation and left at the pond edge for at least 24 hours before it is removed from Site.
- 3.6.3 Herbicides should not be used within close proximity to ponds.
- 3.6.4 If fish are found to be present, appropriate remedial actions should be taken to remove fish from the pond (see Section 6).
- 3.6.5 Should water levels within the deepest area of the pond fall below half a metre, de-silting will be required (see Section 6).
- 3.6.6 Pond management work should be carried out from autumn through winter, typically 01st November to 31st January, when GCN are unlikely to be present in ponds.
- 3.6.7 Pond management work is designed to improve the breeding site and therefore there is little risk of damage or destruction occurring, as the features will be enhanced. Where work is carried out with sensible precautions, then the risk of deliberate killing, injuring or disturbing GCN and other wildlife can be greatly minimised. However, where significant management works are proposed (e.g., de-silting) or works are required outside the late autumn / winter period, it is advised that Wrexham Borough Council and / or NRW be contacted prior to any such works commencing.

Hibernacula Management

- 3.6.8 Monitoring of the hibernacula will be undertaken every two years (between July - September) following creation and will be repaired or built-up as and when required prior to the winter hibernation / dormancy period (typically November to February inclusive). Management will also include checking for and the removal of any barriers that may hinder GCN movements.
- 3.6.9 Cut material from vegetation management may be retained on Site and piled up in suitable locations or added to hibernacula to provide refuge for GCN and other species.
- 3.6.10 A licence from NRW or the presence of a licensed ecologist may be required, if hibernacula are required to be dismantled or moved for any reason. NRW and Wrexham Borough Council should be contacted prior to any such works commencing.

4 MONITORING AND REVIEW

- 4.1.1 Monitoring will form part of the licence requirements from NRW and will include both surveys for GCN and checks on habitat mitigation and management. Habitat monitoring will involve an inspection of the restored P2 to ensure it is holding water and vegetation is establishing, regular monitoring of P1 as well as inspections of hibernacula and any other features to ensure that they are being managed as required. The results of the monitoring will be used to inform licence returns and any future changes in management to achieve the mitigation objectives. Management measures will be amended, if necessary, based on the monitoring recommendations.

5 POST CONSTRUCTION MONITORING & RECORD DISSEMINATION

5.1 Habitat Monitoring

- 5.1.1 The development of the biodiversity interest will be monitored over time; this will involve an annual walkover survey (between April and June), to inspect the pond, grassland and other ecological enhancement features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest. The results of these monitoring surveys will be used to inform future changes in management (for example amendments may be made to the timing or frequency of grass cuts or additional vegetation management in and around the pond to maintain open water).
- 5.1.2 Monitoring reports produced by the management organisation will be presented to Wrexham Borough Council in years 1, 3, 5 and then at 5-year intervals following completion of the development for no less than 25 years, unless otherwise agreed with Wrexham Borough Council. The monitoring reports will be submitted to Wrexham Borough Council by 30th November and will include a description of habitat condition of ponds and hibernacula, detail of management works undertaken and any remedial actions that are considered necessary to ensure the habitats are being managed effectively for GCN and other wildlife.
- 5.1.3 The key performance indicators against which the success of monitoring and management practices will be reviewed are summarised in Table 5.1.

Table 5.1 - Key performance indicators to assess management

Habitat Feature	Condition Indicator	
	Good	Poor - with typical rectification actions
Pond	- Pond establishing/established well, with marginal and aquatic vegetation present and water permanently present (season fluctuations in levels are acceptable). - Appropriate balance of open water (at least 35% and 60% open water), aquatic and margin cover/shade maintained.	- Pond dry or failing to hold sufficient water. <i>Design rectification required – e.g., bentonite liner.</i> - Aquatic and marginal vegetation not present and colonisation not occurring <i>Planting required.</i> - Excessive shrub encroachment (margins) or over-growth of aquatic vegetation and loss of open water. <i>Vegetation management required to maintain proportion of cover at optimum levels for GCN and other aquatic species.</i>
Hibernacula	Constructed hibernacula in place with no evidence of collapse or loss of covering material.	Hibernacula showing signs of collapse and / or loss of covering material <i>Add further covering material such as turves / logs / inert rubble in line with design specification.</i>

5.2 Great Crested Newt Monitoring

- 5.2.1 P1 and P2 will also be added to the Wales GCN Monitoring Scheme² with biennial abundance counts and Habitat Suitability Index (HSI) Assessments undertaken, and results entered through Cofnod

² <https://www.cofnod.org.uk/LinkInfo?ID=7>
Legacy Substation Full GCN Mitigation Strategy

Online Recording Scheme (ORS). Monitoring will commence the first year following completion of the development and then undertaken every second year for a period not less than 25 years.

