



Parc Ynni Calon y Gwynt

ENVIRONMENTAL STATEMENT

Appendix 5O – Outline Habitat Management Plan





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EXECUTIVE SUMMARY

Parc Ynni Calon y Gwynt Cyf (the 'Applicant') is seeking planning permission for a wind farm of 11 turbines, a Battery Energy Storage System (BESS), associated ancillary infrastructure and access tracks and a 4.6km access road extending southwards, as part of the Parc Ynni Calon y Gwynt wind farm (also referred to as the Parc Ynni Calon y Gwynt and hereafter referred to as the 'Proposed Development'). The Proposed Development area comprises the 'Main Site' and the 'Access Road', collectively referred to as the 'Site'.

Edition 12 of Planning Policy Wales (PPW) requires that development contributes to the maintenance and enhancement of biodiversity, including the delivery of Net Benefit for Biodiversity (NBB) through the planning and design of development proposals. The Applicant is supportive of habitat management schemes and recognises that long-term habitat management at wind farm sites is appropriate and desirable in line with NBB. This report provides an 'outline Habitat Management Plan' (oHMP) to support a planning application for the Proposed Development, which will form the basis of a full Habitat Management Plan (HMP) which is to be agreed post-consent (secured via a planning condition).

In accordance with PPW Edition 12, the step-wise approach has been applied, and habitats of increased biodiversity value have been avoided as far as practicable, including Priority Habitats, areas of high sensitivity soil (defined in Section 1.1.1), and habitats that overlay peaty soils. Impacts have been minimised through an iterative design process involving placement of turbines and infrastructure strategically to reduce impacts. Where impacts are unavoidable, on-Site mitigations have been proposed in line with the DECCA framework and NBB requirements.

As impacts are unavoidable, compensation in relation to habitat loss is required. The ecological enhancement detailed within the oHMP aims to deliver ecological benefits, exceeding the compensation ratios required under NBB.

Initial discussions with landowners have taken place, although detailed consultation has not yet occurred. Further discussions will inform the development of a comprehensive post-consent HMP. The habitat management measures outlined in this outline HMP are based on the following key objectives:

- Aim 1: To restore¹ the condition of high sensitivity soil and Blanket Bog habitats; and restore the condition and extend the area of Montane Heaths and Grassland habitat within the Main Site;
- Aim 2: To restore the condition and extent of Upland Heathland habitats within the Main Site;
- Aim 3: To restore the condition of non-priority grassland habitats within the Main Site;

¹ The term 'restoration' and 'restore' used in the oHMP does not imply any measure of impact resulting from the Proposed Development. The term is based on the Chartered Institute of Ecology Environmental Management's (CIEEM) Good Practice for Ecological Restoration definition; it is used to refer to the process of assisting the recovery of a habitat or ecosystem that has been damaged or destroyed. This covers restorative measures, enhancement and expansion (creation). Damage or destruction of habitats may have been sustained as a result of mixed management practices, prior to the Proposed Development.

- Aim 4: To restore the condition, extent and resilience of Lowland Mixed Deciduous Woodland and Native Hedgerows within the Access Road;
- Aim 5: To improve the condition of retained bankside habitats of Small, Medium Altitude Rivers within the Site; and
- Aim 6: To restore the extent of Inland Rock Outcrops and Scree Habitats with the Site.

Each of these aims are split into specific objectives, which will be attained through enhancement and restoration measures detailed in this oHMP. The intention is to implement these proposals post-consent (subject to future agreements, consultations and surveys, and notwithstanding any changes that may occur to the Site pre- or post-determination). This report provides a summary of the Site habitats, an overview of the proposed habitat management mechanisms, principles and monitoring, and any constraints that may influence measures that can reasonably be delivered.

This oHMP should be read alongside **Appendix 6A Outline Curlew Management and Monitoring Plan (oCMMP)**, which has been produced by BSG Ecology.

1 INTRODUCTION

1.1 PURPOSE OF THE REPORT

- 1.1.1 Parc Ynni Calon y Gwynt Cyf (the 'Applicant') is seeking planning permission to install a wind farm of 11 turbines, a Battery Energy Storage System (BESS), associated ancillary infrastructure and access tracks and a 4km access road extending southwards, as part of the Parc Ynni Calon y Gwynt wind farm (the 'Proposed Development'). The Proposed Development is located in Powys, mid-Wales (approximate central British National Grid (BNG) grid reference: SO 001 983). The location of the wind farm is hereafter referred to as the 'Main Site', and the access road is hereafter referred to as the 'Access Road'. When referring to these areas in combination they will be referred to as the 'Site'.
- 1.1.2 The Proposed Development is described in detail in the Parc Ynni Calon Y Gwynt Environmental Statement (ES), **Chapter 4: Description of the Proposed Development**.
- 1.1.3 This document sets out the practical element of the Net Benefit for Biodiversity (NBB) strategy that the Applicant proposes to employ to ensure habitat management measures are implemented to mitigate the effects on identified features (including Priority Habitats as listed on Section 7 of the Environment (Wales) Act 2016²), as well as delivering additional biodiversity improvements across the Site, mindful of the requirements of Edition 12 of Planning Policy Wales (PPW12)³, which secures the delivery of biodiversity enhancements in Welsh policy through achieving a Net Benefit for Biodiversity (NBB).
- 1.1.4 In order to comply with PPW12, it is necessary to demonstrate that the stepwise approach has been followed, and that NBB will be achieved throughout the Proposed Development through qualitative assessment applying the 'DECCA' framework. The stepwise approach, the DECCA framework and the strategy for achieving NBB is detailed in **Appendix C of the Green Infrastructure Statement (GIS): Net Benefit for Biodiversity Report**.
- 1.1.5 This outline Habitat Management Plan (oHMP) forms an Appendix to **Chapter 5: Ecology** of the ES and is considered a live document. Therefore, following stakeholder engagement a post-consent HMP will be published.
- 1.1.6 The oHMP provides a summary of the rationale, objectives, baseline conditions, restoration opportunities, and scope of habitat management works to offset and enhance predicted loss of on-Site habitats, including peatland communities from within the Proposed Development.

1.2 RATIONALE

- 1.2.1 During the development phase of the Proposed Development, the Applicant has minimised potential ecological impacts; firstly, by designing the Proposed Development to avoid or limit ecological impacts wherever practicable (see **Chapter 3: Scheme Need, Alternatives and Iterative Design Process**), and secondly, by undertaking to employ industry good environmental practice during wind farm construction and operation (see **Chapter 5: Ecology** and **Chapter 6: Ornithology**).

² The Environment (Wales) Act 2016. Available at: <https://www.legislation.gov.uk/anaw/2016/3/contents> [Accessed: June 2026].

³ Welsh Government. 2024. Planning Policy Wales (PPW). (Edition 12) 2024.

