



Little Llwyn Onn, Wrexham
Solar Farm & Battery Storage
(P/2022/0541)
Habitat Management Plan

Produced for:



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CONTENTS

1	INTRODUCTION	1
1.1	Site Background	1
1.2	The Scheme	1
1.3	Site Ecology	1
2	RESULTS	3
2.1	Overview	3
2.2	Species-rich Native Grassland	3
2.3	Woodland and Trees	3
2.4	Hedgerow	3
2.5	Scrub	4
2.6	Ponds	4
2.7	Hibernacula	4
3	AIMS & OBJECTIVES	5
3.1	Overall Aims	5
3.2	Objectives	5
4	MANAGEMENT PRESCRIPTIONS	7
4.1	Species-rich Native Grassland	7
4.2	Woodland and Trees	7
4.3	Hedgerow	8
4.4	Scrub	9
4.5	Ponds	10
4.6	Hibernacula	10
4.7	INNS	11
5	MONITORING	12
5.1	Methods	12
5.2	Key Performance Indicators	13
5.3	Reporting & Remedial Action	13
6	WORKS SCHEDULE	15
6.1	Year 1 Works Plan	15
6.2	Annual Works Plan	15
7	ROLES & RESPONSIBILITIES	16
7.1	Site Owner(s)	16
7.2	Appointed Ecologist	16
8	OWNERSHIP & FUNDING	16
8.1	Ownership	16
8.2	Funding	16

APPENDIX A

Approved Site Layout

Quality Assessment Record

Report Version	Written by	Date	Reviewed by	Date
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1 INTRODUCTION

1.1 Site Background

- 1.1.1 This document has been produced in relation to the approved solar farm and battery storage development at Little Llwyn Onn, Wrexham.
- 1.1.2 The preparation of a Habitat Management Plan (HMP) has been requested by Wrexham County Borough Council (WCBC) and Natural Resources Wales (NRW) to ensure necessary landscape and environmental management measures are agreed prior to commencement and implemented to ensure the site's landscape and environmental features are adequately managed long term. The HMP additionally supports the Great Crested Newt (GCN) Mitigation Strategy and the GCN Conservation Management Plan. The GCN MS was produced along with the Preliminary Ecological Appraisal (PEA) and Ecological Impact Assessment (EiA) to inform the planning application. The HMP is designed to ensure the delivery of both the immediate and long-term biodiversity enhancements proposed within the approved scheme details.

1.2 The Scheme

- 1.2.1 The approved scheme is to construct a solar farm and battery storage facility across two fields at Little Llwyn Onn, Wrexham. The proposed site layout is shown in Figure 1 and includes the following components and activities:
- Develop Compartment 1 (West) and Compartment 2 (East) as solar panel compartments with separate access gates.
 - Install batteries and ancillary infrastructure.
 - Install perimeter fencing around the solar park and associated infrastructure, with CCTV security.
 - Remove 7m hedgerow from the south boundary to facilitate site access.
 - Reduce the height of a section of hedgerow on the south boundary to 0.6m.
 - Enhance the existing eastern hedgerow by gap planting and create new woodland / scrub habitat, as per the proposed site layout.
 - Create one hibernaculum within each compartment.
 - Create a new pond in Compartment 2 and an adjacent soil bund.
 - Convert existing arable land in the south of Compartment 1 into species-rich native grassland by over-sowing of a suitable seed mix.
 - Manage the retained, enhanced, and newly created habitats for the duration of the operational period (anticipated to be 40 years) with monitoring and Site wardening.
- 1.2.2 Full details of the scheme and the ecological baseline of the site are provided within the planning application.

1.3 Site Ecology

- 1.3.1 The ecological sensitivities and features of the site comprise:
- Amphibians, including GCN, known to be present near to the site in well-connected habitat.
 - Badger setts known to be present within Compartment 1, and badger foraging activity also found within Compartment 2.
 - Bat roost potential for a number of trees on site – all of which are being retained.

- Potential for bats foraging and commuting corridors along hedgerows and field boundaries.
- Nesting birds known to be present within suitable habitat during breeding season.
- Potential for reptiles to be present within the suitable terrestrial habitats.
- Potential for notable species such as brown hare, hedgehog, weasel and polecat within suitable terrestrial habitat.
- INNS considered to be potentially present within the site boundary.
- Hedgerow likely to qualify as Habitats of Principle Importance in Wales.