- 5.2.2 The abundance counts and HSI surveys will be undertaken by GCN licensed surveyors either as part of the management agreement (as set out in Section 1.3) or by a licensed ecologist appointed separately by the landowner.
- 5.2.3 The abundance counts will comprise three torch light surveys between mid-March and mid-June with at least one survey undertaken between mid-April and mid-May. Egg searches will also be undertaken to confirm use as a breeding site for GCN.

6 REMEDIAL ACTIONS

- 6.1.1 Any remedial actions required (e.g., the removal of any introduced fish from the pond, desilting etc.) will be undertaken with appropriate safeguards in place. The appointed management company should first consult with Wrexham Borough Council and NRW prior to undertaking any such remedial actions.
- 6.1.2 GCN newt larvae and their eggs are vulnerable to predation by fish introduced accidentally or deliberately. The introduction of fish can be a significant cause of decline in GCN populations; therefore, should fish be found present within the pond as part of post construction monitoring, removal of fish may be required. There are several measures which could be employed including netting or drain down of the pond which may be effective on a small pond but the proposed methods must be agreed with NRW and relevant permissions obtained.
- 6.1.3 Following any fish removal or control activities, survey work will be required to assess the effectiveness of the measures and response of the GCN at the pond.
- 6.1.4 If an invasive non-native invasive species (INNS) is recorded within P1, P2 or around any of the created hibernacula, remedial actions will be required to control and where possible eradicate the INNS. Faunal species will be controlled in a similar manner as proposed for fish. Plant species will be selectively treated using an appropriate method, such as extraction and removal from Site (as a controlled waste) or through treatment using an approved herbicides (herbicides should not be used near the pond). A contractor that specialising in the management of INNS, with the required certifications, should be commissioned to advise on and undertake treatment works.
- 6.1.5 Should water levels within the deepest area of P1 or P2 fall below half a metre, de-silting will be required. Where de-silting works require the use of a long-armed excavator, entry and access to the pond should be limited to one point or section of bank (avoiding hibernacula and potential places of shelter).

7 TIMING AND SEQUENCING OF ACTIVITIES

7.1.1 **Table 7.1** presents the sequence of activities associated with the construction and proposed delivery of the GCN mitigation.

Table 7.1: Pre, mid and post development works (other than monitoring/ maintenance)

Activity	Timings	Comments
Creation of hibernacula/ refugia	Post-construction	
Installation of exclusion and drift fencing	Immediately prior to commencement of exclusion	Post grant of licence.
Pitfall trapping and exclusion of GCN	February to October (dependant on suitable conditions (i.e, evening temperatures above 5°C.))	Minimum of 30 days, ceasing only after 5 'clear' nights.
Removal of drift fencing	-	Following completion of trapping and exclusion efforts.
Vegetation clearance	-	Following completion of trapping and exclusion efforts. To be undertaken following RAMS
Construction of Scheme	-	Following completion of trapping and exclusion efforts. Approximately 30-week schedule.
Removal of exclusion fencing (TAF)	Avoiding winter hibernation period (November to February)	Following completion of construction works.
Pond restoration of P2	November to February	To be undertaken in the first suitable period post-construction
Scrub clearance around ponds (if required)	September to February	To avoid nesting bird season

8 TIMETABLE FOR MANAGEMENT, MAINTENANCE AND MONITORING

KEY

	No works programmed
	Management works can be undertaken but not the preferred period
	Recommended period for undertaking management works
	Works only required if conditions / monitoring demonstrate that management is required

Management & Maintenance	Years 1 -25 following completion of the residential development (minimum management period unless otherwise agreed with the Wrexham Borough Council)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
General Management and Maintenance – litter picking from both terrestrial and aquatic habitats (leaving soft pliable debris within the pond between March & June inclusive) and repairs to fences and gates as required.	*	*	*	*	*	*	*	*	*	*	*	*
Pond - Annual routine management and removal of overly vigorous or invasive plant species	*										*	*
Pond - De-silting (only if required)	*										*	*
Pond – Cut back encroaching scrub on a phased basis in particular where overshadowing ponds.	*	*							*	*	*	*
Hibernacula – No set maintenance programme. Repaired or built up as and when required, prior to the winter dormancy / hibernation period (taking account of relevant wildlife legislation)			*	*	*	*	*	*	*	*		