- 1.2.2 It should be noted that a revised list of Section 7 Priority Habitats was announced by the Welsh Government on the 1st April (Welsh Government, 2026), since the 2024 Preliminary Ecological Appraisal (PEA). This is addressed in detail in the 2026 PEA addendums (see **Appendix 5A: Preliminary Ecological Appraisal Project, Main Site** and **Appendix 5B: Preliminary Ecological Appraisal Project, Access Road**) and therefore all Priority Habitats listed below and within this report refer to the revised list, unless otherwise stated ^{i.e.3}.
- 1.2.3 In addition to the qualitative approach of NBB and the DECCA framework a quantitative element adapted from standard habitat compensation ratios within PPW12 has been included at this stage of the oHMP. This provides a foundation on which outcomes can be measured and on which future iterations of the HMP can be tailored, as the project progresses stakeholder engagement, deployment of prescriptions, encountering Site variability and potentially failed enhancement measures.
- 1.2.4 PPW12 lists compensation ratios to be applied to achieve sufficient compensation through replacement of habit loss. These ratios have been adapted to generate compensation through enhancement ratios and are summarised in **Table 5O 1** The enhancement ratios set out within this oHMP are double those that are required under PPW12, to account for potential unforeseen and unavoidable failings in enhancement measures.

Table 5O 1 – Replacement and enhancement ratios of retained habitat to compensate habitat loss

Feature/Habitat	PPW12 Replacement Ratio	oHMP Enhancement Ratio
Trees	3:1	6:1
Priority Habitat	2:1	4:1
Non-priority Habitat	1:1	2:1

1.3 HABITAT LOSSES

- 1.3.1 Habitat loss calculations were undertaken for both permanently affected areas and areas subject to temporary habitat loss as a result of the Proposed Development and are detailed in **Green Infrastructure Strategy Appendix C of the GIS: Net Benefit for Biodiversity report**.
- 1.3.2 The following document outlines criteria for identifying and delivering compensatory habitat restoration measures for the habitat loss. The aim is to contribute a greater area than that which is predicted to be affected by the Proposed Development, providing additional enhancement to the surrounding landscape.

1.4 OHMP BOUNDARY

- 1.4.1 Measures identified within this oHMP have targeted the land within the Combined Site (**Figure 5O.1**). Within this area, management units have been identified depending on their habitat type (**Figure 5O.2**), physical characteristics, and compatibility for identified species.

1.5 OHMP DELIVERY AND THE PLANNING FRAMEWORK

- 1.5.1 Inputs from landowners, PCC and NRW have not informed this oHMP; consultation with all stakeholders will however be sought prior to completion of the post-consent HMP.

- 1.5.2 The oHMP will provide practical guidelines to ensure the delivery of NBB across the Site over the lifetime of the Proposed Development. The oHMP will provide practical management guidance to support the delivery of NBB across the Site throughout the lifetime of the Proposed Development. Recognising that certain constraints and site-specific factors may reduce the area available for enhancement, the habitat management prescriptions have been set accordingly across each unit based on a percentage of that unit, i.e. 10% of the available habitat will be subject to enhancement. Further details of exact locations of enhancement will be discussed and agreed with landowners and provided in the updated HMP post-consent.
- 1.5.3 The HMP will include measures that will allow key consultees the opportunity to monitor the success of the plan and require the Applicant to take action where necessary. The HMP would operate for the lifespan of the Proposed Development (minimum 40-year lifespan). The success of the HMP would be monitored over this period, with input from core delivery partners.
- 1.5.4 It is anticipated that the HMP will be a live document that will be further modified during, pre- and post-construction, taking account of any design changes and priorities within the Combined Site, and in response to ongoing monitoring outcomes. New opportunities for habitat management and enhancement may become apparent during this pre- and post-construction period and during the lifetime of the Proposed Development.

2 BASELINE

2.1 STRUCTURE OF THE OHMP

- 2.1.1 This HMP is intended to be a practical, succinct document, as full details pertaining to current Site characteristics and the Proposed Development can be found in Chapter 4: Description of the Proposed Development. Further details of the Site baseline conditions can be found in the **Appendix C** of the **GIS: Net Benefit for Biodiversity Report** and relevant baseline reported therein.
- 2.1.2 The oHMP provides:
- A brief summary of the habitats and existing land use and management of the Site;
 - Details of the aims and objectives;
 - Habitat management measures detailing proposed prescriptions/actions;
 - Details of implementation including partnership working, funding and durations; and
 - Details of monitoring prescriptions needed to evaluate success or otherwise of the implementation of management, and the programme for delivering HMP activities.

2.2 HABITATS

- 2.2.1 The majority of the Combined Site sits on open slopes dominated by sheep grazed pastures of improved grassland and abundant acid grassland and frequent marshy grassland, supporting areas of Blanket Bog and flush⁴. Stands of encroaching bracken were noted within grassland areas throughout the Combined Site. Marshy grassland was frequently encountered around streams and occasionally wet ditches that intersect the Main Site. Occasional pockets of heathland (locally abundant in the west of the Main Site) and continuous bracken was recorded throughout.
- 2.2.2 Hedgerows were identified along the Access Road where the route runs across improved grassland pastures and adjacent to existing lanes. Woodland was identified on the Site; two small parcels of coniferous woodland southeast from the centre of Main Site (0.08ha and 0.05ha) and three parcels of broadleaved woodland including two classified as ASNW along the Access Road. Mixed scrub, scree and exposed rock was sparsely distributed throughout the Site.
- 2.2.3 Several small streams run throughout the Site, including the Nant y Llyn Mawr and an unnamed stream that flows southwards from the Main Site towards Llyn Mawr, a reservoir located immediately south of the Site. In addition, a single pond is present within the Site. The Site is characterised by rocky outcrops in several locations and is underlain by superficial deposits of peat and glacial till.
- 2.2.4 Habitats identified in the current baseline considered Priority Habitats⁷, are summarised in **Table 50**.

⁴ The JNCC definition of Blanket Bog states that 'Certain other habitats are probably most appropriately considered as integral components of the wider Blanket Bog assemblage of habitats for management purposes.' This specifically includes flush, so therefore the area to the east of the Blanket Bog forms part of the Blanket Bog assemblage.

Table 5O 2 – Baseline habitats identified as Priority Habitats

Baseline Habitat (Phase 1 Classification) (Figure 5O.3)	Priority Habitat
A1.1.1 Broadleaved Semi-Improved Woodland	Lowland Mixed Deciduous Woodland
A3.1 – Broadleaved Scattered Trees (Linear feature) – not entire	Native Hedgerows
A3.3 - Mixed Scattered Trees	Native Hedgerows
B5 - Marsh/Marshy Grassland	Montane Heaths and Grassland containing Blanket Bog ⁵
B5 - Marsh/Marshy Grassland	Marsh/Marshy Grassland containing
D1.1 – Acidic Dry Dwarf Shrub Heath	Upland Heathland
D5 - Dry Heath/Acid Grassland Mosaic	Upland Heathland
G1 – Standing Water	Permanent Pond
G2 – Running Water	Small, Medium Altitude Rivers
I1.1 – Inland Cliff	Inland Rock Outcrops and Scree Habitats
J2.1.1 – Intact Species-Rich Hedge	Native Hedgerows
J2.1.2 – Intact Species-Poor Hedge	Native Hedgerows
J2.2.2 – Defunct Species-Poor Hedge	Native Hedgerows

High Sensitivity Soils

- 2.2.5 Peat and peaty soils were identified within the Main Site (collectively referred to as high Sensitivity Soils). The topography of the Main Site restricts the extent of widespread peatland as it does not sit on a plateau, a feature more typical of peatlands. Instead, the Main Site comprises several distinct wet basins, margined by well drained slopes and rocky outcrops indicative of localised shallow soil depth. High sensitivity soils are more frequent within discrete basins of the Main Site, as shown on **Figure 5O.4** and **Chapter 9: Hydrology** and **Chapter 10: Geology and Soils**; **Appendix 10A: Baseline Soils Report**; **Appendix 10D: Outline Soil Peat Management Plan**.