1.3.2 Various measures and actions are required to ensure that these ecological receptors are protected and mitigated appropriately as part of the construction of the proposed scheme, as detailed within the EcIA. This HMP has been prepared to ensure the delivery of the long-term conservation site management.

2 RESULTS

2.1 Overview

2.1.1 The proposed scheme layout is provided in **Appendix A** and shows the following habitats and features:

- Species-rich native grassland
- Woodland
- Hedgerow
- Scrub
- Ponds
- Hibernacula

2.1.2 Each of these habitats / features is described below in terms of location, functionality, and potential biodiversity value.

2.2 Species-rich Native Grassland

2.2.1 Species-rich native grassland will be the dominant cover across the site. The habitat will sit beneath the new solar panels and land south of Compartment 1, surrounding the built features and will extend up to the new, retained, and enhanced trees, scrub, hedgerows, and soil bunds that boarder the two compartments.

2.2.2 The species-rich grassland habitat will be managed to create a diverse sward, which in turn supports a variety of insects and other invertebrates. This would provide suitable habitat with an abundance of food and shelter for bats, small mammals, birds, reptiles, and amphibians, including GCN. The species-rich grassland will also be managed to provide shelter and suitable hibernating habitat for overwintering species. This habitat is expected to add significant overall biodiversity capacity to the site.

2.3 Woodland and Trees

2.3.1 A small area of woodland will be planted in the wester corner of Compartment 1, and a woodland belt will be planted along the southern site boundary. There will also be the demarcation of tree root protection zones around existing mature trees within both compartments.

2.3.2 The woodland habitat will be managed in such a way that it will provide habitat of enhanced suitability and for the benefit of amphibians, including GCN. The linear woodland habitats will also provide foraging habitat and wildlife corridors for bats, birds, and small mammals, as well as providing a buffer from adjacent disturbance. The woodland area to the west and belt to the south will also provide a visual function by separating and screening the solar panels and associated infrastructure from the adjacent land-use. There are 13 existing mature trees within the application site that provide bat roost potential (BRP) and numerous other scattered broadleaved trees on site provide foraging and commuting habitat for bats, as well as suitable nesting bird habitat.

2.4 Hedgerow

2.4.1 The existing eastern hedgerow will be enhanced by way of gap planting, and the hedgerow on the western end of the northern boundary will be retained. The species-poor hedgerow with

trees dividing the two compartments will also be enhanced to improve the species richness. A 7m section of hedgerow will be removed from the south boundary to facilitate access, and another section of the hedgerow east adjacent to the access point on the south boundary will be reduced to 0.6m. The hedgerows will be maintained, protected, and enhanced through conservation management post-development.

- 2.4.2 Hedgerows will perform both a landscape / visual function and a biodiversity function, by separating and screening the solar panels and associated infrastructure from the adjacent land-use, and by offering habitat connectivity and their intrinsic biodiversity value. The hedgerows will be maintained to a height to allow sufficient sunlight to the solar panels. The wildlife benefits include increased connectivity around the site, buffering from adjacent disturbance and provision of foraging and shelter for invertebrates, amphibians, birds, terrestrial mammals, and nesting birds.

2.5 Scrub

- 2.5.1 A habitat of dense scrub will be created just south of Cefn Road to compensate for the loss of ~0.7ha of similar habitat to the footprint of the new substation.
- 2.5.2 Dense scrub habitat will be created in a way that supports a variety of insects by planting a diverse mixture of scrub species. This will provide both a number of prey and other foraging opportunities for bats, reptiles, amphibians and terrestrial mammals. The dense scrub will also provide suitable habitat for nesting birds.

2.6 Ponds

- 2.6.1 Two ponds will be created within the application site. One pond will be created adjacent to the southern woodland band below Compartment 1, and another pond will be created adjacent to the southeast corner of Compartment 1 (north of the temporary compound area). These will provide new potential breeding sites for GCN and other amphibian species. They will also provide habitat for aquatic invertebrates and offer biodiversity value in the form of species richness and prey items for foraging birds and bats.
- 2.6.2 There are eight existing ponds within 1km of the application site, five of which received a score indicative of potential breeding suitability for GCN during the Habitat Suitability Index (HSI) assessment, and one which returned positive results for GCN presence during the eDNA survey. Creation of new ponds will therefore allow greater connectivity between ponds and encourage geneflow to bolster and enhance the local meta-population of GCN and other amphibian species.