Monitoring	Years 1 -25 following completion of the residential development (minimum management period unless otherwise agreed with the Wrexham Borough Council)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Annual checks of the pond and other ecological enhancement features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest.				*	*	*						
Biannual population monitoring. The pond will also be added to the Wales GCN Monitoring Scheme with biennial abundance counts and Habitat Suitability Index (HSI) Assessments undertaken and results entered through Cofods Online Recording Scheme (ORS).			*	*	*	*						
Monitoring reports will be presented to Wrexham Borough Council (by 30 th November) in years 1, 3, 5 and then at 5-year intervals following completion of the residential development for not less than 25 years, unless otherwise agreed with Wrexham Borough Council.											*	

Activity	Year following construction					
	1	2	3	4	5	6-25
Population monitoring at P1 and P2	X		X		X	Biennially (i.e., years 7, 9, 11 etc)
Checks of the pond and other ecological enhancement features to ensure that they are being managed in a manner suitable for the enhancement of wildlife interest.	X	X	X	X	X	Yearly
Habitat Management/ Site Maintenance (as required following above checks)	X	X	X	X	X	Yearly
Submission of Monitoring Reports	X		X		X	5-yearly (i.e., years 10, 15, 20 etc)

FIGURES

FIGURE 1: SITE LOCATION PLAN



FIGURE 2: POND LOCATION PLAN

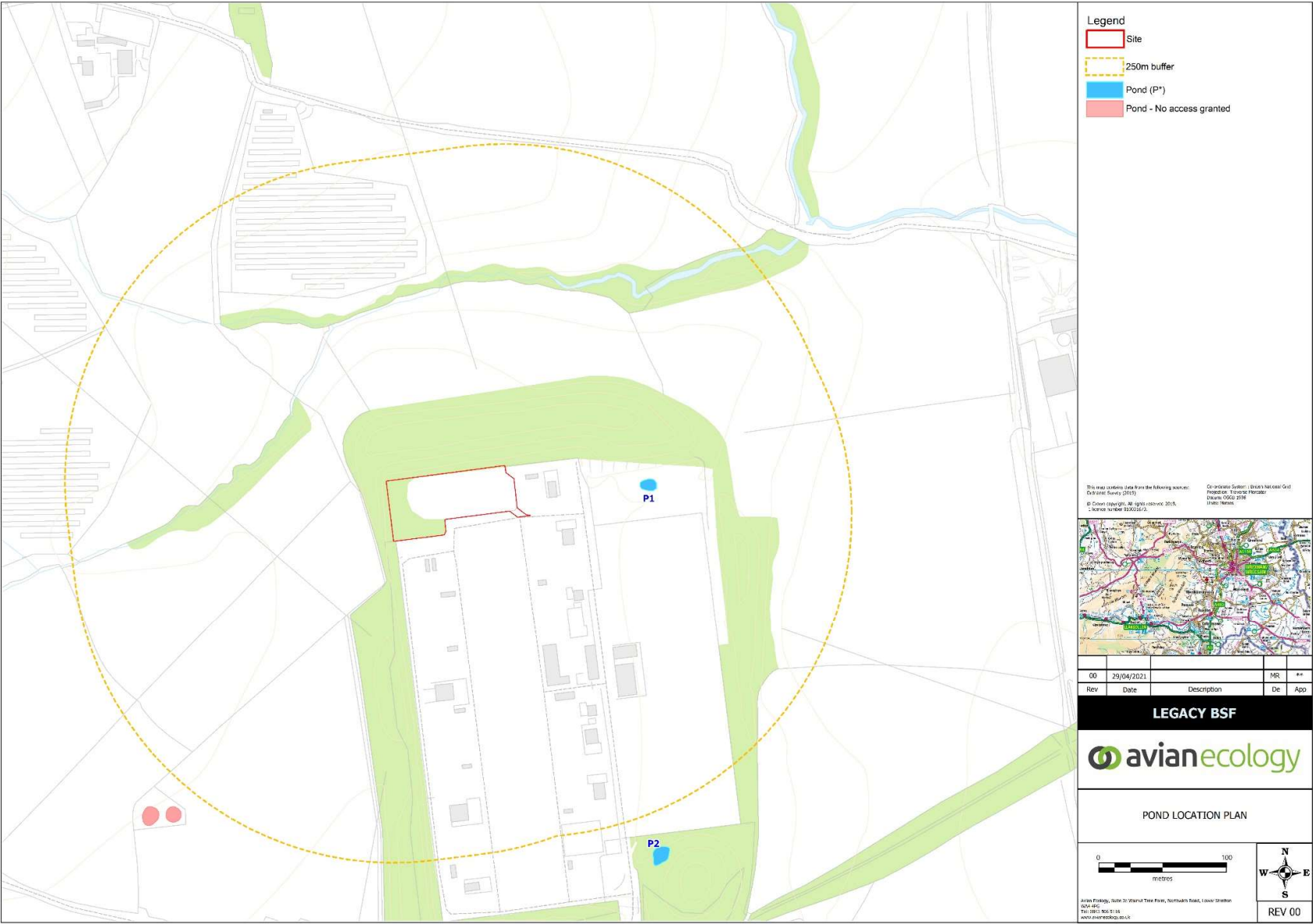
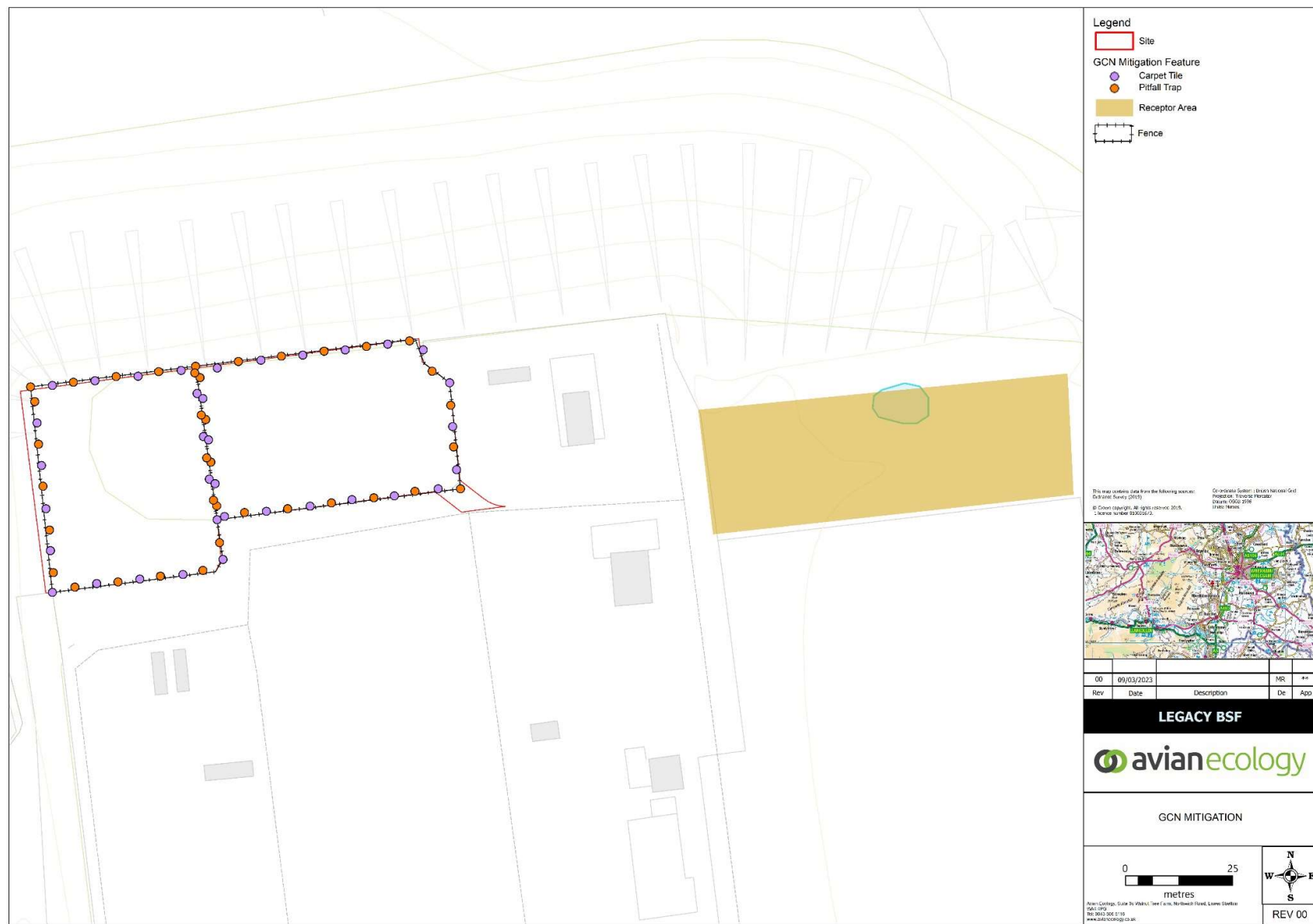