Ornithology

- 2.2.6 Due to the risk of bird collision posed by wind turbine blades, enhancement to directly target an increased habitat suitability for birds within the collision zone has been avoided. Enhancements directly targeting habitat suitability for highlighted bird species within **Chapter 6: Ornithology** appropriately distanced from collision zones have been included.

⁵ See in Appendix 5C: Notable Habitats Report for details of the identified extent of blanket bog on Site and Appendix 5O: Net Benefit for Biodiversity Report for a detailed summary of the NBB strategy for this important habitat.

- 2.2.7 This oHMP should be read alongside **Appendix 6A: outline Curlew Management and Monitoring Plan (oCMMP)**, which has been produced by BSG Ecology within the Ornithology Chapter.
- 2.2.8 Curlew activity within the Site itself was identified as low, with six flights recorded during vantage point surveys and no regular use identified during winter periods. However, given the species' severe decline in Wales, its conservation status as a red-listed species, and the Site's location within Important Curlew Area 9, the presence of nearby territorial birds elevates the ecological importance of the area. While the Site is unlikely to support breeding curlew directly, it is considered of Local Importance for the species Habitat management for outlines in summary within the oHMP, please refer to the oCMMP for full details.

2.3 LAND USE AND EXISTING MANAGEMENT

- 2.3.1 The Site comprises a range of habitats, associated with upland agriculture including grassland pastures, dominated by improved grasslands and abundant acid grassland and marshy grassland. Some frequent areas of unmanaged continuous stands of bracken *Pteridium aquilinum*, have encroached into surrounding areas containing locally abundance but Site wide occasional heathland and grassland habitats. The Site contains occasional patches of mixed scrub, coniferous woodland, scattered trees and a single pond.
- 2.3.2 There are several small streams running throughout the Site, including the Nant y Llyn Mawr, a stream that flows southwards from the Main Site to Llyn Mawr, a reservoir immediately south of the Site. The Main Site overlies a bedrock of sandstone and mudstone (Penstrowed Grits Formation), with rocky outcrops in several places, and superficial deposits of peat and till. Some evidence of peat drains was observed; however no evidence of historical peat harvesting was found.
- 2.3.3 Hedgerows, scattered (linear) trees and broadleaved woodland traverses the Access Road leading to the Main Site at several points. Some sections of the Access Road contains existing tracks and lanes and some section cut across grassland habitats.
- 2.3.4 The southern part of the Main Site overlaps with the western part of Llyn Mawr Site of Special Scientific Interest (SSSI). 20ha of the SSSI is within the Site, although this is outside of the construction footprint of the Proposed Development. Llyn Mawr SSSI is designated for its upland lake with partially marginal vegetation and ornithological importance for waterfowl. Further information regarding designated sites within appropriate search areas⁶ of the Site can be found in Appendix 5A: and Appendix 5B: Parc Ynni Calon Y Gwynt Preliminary Ecological Appraisal Project, Main site/Access Road.

⁶ Designated site search areas: 2km for non-statutory nature conservation sites; 2km for statutory nature conservation sites of national importance; 10km for statutory sites of nature conservation of international importance; 20km for sites of importance to birds; 30km for site of importance to bats.

3 AIMS AND OBJECTIVES

3.1 AIMS

3.1.1 This plan has sought to identify on-Site biodiversity enhancement opportunities as well as providing the management required to limit any adverse effects of the Proposed Development on the Site's habitats and associated features wherever possible.

3.1.2 The six main aims of this oHMP are:

- Aim 1: To restore¹ the condition of high sensitivity soil and Blanket Bog habitats; and restore the condition and extend the area of Montane Heaths and Grassland habitat within the Main Site;
- Aim 2: To restore the condition and extent of Upland Heathland habitats within the Main Site;
- Aim 3: To restore the condition of non-priority grassland habitats within the Main Site;
- Aim 4: To restore the condition, extend and resilience of Lowland Mixed Deciduous Woodland and Native Hedgerows within the Access Road;
- Aim 5: To restore the condition of retained bankside habitats of Small, Medium Altitude Rivers within the Site; and
- Aim 6: To restore the value of Inland Rock Outcrops and Scree Habitats with the Site.

3.1.3 In order to realise these aims, they have each been split into detailed objectives, which are described below.

3.2 OBJECTIVES

3.2.1 Detailed management objectives to achieve the above listed aims are presented in **Table 50 3** below.

Table 50 3 – Habitat management objectives

Aim	Reference	Objective
1	1.1	To reduce soils drying out through drain-blocking to raise the water table, promoting resilience and enhancement of the Blanket Bog and Montane Heaths and Grassland.
	1.2	To remove encroaching bracken in areas of high sensitivity soils to restore Montane Heaths and Grassland.
	1.3	To manage grazing pressure of sheep in areas of high sensitivity soils and Montane Heaths and Grassland, promoting biodiversity within marshy grassland communities such as Blanket Bog and other Ground Water Dependent Terrestrial Ecosystems (GWDTE).
2	2.1	To remove encroaching or dominant bracken in areas of Upland Heathland habitats, to restore condition and increase extent of heathland cover.
	2.2	To manage grazing pressures of sheep in areas of Upland Heathland habitats, to improve condition of heathland by promoting biodiversity within heathland habitats.

Aim	Reference	Objective
	2,3	Supplement the existing seedbank and promote regeneration by introduction of green hay and straw.
3	3.1	To manage grazing pressures of sheep in areas of Non-priority Grassland habitats, promoting biodiversity within grassland habitats.
	3.2	Supplement the existing seedbank and promote regeneration by introduction of green hay and straw and habitat seed mix.
4	4.1	To plant native deciduous trees to supplement woodland, lines of trees and hedgerows and increase connectivity within and between habitats, increasing biodiversity and promoting resilience of these habitats.
5	5.1	Enhance habitat quality for aquatic and terrestrial species through increased structural diversity, shading, and refuge opportunities.
	5.2	Establish a diverse native riparian shrub corridor to improve habitat connectivity and biodiversity
6	6.1	Increase structural diversity to support small terrestrial mammal and herpetofauna that will utilise the feature as hibernacula increasing resilience on a population level and to support specialist flora increasing flora biodiversity.

4 HABITAT MANAGEMENT MEASURES

4.1 MANAGEMENT UNITS

4.1.1 The proposed habitat management and monitoring measures reflect the different requirements of the variable Site conditions and general land use. The management area is split according to treatment type, underlying habitat, and the ecological feature to be benefitted. The proposed management units have been defined based on the different types of active management, as shown in **Table 5O 4** and **Figure 5O.2**. A proportion of each of the units will be targeted for enhancement, with specific areas within these units to be refined and selected following discussions with landowners.