2.7 Hibernacula

- 2.7.1 Two hibernaculum and two grass windrows will be created adjacent to the two ponds within Compartment 1. Additionally, the soil bunds adjacent to both ponds, surrounding the ancillary infrastructure, along the southern half of the eastern boundary of Compartment 1, and the western boundary of Compartment 2 will offer additional over-wintering habitat.
- 2.7.2 The hibernacula and grass windrows would be managed to retain their presence, size, and structure. They will provide excellent shelter for over-wintering amphibians, including GCN, and suitable egg-laying sites for grass snakes.

3 AIMS & OBJECTIVES

3.1 Overall Aims

3.1.1 The overall aims of this HMP are as follows:

- To create two on-site ponds for GCN breeding.
- To increase the suitability and value of grassland beneath the solar panels for GCN and other biodiversity interests.
- To improve connectivity across the site through hedgerow, woodland and boundary corridor creation, enhancement, and retention.
- To enhance the biodiversity and carrying capacity of the site through habitat management.
- To provide a framework of ongoing monitoring and reporting of retained / created habitats.
- To prevent INNS from becoming established on site.

3.2 Objectives

3.2.1 The following objectives are given for each habitat / feature retained or created as part of the scheme. The objectives are carried forwards throughout this Management Plan as a means of determining appropriate management prescriptions, monitoring methods, performance indicators and remedial measures.

Species-rich Native Grassland

3.2.2 The objective is to convert the arable land under the proposed solar installation and to the south of Compartment 1 to species-rich native grassland. This will be achieved using a locally sourced seed mix and the habitat will be maintained and monitored for the duration of this Management Plan. The species-rich grassland should be in good condition with a diverse sward height and more than 30% wildflower cover. Species-rich native grassland is of high value to wildlife and will provide an increase in biodiversity. It will be managed to provide suitable habitat to support small mammals, and range of invertebrates, and to provide connectivity for species such as amphibians and reptiles. The species-rich grassland will be assessed on the basis of its extent / area and its structural diversity.

Woodland and Trees

3.2.3 The objective is to create an area of woodland in the western corner of Compartment 1, and a band of Woodland on the southern boundary of Compartment 1, and to maintain and monitor these woodland blocks for the duration of the Management Plan. The woodland should be in good condition with strong, sturdy, and healthy trees which are not overcrowded. Woodland is of high value to wildlife and will provide an increase in biodiversity, as well as creating a buffer from disturbance from adjacent land-use. It will be managed to provide suitable habitat to support nesting birds, and to provide connectivity for a range of species including bats, small mammals, amphibians, and reptiles. The scattered mature broadleaved trees on site, with and without BRP will be managed to provide suitable habitat for bats and nesting birds. The woodland and mature trees will be assessed on the basis of its extent / area, its structural diversity, and condition.

Hedgerows

3.2.4 The objective is to enhance the existing hedgerow on the eastern boundary of Compartment 2 and existing hedgerow dividing Compartment 1 and 2, retain and manage the western end

of the northern boundary hedgerow. Enhancement, maintenance and monitoring of the hedgerows will be carried out for the duration of the Management Plan. The hedgerows are to be of suitable quality to provide good connectivity and to offer foraging opportunities to a wide range of species, including GCN, bats, and terrestrial mammals, as well as suitable habitat for nesting birds. This habitat is to be assessed on the basis of its length, continuity, composition, and its structure.

Scrub

- 3.2.5 The objective is to create an area of dense scrub habitat in land south of the application site and to manage and monitor the habitat for the duration of the Management Plan. This will compensate for the loss of similar habitat within the footprint of the new substation. The dense scrub habitat should be a suitable habitat for nesting birds, as well as provide foraging opportunities and shelter for a wide range of species, including GCN and terrestrial mammals. The habitat will be assessed on its extent / area and structural diversity.