FIGURE 3: PROVISIONAL FENCING AND TRAPPING PLAN



APPENDIX 1: ECOLOGICAL COMPLIANCE AUDIT TEMPLATE

Natural Resources Wales licence reference number:		Site name:	
		Site grid reference:	
Name of licence holder:		Name of developer if different from licence holder:	
Name of ecological consultant:		Date/s of audit (dd/mm/yy):	
Date licence issued (dd/mm/yy):	Date licence expired:	Licence implemented between (dd/mm/yy)	
		From:	To:

No	Performance Indicator	Evidence required - this list should be adapted to reflect the agreed method statement	Pass (Yes/No), comments	What action is required as a result of findings?
	Pre-development			
1	Before starting work the licensee will advise NRW Species Officer of the date the works will start.	Written or electronic documentation of notification of start of works.		
2	A suitably experienced licensed ecologist will be appointed and retained during the life time of this licence to provide on-site advice.	Letter, contract or other document outlining the appointment of an Ecologist for the lifetime of the project.		
3	Prior to the start of any works on site, all site workers will be inducted by the Project Ecologist. This induction will cover the legal status	Copy of documents from ecological induction, showing content of induction.		

APPENDIX 1: ECOLGOICAL COMPLIANCE AUDIT TEMPLATE

	of the species, the method of working, and action to be taken if protected species are encountered.	List of induction attendees		
4	Preparation and implementation of a bio-security risk assessment as detailed in E.5 of the method statement	Bio-security risk assessment is available for inspection. Log of implementation of bio security measures is available for inspection and shows that they have been implemented. Field observation shows that bio security measures are in place e.g. foot washes		
	GCN capture and exclusion			
5	Design and installation of amphibian fencing to the specifications provided in the CCW guidance sheets/ EN (2001) and as detailed in the method statement:	Log and field observation show that exclusion/ drift fencing have been installed as detailed in the method statement, including: - fencing has been installed on the inside of security fencing; - fencing has been installed so there is a minimum 1 m access strip left for maintenance on all sides - fencing layout does not contain gaps through which newts may pass. - vehicle access points have been installed using gates of heavy plastic or ACO stop-grids;		

APPENDIX 1: ECOLOGICAL COMPLIANCE AUDIT TEMPLATE

		- fence-posts have been located on the outside of the receptor area; - fencing membrane has been installed without noticeable creases or folds; - joints in the membrane have been 'curl-joined' and well secured to a post with pads and nails. The jointing method continues underground as well as above		
6	Amphibian fencing has been subject to inspection and maintenance according to CCW guidance sheets/ EN (2001) and as detailed in the method statement throughout the translocation and construction periods.	A fence inspection log of all inspections and all repairs required has been maintained and is available to NRW at 48 hours notice to show that: - the fence has been inspected by a suitably qualified/ licensed ecologist every 24 hours - any repairs have been completed within 12 hours throughout the duration of construction works. - that 99% or more of the length of the exclusion fencing has been maintained in a satisfactory condition - fencing has been kept clear of vegetation or other materials that may enable newts to climb over the fence		
7	Works within amphibian habitats will not commence until working areas are confirmed to be clear of	Log of activities, including clearance activities, is available for inspection		

APPENDIX 1: ECOLOGICAL COMPLIANCE AUDIT TEMPLATE

	amphibians by the licensed ecologist.	recording captures.		
8	Any works outside the amphibian fence are to be in accordance with a methodology as approved by NRW supervised by a licensed person.	Log of works undertaken, including evidence of licensed person on site, available for inspection.		
GCN habitat modification and creation for mitigation and compensation				
9	All mitigation and compensation measures have been implemented as per section E2 and E.3 of the Method Statement:	Log of works demonstrates habitat creation /enhancement implementation Design and installation of hibernacula: log and field observation show installation was in accordance with the method statement including: - dimensions - construction materials - number and locations Design and creation/ enhancement of great crested newt ponds: log and field observation show installation was in accordance with the method statement including: - location - dimensions - depth - planted or not, as appropriate - water quality and supply - provision of artificial egg laying		