Table 5O 4 – Proposed management units, treatment and effects

Unit	Habitat	Size of unit (Ha/m)	% of unit targeted for enhancement	Area targeted for enhancement (Ha/m)	Restoration measures	Ecological features likely to benefit
A	High sensitivity soils, Blanket Bog and marshy grassland	77.67ha	5%	3.88ha	Ditch blocking Reduction of grazing pressure Removal of bracken	Peat deposits/'peaty soils' Marshy grassland and wetland communities, GWTDEs, Blanket Bog and Priority Habitats
B	Heathland and bracken	292.26ha	0.7%	1.88ha	Removal of bracken Reduction of grazing pressures Introduction of green hay and straw	Upland Heathland Acid grassland and Priority Habitats
C	Non-priority habitats	218.77ha	7.5%	16.00ha	Removal of bracken Reduction of grazing pressures Introduction of green hay and straw Sowing habitat seed mixes	Grassland communities

D	Broad-leaved woodland, ASNW, lines of trees and hedgerows	3.09ha (woodland) 985.14m (hedgerows)	37% (woodland) 100% (hedgerows)	1.12ha (woodland) 985.14m (hedgerows)	Supplementary planting of tree and shrub species	Bats Breeding birds Commuting and foraging mammals Priority Habitats
E	Small, Medium Altitude Rivers	3,215.4m	44%	1,403.48m	Placement of locally sources native deadwood and locally sourced stone and rocks to create bankside structure Planting of riparian shrub plant species	Otter Bats Priority Habitats
F	Rock Outcrops and Scree Habitats	N/A	N/A	Within the Site, a minimum of four hibernacula will be created	Placement of locally sourced stone and rocks to create structure	Flora diversity Small mammals Herpetofauna Priority Habitats

4.2 PROPOSED MEASURES

4.2.1 The proposed habitat restoration measures stated above reflect the different requirements of the variable Site conditions, general land use and features to be enhanced. The following measures, including the rationale for their inclusion, are discussed in further detail throughout **Sections 4.2 to 4.6**:

- Ditch blocking;
- Removal of bracken;
- Management of grazing pressures;
- Introduction of green hay and straw;
- Sowing of habitat seed mixes;
- Supplementary planting of deciduous tree species and long-term management;
- Introduction of structure (locally sourced rocks/native deadwood); and
- Planting of riparian shrub species.

4.2.2 The management of the habitat units, and the persons or organisations responsible for the implementation of the proposed measures, is detailed further in **Section 5**, with proposed partners detailed in **Table 50 5**.

- 4.2.3 The prescriptions outlined below aim to deliver restorations within each unit although it should be understood that the quantum aims do not account for unknown variability encountered on Site, landowner detailed inputs and other inputs from stakeholders such as PCC or NRW.

4.3 RESTORATION OF HIGH SENSITIVITY SOILS AND MONTANE HEATH AND GRASSLAND (UNIT A)

RATIONALE

High Sensitivity Soil

- 4.3.1 High sensitivity soil areas partly coincide with mapped extent of Montane Heath and Grasslands. High sensitivity soil is largely confined to discrete basins distributed across the Main Site. These areas have been almost entirely avoided by the Proposed Development (**Figure 50.4**) through following the step-wise approach throughout the design process (detailed in **Green Infrastructure Strategy Appendix C of the GIS: Net Benefit for Biodiversity Report**). High sensitivity soil areas in the northwest, southeast and west of the Main Site contain historical drains. Drier soils promote increased rates of soil erosion, a stop to the formation of peat deposits and negative impacts on terrestrial habitats, such as marshy grassland.
- 4.3.2 Due to the generally shallow depths of peat within the Site, it is anticipated that the Site would not qualify for grants or funding for restoration of peat within the Site. Therefore, the Proposed Development presents a unique opportunity for the Site, which will allow for restoration and enhancement of peat.
- 4.3.3 **Montane Heaths and Grassland**
- 4.3.4 The Montane Heaths and Grasslands contain GWDTE communities including Blanket Bog, as detailed in **Appendix 5C: Notable Habitats Report**. Applying the precautionary principle⁷, all Montane Heaths and Grassland identified on the Site was assumed to qualify as a Priority Habitat.
- 4.3.5 Montane Heaths and Grassland were observed as being sheep-grazed throughout the Site, and had a heterogeneous sward height between 3cm (heavily grazed graminoids) and 70cm (in less intensively grazed areas). Some habitat parcels hosted scattered and discrete parcels of bracken, which were not large enough to map as a habitat mosaic, whilst other parcels hosted scattered willow species *Salix* spp. and hawthorn *Crataegus monogyna* or larch *Larix* sp. trees. The parcels of purple moor-grass and rush pasture were varied, with most parcels dominated by purple moor-grass *Molinia caerulea*, and some dominated by rush species *Juncus* spp. The purple moor-grass formed dense tussocks, with layers of dead vegetation within the habitat. Frequent species of rushes included sharp-flowered rush *Juncus acutiflorus* and soft rush *Juncus effusus*. Round-leaved sundew *Drosera rotundifolia* was locally frequent.
- 4.3.6 As grazing pressure increases, grassland species composition shifts towards a bias for more hardy, fast growing species, reducing biodiversity and the sustainability of GWDTE communities and Blanket Bog. The presence of grazing sheep compacts the soil, which, coupled with drier conditions, causes micro-erosion.

⁷ In the absence of definitions of Priority Habitats listed on Section 7 of the Environment (Wales) Act 2016, professional judgement and reference to UK BAP Priority Habitat definitions has been used to assess whether baseline habitats identified qualify as S.7 Priority Habitats. Where it is not possible to confidently assess a habitat as not qualifying as a S.7 Priority Habitat, a precautionary approach has been assumed.

- 4.3.7 An area of 0.97ha of Montane Heaths and Grassland⁸, a Priority Habitat, is to be subject to direct and permanent loss as a result of the Proposed Development. The measures set out here aim to enhance and/or create montane heaths and grassland to exceed the loss as a result of the Proposed Development, in excess of the ratios required in accordance with PPW Edition 12³, with Unit A covering an area of 77.67ha. The intent is to deliver ecological benefits beyond the required compensation and mitigation in accordance with PPW Edition 12³.
- 4.3.8 The 4:1 enhancement ratio can be achieved if the following measures are applied to 5% of retained Montane Heaths and Grassland.
- 4.3.9 The exact location of the 3.88ha of Montane Heaths and Grassland enhancements will be determined through landowner agreement. Enhancement measures should target where Blanket Bog communities in the north of the Site which have been identified.
- 4.3.10 **Bracken Encroachment**
- 4.3.11 Bracken encroachment was recorded across the Site and poses a threat to Montane Heath, acid grassland and other priority habitats. Bracken should be actively managed, as unchecked spread can outcompete more species-rich vegetation and result in the degradation of marshy grassland, GWDTE communities and Blanket Bog.