Ponds

- 3.2.6 The objective is to manage and maintain the two newly created ponds in good condition for the duration of this Management Plan. The ponds will provide suitable breeding habitat for amphibians including GCN, support a range of aquatic invertebrates and insects, and provide foraging opportunities for a variety of species such as bats. These ponds will be assessed on the basis of the HSI and the presence of GCN.

Hibernacula

- 3.2.7 The objective is to maintain two hibernacula, two grass windrows and the soil bunds in good condition for the duration of the Management Plan. The hibernacula are to be maintained to offer a place of shelter to various species of amphibian, including GCN, invertebrates and small mammals throughout the year, whilst the soil bunds are to provide potential nest sites for grass snakes. These features are to be assessed primarily on the integrity of the structure and overall condition.

INNS

- 3.2.8 The objective is to ensure the site, including the ponds, remain free from all INNS for the duration of the Management Plan.

4 MANAGEMENT PRESCRIPTIONS

4.1 Species-rich Native Grassland

Baseline Condition

- 4.1.1 The extent of the species-rich native grassland is as per the Proposed Site Layout (**Figure 1**). This shows areas of arable land across the whole site which will be managed with the aim of creating species-rich native grassland. The arable land has been recently drilled and lacks vegetation cover or structure.

First Year Management

- 4.1.2 The first year's management of the species-rich native grassland beneath the solar panels will comprise sheep grazing at a livestock unit (LSU) rate 0.5/ha (~3 sheep per ha). Grazing will be undertaken during the last two weeks of June and first two weeks of July. The aim is to maintain the grassland sward height of ~150mm during this period, before allowing it to regrow again towards the late summer and early autumn. This grazing regime is designed for the conservation of GCN later in the summer with the desire for a diverse grassland sward. The sward will be selectively grazed by sheep and a short grazing period will remove height, create structural diversity, and allow formation of a thatch layer that improves connectivity and provides sheltered niches.
- 4.1.3 The species-rich native grassland to the south of the solar panels will be mown with a single cut (and collection) during August. The aim is to maintain the grassland sward height of ~150mm during this period, before allowing it to regrow again towards the late summer and early autumn. The solar panels will be fenced preventing grazing on this southern half of the site.

Ongoing Management

- 4.1.4 The ongoing maintenance of the grassland beneath the panels will remain the same as the first year. However, a review of the grassland condition will discern if grazing levels or timings need to be modified. No artificial fertiliser or other feed supplements are to be applied to any areas of grassland.
- 4.1.5 The ongoing management of the adjacent grassland areas to the south of the compartments will remain the same as the first year. However, a review of the grassland condition will discern if cutting height or timings require modification. No artificial fertiliser or herbicides are to be applied to any areas of the grassland.
- 4.1.6 Invasive or competitive weeds should be managed as and when by spot treatment until a dense sward has been established.

4.2 Woodland and Trees

Baseline Condition

- 4.2.1 The extent of the woodland planting areas and the scattered broadleaved trees, with and without BRP, are as per the Proposed Site Layout (**Figure 1**). The proposed woodland planting area in the northwest corner of Compartment 1 currently comprising tall ruderal and amenity grassland, and the northern edge adjacent to Cefn Road which will also be subjected to

woodland planting currently comprises species-poor hedgerow and amenity grassland. The woodland planting areas will be created during Year 1 Management. Woodland planting will consist of mixed native species to maximise biodiversity.

First Year Management

- 4.2.2 A quarterly site audit will be carried out to assess the condition and the extent of the woodland habitats and scattered broadleaved trees. Trees will be assessed to determine any dangerous or diseased individuals, and there will be a review of any management which is deemed necessary. Tree pests and diseases will be dealt with accordingly.
- 4.2.3 Felling and pruning of any dead or dangerous trees will take place during November / December.

Ongoing Management

- 4.2.3 The management strategies which occurred during the First Year Management will be carried out on an annual basis for the duration of the Management Plan. Furthermore, thinning of trees will also be required within the woodland planting areas to encourage diverse age structure during November / December.