APPENDIX 1: ECOLOGICAL COMPLIANCE AUDIT TEMPLATE

		substrate where appropriate		
10	The compensation/receptor site has been subject to appropriate management during construction as specified in section E.2.1 of the Method Statement	Log and field observation show that appropriate management activities have been implemented		
11	The implementation of surveillance or monitoring of schemes, pre, during and post development as specified in the Method Statement.	Log shows that surveillance and monitoring have been implemented pre, during and post development and results passed to appropriate data holder		
Long Term Site proposals				
12	Implementation of <u>habitat/site management and maintenance</u> and, <u>habitat monitoring</u> as detailed in F.1 and F.2 of the method statement	If audit undertaken <u>during development phase</u>: - Habitat management plan demonstrates measures are in place to ensure ongoing land management of retained, modified and newly created habitat post-development If audit undertaken <u>post-development</u>: - log or report demonstrate habitat management plan has been implemented - site management works are maintaining the ecological functionality of the mitigation/		

APPENDIX 1: ECOLOGICAL COMPLIANCE AUDIT TEMPLATE

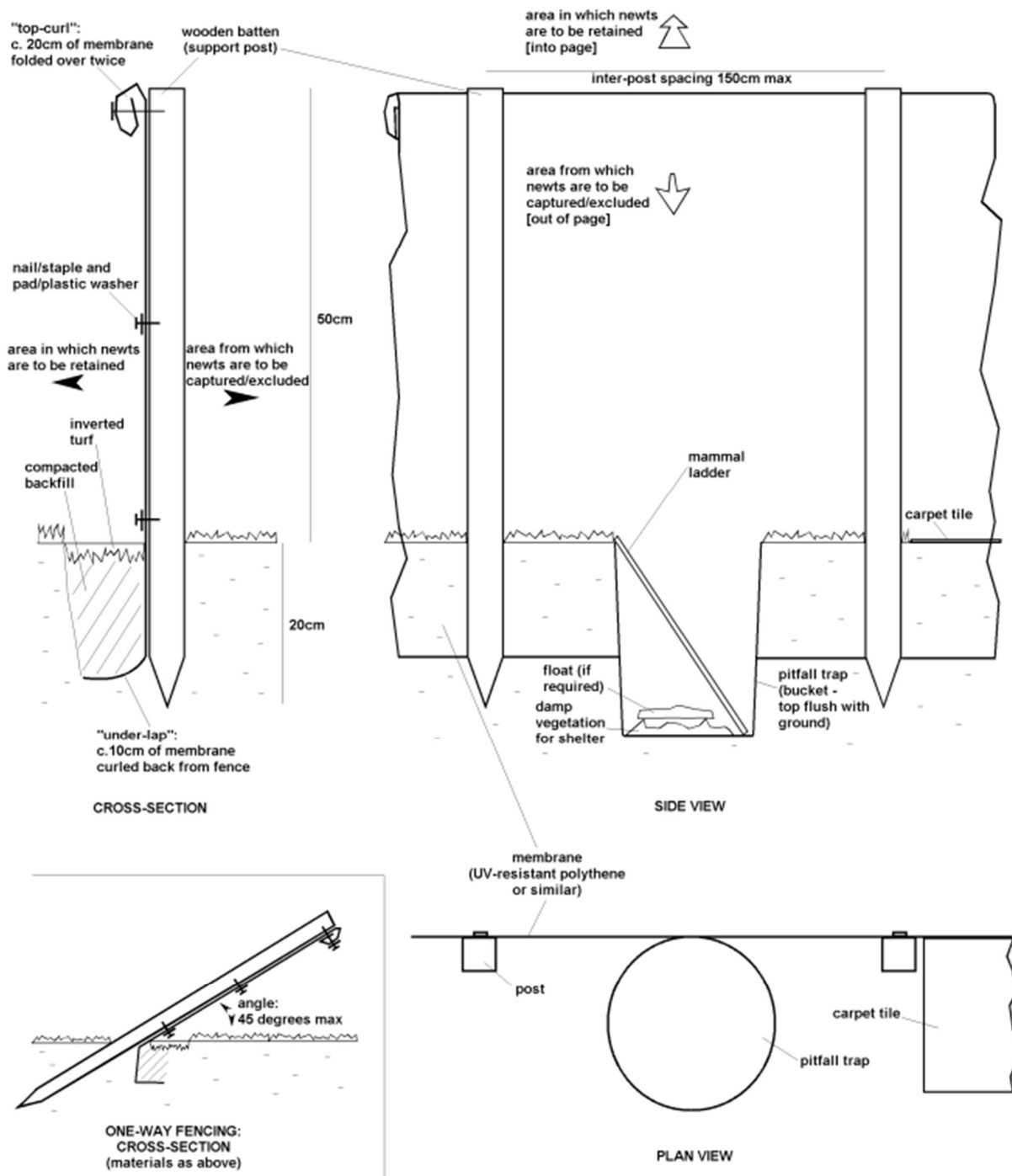
		compensation site		
13	Implementation of <u>population monitoring</u> as detailed in F.2 of the method statement	If audit undertaken <u>during development phase</u>: - monitoring plan demonstrates measures are in place to undertake GCN population monitoring post-development. If audit undertaken <u>post-development</u>: - log or report demonstrate monitoring plan has been implemented - log or report demonstrate results passed to local record centre		
14	Implementation of long term site safeguard proposals as detailed in F.4, H.1 and H.2 of the method statement	Log of works demonstrates implementation (i) Evidence of lease agreement for the duration of management period (ii) proposed legal agreements and contracts been completed (iii) wardening requirements implemented to proposed timescales and in accordance with the submitted Method Statement (iv) financial plan in place to resource mitigation, compensation, monitoring, site management or wardening		