PROPOSED MEASURES

Ditch Blocking

- 4.3.12 Historical ditches have been identified in areas of high sensitivity soils that have likely cause drying out over time, a reduction in resource the value of these peaty soils and to terrestrial ecosystem that depend on wet conditions to thrive.
- 4.3.13 Ditch blocking within Unit A is anticipated to provide a variety of benefits to the high sensitivity soils and Montane Heaths and Grassland within Unit A, the assemblage of species that depend on them, and the associated ecosystem services benefits e.g. the carbon storage and downstream water quantity and quality, Blanket Bog and other GWDTE identified during the NVC (see, **Appendix 5C: Notable Habitats Report**).
- 4.3.14 Ditch blocking will raise the water table across the Site, benefiting terrestrial systems and the development of riparian habitats along streams. Increased hydrological connectivity will facilitate the migration of species between habitats across the Site and generate opportunities for wetland habitats to develop.
- 4.3.15 **Chapter 10: Geology and Soils** and **Appendix 10A: Baseline Soils Report** note the peat resources on Site are in a poor condition as they have been drained, modified and degraded. The extent of suitable areas for restoration would be subject to refinement prior to completion of the full HMP but management proposals will aim to restore the hydrology of habitats in the discrete basins across the Main Site, such that it is in a more natural condition than at present.
- 4.3.16 The successful development of Blanket Bog is dependent on hydrological conditions in which the water table normally lies within 10-20cm of the ground surface.

⁸ Inclusive of 0.07ha area of Blanket Bog.

- 4.3.17 A suitably experienced soil ecologist will identify the number, location and spacing of dams required, which will take place in year 1 of the implementation of the HMP following good practice guidelines detailed in Peatland ACTION Technical Compendium⁹.

Bracken Removal

- 4.3.18 Encroaching bracken within Unit A will be subject to an initial cut between October and February inclusive, to reduce habitat which would provide opportunities for nesting birds in advance of the nesting bird season (generally considered to be March to September inclusive) (Cut 1). Following this, a further cut (Cut 2) would be undertaken in late July/August. This cycle of Cut 1 and Cut 2 would then be repeated initially for a minimum of five year. Repeated bi-annual cutting regimes have been shown to reduce bracken regrowth the most when compared with other techniques although spatial effects will need to be considered¹⁰ with further management actions subject to monitoring and review prior to the post-consent HMP. It is important to note the following:

- Bracken cutting in the summer has been restricted to one cut later in the nesting bird season to minimise potential impacts on nesting birds;
- Directly in advance of Cut 2, a suitably qualified ecologist would conduct a check of the areas to be cleared for nesting birds and advise on avoidance measures if required;
- Machinery specification to be used for cutting will be agreed following consent based on liaison with PCC and the advising ecologist. Heavy machinery which may compact the ground should be avoided; and
- The sward height will never be cut below 10cm (this is in order to prevent injury or killing of reptiles which may be present) and arisings will be collected to compost on Site, providing habitat for invertebrates, small mammals, nesting material for birds and incubating opportunities for grass snake *Natrix helvetica*.

Management of Grazing Pressure

- 4.3.19 As a guide the Farm Advisory Service¹¹ suggests 0.05–0.25 Livestock Units¹² (LU)/ha for grazing marshy grassland (referred to here as Montane Heaths and Grassland). Grazing should be annually monitored and according to seasonality and habitat variability within Unit A by applying principles such as:

- Avoid all but minimal grazing in areas identified as containing Blanket Bog or other GWDTEs;
- Avoid heavy grazing during periods when soils are waterlogged to minimise poaching and peat damage;
- Focus grazing during periods of active vegetation growth where the aim is to reduce *Molinia* dominance or control rush encroachment; and
- Use annual monitoring to adjust both stocking rate and grazing season.

⁹ NatureScot (2023). Peatland ACTION – Technical Compendium.

¹⁰ Cox, E.S., Marrs, R.H., Pakeman, R.J. and Le Duc, M.G. (2008) Factors affecting the restoration of heathland and acid grassland on *Pteridium aquilinum*-infested land across the United Kingdom: a multisite study. *Restoration Ecology*, 16(4), pp. 553–562. Available at: <https://doi.org/10.1111/j.1526-100X.2007.00326.x>

¹¹ Chapman, S. (2024) Conservation grazing for semi-natural habitats (Technical Note TN686). Farm Advisory Service (FAS). Available at: fas.scot/downloads/tn686-conservation-grazing-semi-natural-habitats/ (Accessed June 2026)

¹² A livestock unit per hectare (LU/ha) is a standardised measure of grazing pressure that allows different types and numbers of grazing animals to be compared on an equivalent basis. One livestock unit (LU) is typically defined as a cow with calf (1.0 LU), with other grazing animals assigned values relative to this according to their forage intake (e.g. a ewe equals 0.15 LU)

- 4.3.20 Montane heaths and grassland should be grazed at very low stocking densities, Blanket Bog does not require any grazing¹¹. Therefore, to restore the habitats within the enhancement areas of Unit A, grazing pressures should be reduced to prevent further micro-erosion and to promote and sustain favourable grassland species communities. Gates within land parcels will be installed and agreed with the landowner. Fence lines should be checked periodically for damage and rectified immediately to prevent sheep from entering and potentially damaging the habitats present within Unit A.

4.4 RESTORATION OF HEATHLAND (UNIT B)

RATIONALE

- 4.4.1 Heathland has been identified within the Site, mainly within the northwest of the Main Site but also scattered throughout the Main Site, and in a discrete location along the north of the Access Road, and a larger parcel at the approximate mid-way point of the Access Road. Heathland at the western extent of the Main Site comprised dominant bilberry *Vaccinium myrtillus* and dwarf gorse *Ulex minor*, occasional bracken, deergrass *Trichophorum germanicum*, heath bedstraw *Galium saxatile*, sheep's fescue [agg.] *Festuca ovina* agg. and western gorse *Ulex gallii*. Additionally, there was rare heather *Calluna vulgaris* and bell heather *Erica cinerea* found in the Upland Heathland. Some scattered trees, including willow and rowan *Sorbus aucuparia*, were present. These heathlands qualify as the Priority Habitat 'Upland Heathland'; they comprised dwarf shrubs at a cover of at least 25% and were lying at an elevation between 400m and 600m.
- 4.4.2 Unit B includes areas of Upland Heathland currently affected by bracken encroachment. The control and removal of bracken is therefore a key component of the restoration strategy, with the aim of reversing habitat degradation, facilitating the recovery and expansion of characteristic heathland vegetation, and maintaining the habitat in favourable condition as a Priority Habitat.
- 4.4.3 Grazing on Upland Heathland, if not managed sensitively, can expedite the process of bracken encroachment as *grazing promotes hardy species as outlined above, which threatens the development of more biodiverse, complex and slower growing heathland communities.
- 4.4.4 Unit B is anticipated to have a heathland scrub seedbank and therefore be capable of reverting to heath should current grazing pressures, which were observed to be minimal, be maintained or at minimal rates. The grazing units are to be determined following discussions with the relevant landowners. Locally sourced green hay and straw from Upland Heathland can be used to supplement the seedbank in areas of sparse heath species cover or on exposed ground following bracken removal.
- 4.4.5 Within Unit B, there are areas of acid grassland which will benefit from removal of encroaching bracken and management of grazing pressures.
- 4.4.6 Unit B is focused on areas where heathland plants, such as heather and bilberry, are known to be present, but frequency of heathland scrub is limited due to the encroachment of bracken. It is known that, where heather plants are present at a frequency of more than four plants per square metre, a 'dramatic increase' in heather cover can occur within five years when grazing is 'substantially or completely removed'¹³. This approach can be monitored and continued over the duration of the HMP.