4.3 Hedgerow

Baseline Condition

- 4.3.1 There is an existing hedgerow which borders and divides both Compartment 1 and 2. These features will be managed for both their wildlife and aesthetic / landscape value. The entirety of the hedgerow is species-poor, and the hedgerow on the eastern boundary of Compartment 2 and in the northwest boundary of Compartment 1 is defunct. The hedgerows dividing the compartments and along the northern boundary of Compartment 1 also contains trees.
- 4.3.2 A small 7m section of hedgerow north of Cefn Road will be removed, and the hedgerow adjacent to the east of this will be cut to 0.6m. The defunct hedgerow along the eastern boundary of Compartment 2 will be gapped up using a mix of native hedgerow species to create a continuous hedgerow. The defunct hedgerow on the northeast boundary of Compartment 1 will be retained and enhanced to encourage species richness. The species-poor hedgerow dividing both compartments will be also managed to encourage species-richness.
- 4.3.3 The newly planted hedgerow stock will require careful Year 1 management actions to ensure long-term success. Similarly, Year 1 management will be used to kick-start a new conservation management regime for the retained hedgerows.

First Year Management

- 4.3.4 All newly planted hedgerow stock will be checked twice a year during the first year to ensure successful establishment. Management and maintenance in Year 1 will involve frequent watering and feeding. Any damaged or failed stock will be replaced on a like-for-like basis.
- 4.3.5 All retained hedgerows will be subject to trimming works to reduce the height of hedge species to 1.5m (and 0.6m for the hedgerow north of Cefn Road) and to create a hedge-structure that is widest at the base and narrower at the top. Cuttings will be retained and used to replenish the hedge-bottom. All hedgerow trees will be retained and will not be reduced in

height.

Ongoing Management

4.3.6 Ongoing management of all hedgerows will include the following good practices:

- All plants will be watered adequately to encourage healthy growth.
- Plants which have become loose, lifted up out of the ground, will be set upright and reaffirmed by threading.
- Straggling stems, over-vigorous shoots, suckers and dead, mishappen or broken branches will be removed from trees or shrubs along the hedgerows by pruning back with a clean, smooth cut to the main stem, or a sound and living outward growing lateral. Pruning will primarily take place in November – December.
- All litter will be removed from site.
- Where plants are missing, have died, or have failed to make satisfactory growth, these shall be replaced in the first two months of the next scheduled planting season.

4.3.7 A third of the hedgerow will be cut annually to 2m so that the other two thirds of the hedgerow can provide a continuity of habitat and resources. A portion of uncut hedgerow should consist of sheltered, south facing hedges as they provide important refuge for insects. The sides of the hedgerow should be cut with the top left to encourage upwards growth. There will be a continual three-year rotation of cutting for all hedgerows by cutting the sides of the hedgerows, and reducing the height every three years. Uncut hedgerows and areas of sheltered, south facing hedges should also alternate on a three-year basis. This intermittent cutting regime will help promote biodiversity within the hedgerow habitat by increasing the production of flowers and berries.

4.3.8 It is expected that for the long-term management of the hedges (after about 15 years of trimming) there will need to be some restoration e.g. filling in gaps or preventing them into developing into a line of trees. This can be achieved by newly laying hedges to fill gaps, or coppicing (cutting the stems to just above ground level). Hedge coppicing and laying should be done on a rotational basis and take place towards the end of winter.

4.4 Scrub

Baseline Condition

4.4.1 The extent of the scrub planting is as per the Proposed Site Layout (**Figure 1**) which currently comprises poor semi-improved grassland.

4.4.2 A mix of scrub species should be planted, and a mix of both mature and young scrub should be used. Scrub species which may be included are cherry (*Prunus avium*), willow (*Salix*), blackthorn (*Prunus spinosa*), hawthorn (*Crataegus*), elder (*Sambucus nigra*), field maple (*Acer campestre*), and holly (*Ilex aquifolium*) along with other shrub species which are found within the local area.

First Year Management

4.4.3 A Phase 1 Habitat Survey will be carried out in June of the first year to set targets and limits for ongoing management. Photo monitoring points for scrub will be established and monitoring canes will be positioned along scrub boundaries. A site audit will then be carried out quarterly, which will include monitoring the extent of the scrub on site to ensure it does

not expand onto the adjacent site out of the ownership boundary and to the detriment of other habitats, aided with the use of monitoring canes and photo points.