APPENDIX 1: ECOLGOICAL COMPLIANCE AUDIT TEMPLATE

15	Post-development monitoring records disseminated to the Welsh GCN Monitoring programme	Evidence of record submission		
	Any other points to note/comments from auditor:			

Auditor name and organisation	Signature	Date

APPENDIX 2: GREAT CRESTED NEWT EXCLUSION FENCING SPECIFICATION



Reproduced from: English Nature (2001) *Great Crested Newt Mitigation guidelines*. Accessed at: https://mokrady.wbs.cz/literatura_ke_stazeni/great_crested_newt_mitigation_guidelines.pdf [07/03/2023]

APPENDIX 3: OUTLINE REASONABLE AVOIDANCE MEASURES

The following Reasonable Avoidance Measures (RAMs) Method Statement outlines suitable measures to be implemented during construction works associated with the proposed battery facility (the Site), to avoid the potential for disturbance, injury or killing of great crested newt *Triturus cristatus*. It is considered that the measures outlined will also protect other common species of amphibian, reptiles and small terrestrial mammal species such as western European hedgehog *Erinaceus europaeus*.

All works must be undertaken under a development licence granted by Natural Resources Wales (NRW). On receipt of the licence the working method statement will be made available for all site operatives. No site clearance works should be undertaken until the site has been cleared of amphibians, in accordance with the licenced method statement. While it is anticipated that GCN would be excluded from the Site, these RAMs address any residual risk of encountering GCN.

Measures to ensure the favourable conservation status of the species during the proposed development must reflect legislation and guidance application at the time and the construction phase will be undertaken following RAMS under the supervision of an Ecological Clerk of Works (ECOW) as required to provide advice.

These RAMs relate to the removal of vegetation with potential to shelter animals for built development and temporary excavations for a grid connection and should not be employed for larger scale or extensive scrub or woodland habitat removal. Minor or short term destructive or disturbance works will also follow this Method Statement to ensure legal compliance and to ensure the objectives are achieved.

It will be the responsibility of the site 'Owner/Developer', the Site Manager and all site contractors to ensure that the RAMs set out below are adhered to during the works.

Method Statement Objectives

In order to facilitate the proposed works, a detailed working RAMs Method Statement will be adopted to limit disturbance to avoid significant impacts on amphibian, reptile and small mammal populations potentially present.

Any development related activities on the Site, such as vegetation clearance or excavations in areas of suitable habitat may potentially affect reptile species. As a result, safeguards must be implemented to protect these species and the Method Statement below outlines measures to be implemented to ensure these objectives are achieved. If these measures are followed then no impacts are likely to occur.

Project Ecologist

Certain site set-up and construction activities will require the presence of an experienced licensed ecologist (the Project Ecologist). The role of the Project Ecologist is to ensure that working areas, access and the like are checked as necessary and positioned away from 'higher risk' habitat outside of the licensed working area where great crested newts and other wildlife are more likely to be present and protecting habitats to be retained (e.g. boundary tree lines).