¹³ Natural England (2001) The upland management handbook (SC26). Available at: <https://publications.naturalengland.org.uk/publication/82050> (Accessed June 2026).

- 4.4.7 A total of 0.47ha of Upland Heathland, a Priority Habitat, is to be subject to direct and permanent loss as a result of the Proposed Development. The measures set out here aim to enhance and/or create Upland Heathland to exceed that lost as a result of the Proposed Development, in excess of the ratios required in accordance with PPW Edition 12, with Unit B covering an area of 292.26ha. The intent is to deliver benefits beyond the required compensation and mitigation in accordance with PPW Edition 12³.
- 4.4.8 The 4:1 enhancement ratio can be achieved if the above measures are applied to a combined 0.7% of retained combined Upland Heathland and bracken.
- 4.4.9 The location where the 1.88ha of combined Upland Heathland and bracken habitat may be determined through landowner agreement.

PROPOSED MEASURES

Bracken Removal

- 4.4.10 Areas within Unit B currently dominated by bracken or at risk due to encroaching bracken will be subject to bracken removal. The methodology for this will follow the same method as bracken removal within Unit A.

Management of Grazing Pressures

- 4.4.11 As a guide, heathland habitats should be managed through a low-intensity grazing regime that promotes the recovery and expansion of dwarf shrub communities while maintaining structural diversity.
- 4.4.12 Cattle are favoured for grazing taller and coarser vegetation such as that within bracken encroachment. Their grazing and trampling behaviour can help create structural variation within the sward and generate small areas of disturbance that benefit habitat restoration processes.
- 4.4.13 Grazing should be annually monitored and adjusted according to habitat condition and restoration objectives by applying principles such as:
- Maintain low stocking densities to allow the establishment, regeneration and spread of heather, bilberry and other characteristic heathland species;
 - Avoid excessive grazing pressure that may suppress dwarf shrub growth or promote the dominance of grasses and bracken);
 - Avoid heavy grazing during periods when soils are waterlogged to minimise soil erosion and damage to sensitive heathland vegetation;
 - Control scrub, bracken and coarse grass encroachment through targeted grazing and complementary habitat management measures where required;
 - Maintain a diverse mosaic of vegetation ages and heights, including areas of mature heath, to provide habitat for invertebrates, reptiles and other heathland fauna;
 - Use annual habitat monitoring to review and adapt stocking rates and grazing periods to ensure restoration objectives are achieved; and
 - Cattle grazing between June and September during the main growing season.

- 4.4.14 Heathland habitats within the enhancement areas of Unit B should be grazed at low stocking densities sufficient to control scrub and coarse grass encroachment while allowing dwarf shrub communities to expand. Where heathland restoration is a primary objective, grazing pressure should be maintained at a level that promotes heather regeneration and the recovery of characteristic heathland vegetation. Evidence suggests that where heather is present and grazing is substantially reduced, heathland cover can increase markedly over relatively short timescales. Grazing management should therefore be reviewed regularly alongside habitat monitoring results to ensure favourable conditions for heathland restoration are maintained. Boundaries, gates and fencing should be inspected periodically and repaired as necessary to prevent inappropriate grazing pressure within restoration

Introduction of green hay and straw

- 4.4.15 Locally sourced green hay (or heathland brash) from species-rich donor areas may be spread onto prepared areas of exposed acid grassland and suitable improved grassland around degraded heathland or areas opened up following removal of bracken or damaged areas. This will increase botanical diversity and facilitate the establishment of characteristic acid grassland and heathland species by supplementing the seedbed. The following steps should be incorporated into this measure:
- Donor material from species-rich local heathland or acid grassland with similar soil and hydrological conditions;
 - Spread freshly cut material as soon as possible after harvesting to maximise seed viability; and
 - Soil in the receptor area should be exposed in preparation to ensure good contact between seed-bearing material and the soil surface.

Avoidance of improving habitat for red kites

- 4.4.16 Livestock carcasses should be removed from areas in close proximity to turbines, and ploughing should not be undertaken around turbine locations. These measures are intended to reduce the risk of red kite collisions with turbines by discouraging foraging activity and avoiding an increase in prey availability near turbine infrastructure.

4.5 RESTORATION OF NON-PRIORITY GRASSLAND HABITATS (UNIT C)

RATIONALE

- 4.5.1 Grassland across the Site is used for agricultural purposes including grazing of sheep and consists of four distinct grassland habitats; marshy grassland, semi-improved acid grassland, semi-improved neutral grassland and improved grassland. Marshy grassland referenced as Montane Heaths and Grassland restoration is the focus of Unit A along with high sensitivity soils and is not covered here. Unit C therefore aims to restore and enhance the condition of the non-priority grassland habitats not covered under Unit A.
- 4.5.2 A total of 8ha of combined semi-improved acid grassland (3.52ha), semi-improved neutral grassland (1.91ha) and improved grassland (2.57ha), is to be subject to direct and permanent loss as a result of the Proposed Development. The measures set out here aim to restore retained non-priority grassland to exceed the area of all non-priority habitats lost as a result of the Proposed Development, in excess of the ratios required in accordance with PPW Edition 12, with Unit C covering an area of 218.77ha. The intent is to deliver ecological benefits beyond the required compensation and mitigation in accordance with PPW Edition 12³.

- 4.5.3 The 2:1 enhancement ratio can be achieved if the above measures are applied to 7.5% of the area of retained non-priority grassland habitat. This equates to 16ha of retained non-priority grassland.
- 4.5.4 The exact location of the 16ha of non-priority grassland within Unit C will be determined through landowner agreement.

PROPOSED MEASURES

Reduction of Grazing Pressures

- 4.5.5 Grazing prescriptions will follow a regime that is appropriate for semi-improved and acid grassland, in accordance with sources such as Lowland Grassland Management Handbook¹⁴ and the Farm Advisory Service¹¹.
- 4.5.6 As a guide, the Farm Advisory Service suggests 0.7-1.4 LU/ha for grazing semi-improved neutral grassland and 0.4-0.7LU/ha for grazing acid grassland.
- 4.5.7 Stock proof fencing will be erected around the management areas within Unit C. Gates and watering facilities within land parcels will be installed and agreed with the landowner. Fence lines should be checked periodically for damage and rectified immediately. This will allow livestock grazing to be controlled throughout the year by manipulating stocking rates.
- 4.5.8 Stocking rates will be checked and potentially varied each year, to optimise conditions. Hardier cattle would be preferred in Unit C, especially regenerative cattle breeds. Grazing will end in September, or when the average sward height is reduced to 20cm or 5cm, respectively (whichever occurs first).
- 4.5.9 An optimal sward height of 20-25cm is required in semi-improved grassland areas, and 5cm for acid grassland areas, with cattle grazing between June and September during the main growing season.
- 4.5.10 In mid-September, the sward height and levels of poaching will be undertaken to decide upon whether to further graze grassland areas. Where the sward has grown well, further grazing may be required into October. Following the removal of cattle, and depending upon the state of the fields, sheep may be introduced to maintain sward height, providing that the maximum stocking rates are not exceeded.
- 4.5.11 Habitat monitoring surveys will assess the improvement in areas under management. This information will be used to review the stocking densities to ensure that the correct balance is achieved to enhance the grassland habitats and reach a favourable condition.