Ongoing Management

- 4.4.4 Scrub cutting and stump treatment shall take place between November / December. Areas of scrub should be cut in rotation, with 1/5th of the scrub habitat cut every third year. Any scrub encroaching onto adjacent land will be also cut annually when necessary.
- 4.4.5 The quarterly site audits which occurred during the first year will be carried out on an annual basis for the duration of the Management Plan. However, a review of scrub cutting height and trimming will occur if there is a detriment to other habitats.

4.5 Ponds

Baseline Condition

- 4.5.1 There are no ponds present within the site. Two ponds will be created as part of the mitigation works.

First Year Management

- 4.5.2 Year 1 management will be minimal, requiring only an annual visit to remove litter and any detritus within the vicinity of the ponds, and to review the establishment of the ponds.

Ongoing Management

- 4.5.3 Annual management, undertaken outside of the GCN breeding season (March to June inclusive) will comprise;
- Litter/detritus picking.
 - Control and removal of marginal vegetation, aiming for ~75% marginal coverage.
 - Control and removal of emergent vegetation, aiming for ~50% of pond coverage.
 - Control and removal of over-shading vegetation, aiming for <50% of the margins to be shaded.
 - Control and removal of INNS.

4.6 Hibernacula

Baseline Condition

- 4.6.1 Two hibernacula and two grass windrows will be constructed on site, adjacent to the newly created ponds. These will be constructed using cuttings from any site work or locally sourced brash/woody material and grass cuttings, and are designed to provide robust places of shelter for reptiles, amphibians, and small mammals.
- 4.6.2 The soil bunds will be created on site to act as flood management within the two compartments. These should be sewn with a seed mix from grass, legumes and wildflowers such as creeping red fescue (*Festuca rubra*), smooth meadow grass (*Poa pratensis*) and creeping bent (*Agrostis stolonifera*).

First Year Management

- 4.6.3 Hibernacula will be inspected during Year 1 Management and remedial action taken to restore them if they are found to be of sub-optimal condition, i.e. they do not provide a robust place

of shelter.

Ongoing Management

- 4.6.4 Hibernacula will be inspected annually, and remedial action will be taken to restore them if they are found to be of a sub-optimal condition, i.e. they do not provide a robust place of shelter. Additionally, woody material will be added to each hibernacula following management works elsewhere on site, and grass will be added to the grass windrows following management of the semi-improve native grassland.

4.7 INNS

Baseline Condition

- 4.7.1 Both Himalayan balsam and Japanese knotweed are known to be present within 50m of the site, and Himalayan balsam was previous identified within the southern site boundary.

Ongoing Management

- 4.7.2 INNS will be subject to management as/when identified on site. It is anticipated that species such as Himalayan balsam and Japanese knotweed may occur on site post-development. The species will be subject to appropriate eradication when found during the management and monitoring site visits.

5 MONITORING

5.1 Methods

- 5.1.1 Monitoring will take place in Years 1, 2, 3, 4 and 5, and then every 2 years thereafter, by way of single annual visits undertaken in June. The timing of the monitoring visit is to ensure all habitats are in a suitable condition (i.e. prior to cutting and in full flower) to assist in the assessment of habitat quality.
- 5.1.2 The monitoring visit will comprise a walkover survey and assessment of all habitats and features described herein. Each habitat / feature will be assessed against the Key Performance Indicators (KPIs) described below and given in Table 5.2.1.
- 5.1.3 Monitoring of habitats / features will be undertaken by a suitably experienced ecologist with the relevant skills in botanical identification and protected species licenses where appropriate.

Species-rich Native Grassland

- 5.1.4 The species-rich native grassland will be monitored for its extent / area, its species richness, and its structural diversity, based on a single annual survey in June.

Woodland and Trees

- 5.1.5 The woodland will be monitored for their extent and condition, including the presence of dangerous or diseased trees to ensure that they are not detrimental to other habitats. This includes monitoring the condition of the scattered trees.

Hedgerow

- 5.1.6 The hedgerows will be monitored for their length, continuity, and structure. Length will be assessed against the site plan provided herein, continuity will consider the % of gaps along the length, and structure will cover the height / width of the % hedge-bottom coverage.

Scrub

- 5.1.7 The extent of the scrub will be monitored to ensure that it does not expand to the detriment of other habitats.