The Project Ecologist will identify areas or features offering potential refuge for reptiles and inform the site team on areas to be avoided, and advise on any legislative aspects associated with the works. The Project Ecologist will provide a tool box talk to all site staff prior to works commencing on Site. The Project Ecologist will also be present during all works considered to require advice and supervision (to include initial vegetation removal and checks of any discrete refugia within the Site).

The Project Ecologist will be contactable by the Site Manager at all other times and available to further advise on site if necessary, as a contingency measure.

Method Statement

This Method Statement should be followed for the construction works and associated minor short term destructive habitat clearance works within the Site in order to ensure legal compliance and to ensure the objectives are achieved.

APPENDIX 3: OUTLINE REASONABLE AVOIDANCE MEASURES

Site set up

Temporary fencing will be installed to identify and protect trees and boundary vegetation outside the licensed working area to be retained throughout the construction period. This will also prevent accidental disturbance to such features which may provide refuge for reptiles.

Initial vegetation removal may only be undertaken once the Project Ecologist has undertaken visual checks as necessary. Working areas and agreed access routes and any exclusion areas shall be adhered to at all times, unless agreed in advance with the Project Ecologist.

The vegetation removal/site clearance works should be undertaken during the period in which reptiles are active (March to October inclusive). Once cleared of vegetation, the site is no longer likely to attract or support reptiles.

Pre-works

All site operatives will be informed by a 'tool box' talk at the start of works on the possible presence of protected species, licensing and ecological responsibilities, and what to look out for during works. An informative leaflet will be available to all site operatives. All staff will sign a Confirmation Sheet to show they have received and understood the briefing information on protected species.

The Project Ecologist will walk the site prior to any works commencing to identify possible features that may provide shelter or refuge for reptiles and other wildlife. In the event that such features are present, these will be searched to confirm that no reptiles are present or that no other species is likely to be injured or killed. The working areas, access routes and any excluded areas will be confirmed with the Site Manager and clearly identified. Works will only commence once the licensed ecologist has carried out their inspection.

Grassland and scattered scrub will be subject to an initial check and cut down to a height of approximately 150mm to make the Site less favourable as terrestrial habitat and therefore less likely to support amphibians, reptiles and other wildlife. Once animals have had sufficient opportunity to move away, the site will be checked by the Project Ecologist. Any animals found will be allowed to escape of their own accord. Once checked, vegetation can be cleared to ground level and development works can commence.

During Works

The following measures will be adopted throughout the construction period of the proposed development:

- Site operatives will be informed by 'tool box' talk of the potential for protected species to occur on-site, what to look out for and what to do in the event that animal is found.
- Vegetation clearance works should only commence after a careful visual inspection by the Project Ecologist or ECoW has determined that no animals are present. Potential refugia should be hand searched by the ecologist prior to removal. Vegetation should be reduced (by hand trimmer) to a height of c.150mm prior to ground works commencing to aid visual searches and encourage individuals to temporarily move away from the working areas.
- The proposed timing of the works should avoid the reptile hibernation period (November to February inclusive) in order to prevent disturbance to hibernating animals.
- All work traffic will use the same access route thus minimising disturbance to other areas and will follow the predefined access routes.
- Earth stockpiles will be smoothed to remove surface crevices or voids that could potentially shelter amphibians and reptiles and thereby put them at risk during future removal / re-use of

APPENDIX 3: OUTLINE REASONABLE AVOIDANCE MEASURES

stored soils. Earth stock piles should not be created off-site or adjacent to retained vegetation such as boundary trees.

- Trenches and excavations should include an escape route for animals that might enter the trench, especially if left open overnight. Ramps should be no greater than 45 degrees in angle and can include wooden planks or ramped earth. Ideally, any excavations open overnight/ for a prolonged period should be covered.
- All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling.
- Any excavated material stored overnight should be searched prior to being used as infill.
- Any brash cut down from the Site should be placed in piles within a set aside and undisturbed habitat area, to create additional refugia for amphibian and reptile species.

Should a great crested newt, reptile, western European hedgehog or other notable species be found at any point during construction, works within suitable habitat and/or potentially disturbing works in close proximity to the great crested newt/reptile/hedgehog must cease immediately and the ECoW will advise on the appropriate actions.