Introduction of Green Hay and Straw and Habitat Seed Mix

- 4.5.12 As described for Unit B, locally sourced green hay (or heathland brash) from species-rich donor areas may be spread onto prepared areas of degraded acid grassland and suitable improved grassland.
- 4.5.13 Additionally, habitat seed mixes can be applied to further supplement the existing seedbank and improve regeneration of grassland.

¹⁴ Crofts., A. and Jefferson, R.G. 1999. The Lowland Grassland Management Handbook. English Nature and The Wildlife Trusts, Peterborough.

Avoidance of improving habitat for red kites

- 4.5.14 Livestock carcasses should be removed from areas in proximity to turbines, and ploughing should not be undertaken around turbine locations. These measures are intended to reduce the risk of red kite collisions with turbines by discouraging foraging activity and avoiding an increase in prey availability near turbine infrastructure.

4.6 RESTORATION OF LOWLAND MIXED DECIDUOUS WOODLAND AND NATIVE HEDGEROWS (UNIT D)

RATIONALE

- 4.6.1 Broadleaved semi-natural woodland has been identified along the Access Road in three locations and on each occasion the woodland parcels connect with wider woodland habitat beyond the Site. Running water was recorded within two of the parcels. Tree species present within these parcels included silver birch *Betula pendula*, hazel *Corylus avellana*, hawthorn, ash *Fraxinus excelsior*, oak *Quercus sp.*, willow, and holly *Ilex aquifolium*.
- 4.6.2 Broadleaved semi-natural woodland within the Survey Area can be considered as Priority Habitat under Section 7 of the Environment (Wales) Act 2016. It is categorised as lowland deciduous woodland. Two portions of broadleaved woodland were identified as Ancient Semi-Natural Woodland (ASNW).
- 4.6.3 Where the Access Road passes through an area of ASNW, an existing track is already in place in this location. This may be subject to further widening as part of the Proposed Development. This will be minimised as far as possible. In the absence of a detailed measurement of this area, a worst case basis of 0.43ha requiring clearance has been assumed. The Applicant will engage with NRW to discuss the definitive status of the ASNW parcels within the Site as Ancient Woodland.
- 4.6.4 Nine hedges were recorded, comprising a diverse range of woody species (e.g. sycamore *Acer pseudoplatanus*, hawthorn, hazel, blackthorn, field maple *Acer campestre*, oak, elder and honeysuckle *Lonicera periclymenum*). Seven hedges were present with similar species composition but fewer than five native woody species. Two defunct hedgerows were recorded in the south of the Survey Area, consisting mainly of hawthorn, hazel and blackthorn. These are also classified as are classified as Section 7 Priority Habitats under the Environment (Wales) Act 2016.
- 4.6.5 Several trees and hedges will be pruned or, if unavoidable, removed along the Access Road. Compensatory planting of trees will be required at a ratio of 3:1 and consultation with NRW to review the status of ASNW with the Site will be sought. All tree removals will be mitigated by suitable post-construction landscape design including a Tree Replacement Strategy.
- 4.6.6 An area of 0.28ha of Lowland Mixed Deciduous Woodland, and 297.58m of Native Hedgerow, each a Priority Habitat, is to be subject to direct and permanent loss as a result of the Proposed Development. These values exclude the 0.43ha of ASNW that has been assumed, on a worst-case basis, to be lost as a result of the Proposed Development. The measures set out here aim to enhance Lowland Mixed Deciduous Woodland and Hedgerow to exceed that lost as a result of the Proposed Development, in excess of the ratios required in accordance with PPW Edition 12, with Unit D covering an area of 3.09ha and 985.14m, respectively.
- 4.6.7 Where tree planting measures are recommended, these should surpass the minimum 3:1 tree replacement ratio.

- 4.6.8 These ratios can be achieved if the above measures are applied to 37% of the retained areas of woodland within Unit D (this equates to 1.12ha of enhancement) and all retained hedgerows (297.58m) within the Site plus restoration of temporarily removed woodland and hedgerows.

Supplementary Planting of Deciduous Trees and Longterm Management

- 4.6.9 Habitat enhancement will include the improvement of woodland, treeline and hedgerow corridors. Gaps within existing treelines, woodland and hedgerows along the Access Road and parallel planting following existing hedgerows and treelines will be planted with species such as hazel *Corylus avellana*, silver birch *Betula pendula*, hawthorn, and sessile oak. The full extent of planting (to include species mix, coverage, and ensuring that a balance of natural regeneration is achieved) will be agreed with PCC and Tree Replacement Strategy of the post-construction landscape design.
- 4.6.10 During the establishment phase, trees will be protected in accordance with best practice guidance available at the time of planting. This may include the requirement for stock proof fencing on either side of hedgerows in fields that are grazed by sheep.
- 4.6.11 Existing woodland, hedges and treeline habitats will be subject to long-term management to enhance structural diversity and ecological condition. Selective thinning and rotational coppicing will be undertaken to promote a varied age structure, increase light penetration to the understorey, and encourage natural regeneration and ground flora development. Consultation with NRW should be sought prior to management of the ASNW to develop an agreed mitigation strategy.
- 4.6.12 Hedgerows should be subject to a cutting regime outside of the main bird breeding season, cutting alternate sides of the hedge on a three-year cycle.
- 4.6.13 The landowner or a local contractor (overseen by a suitably experienced ecologist) will be appointed to carry out the tree/scrub planting based on the following planting methodology:
- The suitability of native broadleaved species in planting locations will be determined based on the presence of existing trees and scrub;
 - The location of supplementary planting will be determined based on the extent of, and existing gaps within, existing trees lines;
 - Plants will be of local provenance and of varying ages, with planting at between 3.0m and 1.8m centres;
 - Trees will be staked and tubed to protect against deer and stock damage. Approximately five years after planting, or when trees reach a three-inch basal diameter, all tubes will be removed;
 - Planting areas, where they form a boundary of a grazed field, will be fenced; and
 - Beating up will be undertaken the year after planting and in year five (although there may be a requirement in other years) to replace dead trees. Lost or broken stakes or tubes will be replaced.

4.7 RESTORATION OF WATERCOURSE BANKSIDE HABITATS (UNIT E)

Rational

- 4.7.1 Running water was recorded throughout the Site in the form of numerous shallow, slow-flowing streams and occasional wet, rush-dominated ditches. Water depths typically ranged between 10cm and 15cm. The watercourses were generally characterised by steep, vegetated banks, with marshy grassland commonly occurring adjacent to the channel margins. Stream substrates comprised a

mixture of rock, stone and mud, whilst ditch sections were often choked with rushes. Aquatic and marginal vegetation was generally sparse; however, where present, species recorded included bog pondweed *Potamogeton polygonifolius*, common yellow-sedge *Carex demissa*, creeping forget-me-not *Myosotis secunda*, greater spearwort *Ranunculus lingua*, marsh violet *Viola palustris*, navelwort *Umbilicus rupestris* and ragged robin *Silene flos-cuculi*. In some streams, shoreweed *Littorella uniflora* was locally frequent, whilst a water-milfoil species *Myriophyllum* sp. was locally dominant.