Ponds

- 5.1.8 The condition of the ponds will be monitored using the HSI and the presence / absence of GCN (based on two torch surveys carried out mid-March to mid-June).

Hibernacula

- 5.1.9 The hibernacula, grass windrows and soil bunds will be monitored for their height, width, and integrity of structure.

INNS

- 5.1.10 INNS will be monitored on their presence / absence.

5.2 Key Performance Indicators

Table 5.2.1 KPIs by Habitat / Features

	Lower Limit	Upper Limit	Target
Species-rich Grassland			
Species-richness	15 species	No upper limit	A species-rich grassland
Structural Diversity	Moderate	No upper limit	Excellent structure for GCN
Coverage	5% loss	No upper limit	No loss in coverage
Woodland / Trees			
Coverage	5% loss	No upper limit	No loss in coverage
Condition	5% of trees in sub-optimal condition	No upper limit	No damaged or diseased trees
Hedgerow			
Length	1% loss	See Figure 1	No loss in length
Continuity	5% gaps	No upper limit	No gaps
Structure	1m ground-width 25% hedge-base cover	No upper limit	1.5m height 2m ground-width 50% ground cover
Scrub			
Coverage	5% loss	5% gain	No change in coverage
Ponds			
Presence / Absence	GCN Presence	No upper limit	GCN present and breeding in pond
HSI Score	Good	No upper limit	Excellent
Hibernacula			
Height	0.5m height	No upper limit	1m height
Width	1m / 1m width	No upper limit	2m width
Integrity	Moderate	Good	Fully integral
INNS			
Presence	-	-	Absence of INNS

- 5.2.1 Monitoring will be undertaken annually between Year 1 to Year 5, and then every other year thereafter for the duration of the Management Plan, unless fish or INNS are detected, in which case monitoring will continue to be undertaken annually.
- 5.2.2 The two ponds within Compartment 1 will be subject to a HSI Assessment and two GCN presence / absence surveys annually for the duration of the Management Plan.
- 5.2.3 A 5-year review meeting will be organised following the undertaking and reporting of Year 5 monitoring. This meeting will take place with the ecologist, the site owner(s) and the maintenance contactor to review the performance of the habitat management measures. Further measures for habitat and / or protected species enhancements will be discussed as part of this review meeting.

5.3 Reporting & Remedial Action

- 5.3.1 For each year that monitoring is undertaken, a short report will be compiled to present the findings of the monitoring and a comparison of the site condition to the KPIs detailed above. Where the lower limits are not met for any habitat or feature, these will be highlighted, and

remedial action will be proposed. Remedial action may comprise an immediate management intervention or it may involve a revision of the management regime. Where further monitoring is required to check for the efficiency of the remedial action proposed, in addition to the regime noted above, this will be stated within the Monitoring Report.

- 5.3.2 Monitoring reports will be kept on file and made available to Wrexham County Borough Council, NRW or their representatives upon request, to demonstrate compliance.

6 WORKS SCHEDULE

6.1 Year 1 Works Plan

6.1.1 An indicative Year 1 works plan is provided in Table 6.1 below. The plan is set out from January to December for ease of presentation but may commence at any time of the year provided the full schedule is followed.

Table 6.1 Year 1 Works Plan

Month	Habitat / Feature	Action
January / February	Hedgerows	Trimming of existing hedges. Replenish hibernacula and hedge-bottoms with cut material.
April	Hedgerows	Check plant health; feed, water, remove INNS.
	Ponds	Litter / detritus pick.
June	Species-rich native grassland (north)	Begin sheep grazing at a rate of 0.5 sheep per LSU for last two weeks of June.
July	Species-rich native grassland (north)	Continued sheep grazing at a rate of 0.5 sheep per LSU for first two weeks of July.
	Hedgerows	Check plant health; feed, water, remove INNS.
	Ponds	Litter / detritus pick.
August (4 th week)	Species-rich native grassland (south)	Cut to 150mm sward height. All cuttings will be collected and used to supplement the two grass windrows. All remaining grass will be taken off site.
October	Hedgerows	Check plant health; feed, water, remove INNS. Replace and damaged / failed stock.
November	Woodland and trees	Felling and pruning of dead / dangerous trees.

6.2 Annual Works Plan

6.2.1 An indicative annual works plan is provided in Table 6.2 below.

Table 6.2 Annual Works Plan

Month	Habitat / Feature	Action
January / February	Hedgerows	Trimming of existing hedges. Replenish hibernacula and hedge-bottoms with cut material.
	Ponds	Litter / detritus pick.
April	Ponds	GCN Monitoring Surveys.
June	Ponds	Control of emergent vegetation (if necessary).
	Species-rich native grassland (north)	Begin sheep grazing at a rate of 0.5 sheep per LSU for last two weeks of June.
	All habitats	Habitat Condition Survey.
July	Species-rich native grassland (north)	Continued sheep grazing at a rate of 0.5 sheep per LSU for first two weeks of July.
	Ponds	Litter / detritus pick.

Month	Habitat / Feature	Action
August (4 th week)	Species-rich native grassland (south)	Cut to 150mm sward height. All cuttings will be collected and used to supplement the two grass windrows. All remaining grass will be taken off site.
November	Hedgerow	Coppice and / or lay after 10 years.
	Woodland and trees	Felling and pruning of dead / dangerous trees. Thinning of trees within woodland area.
	Scrub	Scrub cutting and stump treatment.
	Ponds	Control of marginal and bank-side vegetation (if required).

7 ROLES & RESPONSIBILITIES

7.1 Site Owner(s)

- 7.1.1 The site owner(s) (or their appointed contractor) will be responsible for the creation of the habitats and ecological features detailed herein and the implementation of this Habitat Management Plan. The site owner(s) will be responsible for appointing a suitable experienced ecologist to undertake the monitoring as specified within this Management Plan.

7.2 Appointed Ecologist

- 7.2.1 A suitably experienced ecologist will be appointed to undertake the monitoring detailed herein. The appointed ecologist will be responsible for undertaking the monitoring in full accordance with the methods described in this Management Plan and following all relevant legal / licensing requirements. The appointed ecologist will be responsible for accurately assessing and reporting the monitoring findings to the site owner(s), with appropriate recommendations relating to ongoing management.

8 OWNERSHIP & FUNDING

8.1 Ownership

- 8.1.1 Post-development, the site will remain in the ownership of the applicant's group companies and there is no intention to sell the development to any other party. Management will therefore remain the responsibility of the site owner(s) as for the foreseeable future. Any change in ownership or ownership status will be reported as part of the monitoring process.

8.2 Funding

- 8.2.1 The implementation of this Habitat Management Plan will be funded by the site owner(s). The management of the site will be funded through the revenues generated by the solar development. These funds will be used to employ a suitably experienced contractor to undertake the management described herein.

Appendix A - Figure 1

Approved Site Layout

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- Key:
- Application Area
 - Existing Vegetation
 - Visibility Splay
 - Proposed temporary compound area
 - Water Main & Easement
 - PROW
 - Internal roads / hard standing
 - Soil bund
 - Grass windrow
 - Hedgerow to be removed
 - Hedgerow to be cut to 0.6 m
 - Proposed hedgerow
 - Hedgerow to be gapped up
 - Transformer
 - Proposed woodland planting
 - Proposed species-rich native grassland (to be mown)
 - Proposed species-rich native grassland (to be sheep grazed)
 - Buffer strips
 - Proposed scrub planting
 - PV fence line
 - CCTV
 - Root protection zone
 - Hibernacula

rev:	L	date:	16-12-22	details:	(JLB) Layout updated to reflect ecological mitigation comments
H		12-12-22		(JLB)	Pond added and ecological mitigation revised
G		17-10-22		(JLB)	Notation amended @ RG request
F		06-10-22		(JLB)	wildflower area amended
E		08-04-22		(SJ)	Amendment to title
D		28-09-21		(JLB)	Ecological enhancements added
C		24-09-21		(JLB)	Entrance bund removed
B		22-09-21		(JLB)	landscape scheme & red line updated
A		23-08-21		(JLB)	landscape scheme updated



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client:

Novus RS

project:

Cefn Park

title:

Stage 3: Detail Layout

scale:	1:2500	date:	16/08/21	drawn by:	JLB	checked by:	JLB	size:	A3
Project ref:	CE/321	dwg no:	CE/321/4	rev:	L				