- 4.7.2 These watercourses form part of a wider network of running water that is hydrologically connected to the Afon Carno, which ultimately flows into the River Severn. All watercourses recorded within the Site lie within 2.5km of their furthest source and are considered near-natural, qualifying them as the Section 7 Priority Habitat 'Small, Medium Altitude Rivers' under the Environment (Wales) Act 2016.
- 4.7.3 Part of the Proposed Development includes conversion of portions of this habitat to culverts. To compensate for the loss of connectivity along bankside habitats resulting culverting, retained bankside habitats will be enhanced to improve condition and value for biodiversity. In addition, these habitats will likely benefit to the increased water table as a result of ditch blocking measures undertaken in Unit A.
- 4.7.4 A length of 350.87m of Small, Medium Altitude Rivers, a Priority Habitat is to be subject to direct and permanent loss through culverting as a result of the Proposed Development. The measures set out here aim to retained Small, Medium Altitude Rivers to exceed the loss as a result of the Proposed Development, in excess of the ratios required in accordance with PPW Edition 12, with Unit E covering an area of 3,433.79m.
- 4.7.5 The 4:1 enhancement ratio can be achieved if the above measures are applied to 44% of retained riparian habitat plus restoration of temporarily removed riparian habitat.
- 4.7.6 The exact location of the 1,403.48m of Small, Medium Altitude Rivers for enhancement will be determined through landowner agreement.

Introduction of bankside structure

- 4.7.7 Bankside habitats within the enhancement area will be enhanced through the placement of locally sourced native deadwood, arranged in discrete habitat piles and linear features perpendicular to the watercourse, alongside locally quarried rocks and boulders. These features will increase structural diversity and provide shelter, basking, foraging and refuge opportunities for small mammals, riparian birds and herpetofauna. In addition, the deadwood will provide substrates for the colonisation and development of saproxylic invertebrate communities, fungi and other decomposer organisms, thereby enhancing ecological function and biodiversity within the riparian corridor.

Planting bankside riparian shrub and scrub habitat

- 4.7.8 Bankside riparian habitats within the enhancement area should be strengthened through the planting of locally sourced native shrub and scrub species characteristic of the surrounding landscape, together with the establishment of an appropriate riparian wildflower and grass seed mix. Planting and seeding should aim to create a diverse and structurally varied riparian corridor, increasing habitat complexity and providing nesting, foraging and shelter opportunities for birds, small mammals, amphibians, reptiles and invertebrates. The establishment of native scrub and species-rich bankside vegetation will also enhance habitat connectivity, improve bank stability, provide shading that helps regulate water temperatures, and contribute leaf litter and organic matter to the watercourse, supporting both aquatic and riparian ecological processes.

Management of Grazing Pressure

- 4.7.9 Grazing pressure should be managed dependent on the habitat that the watercourse passes through and the corresponding Unit prescriptions. While seeding is underway stock proof fences should be in place to prevent livestock from entering the watercourse and the banks under enhancement measures.

4.8 ENHANCEMENT OF ROCK OUTCROP HABITAT (UNIT F)

- 4.8.1 Several areas of inland cliff were recorded within the Site, comprised exposed rock faces without associated vascular vegetation due to the limited availability of soil and rooting substrate. This habitat has been identified as suitable for reptiles (Appendix 5J: Reptile Survey Report).
- 4.8.2 The inland cliff habitat recorded within the Site qualifies as the Priority Habitat Inland Rock Outcrops and Scree Habitat.
- 4.8.3 An area of 0.08m of Inland Rock Outcrops and Scree Habitat, a Priority Habitat is to be subject to direct and permanent loss as a result of the Proposed Development. The measures set out here aim to create hibernacula to exceed the loss as a result of the Proposed Development, in excess of the ratios required in accordance with PPW Edition 12.
- 4.8.4 The 4:1 enhancement ratio can be achieved by creating a minimum of four hibernacula within the Site, at least two of these features should be within Unit F.

Installation of hibernacula

- 4.8.5 Reptile and amphibian hibernacula should be created in accordance with Froglife guidance¹⁵ using a combination of locally sourced logs, deadwood, stone, rubble and soil to form stable structures containing a variety of internal voids and crevices.
- 4.8.6 As a guide hibernaculum should be installed comprising at south and southwestern aspects long the rock outcrop habitat, to comprise, clean boulders approximately 10-20cm in circumference, clean concrete pieces approximately 25-50cm in length and Type 1 subbase mixed with occasional wood pieces and covered in locally sourced soil and turf. These hibernacula will be set back within habitat margin boundaries with rock outcrops, partly exposed to solar radiation and out of the way of machines during vegetation management.
- 4.8.7 The incorporation of natural materials of varying sizes will increase structural diversity and create opportunities for use by a range of species, including herpetofauna, small mammals and invertebrates.

¹⁵ Froglife (2015) Hibernacula. Froglife Wildlife Gardening Advice Sheet. Available at: Froglife Hibernacula Advice Sheet (Accessed: 7 July 2026)

5 IMPLEMENTATION

5.1 MANAGEMENT

- 5.1.1 It is envisaged that the HMP will be an evolving document which outlines the management measures required to deliver the proposed habitat restoration and enhancement objectives. Further refinement and development of the management prescriptions will be undertaken following consultation and agreement with Powys County Council (PCC) and Natural Resources Wales (NRW). Appropriate consultation may be sought with landowners, the Applicant and an overseeing ecologist.
- 5.1.2 Each of the management prescriptions detailed at this outline stage will be further developed and defined in consultation with the landowners in order to ensure compatibility between management objectives and the objectives of working farms within the Site.
- 5.1.3 The Applicant will implement the HMP with the help of a number of potential partners which are expected to include (but not be limited to) those listed in **Table 50 5**.

Table 50 5 – Potential HMP delivery partners

Partner	Roles
Landowners	Implementation of stocking density prescriptions
PCC	Advice, information and technical input Integration of management plan outputs with Local Biodiversity Action Plan (LBAP)
NRW	Advice, information, and technical input
Local contractors	Implementation of ditch blocking, tree planting and stock fencing
Ecologist	Overseeing of HMP implementation, liaison with landowners, contractors and delivery partners, and monitoring.

- 5.1.4 Core delivery partners to whom agreements regarding the scope and responsibility of the HMP will need to be confirmed. Funding will be directed in order to implement the HMP objectives. This may include local peatland restoration and planting and fencing contractors, who may be well placed to deliver some of the identified actions.

5.2 FUNDING

- 5.2.1 The implementation of the HMP will be funded by the Applicant. The funding commitment by the Applicant will be for the operational 40-year lifespan of the project.

5.3 MONITORING AND REVIEW

- 5.3.1 HMP prescriptions will be subject to monitoring to assess their effectiveness at achieving the overarching aims and objectives. The outcomes of the monitoring prescriptions will be used by a steering group to adjust current objectives and their prescriptions, or to devise new aims and objectives.

- 5.3.2 It is critical that the habitat management process remains flexible, allowing alterations to prescriptions in response to the monitoring programme. The monitoring results for each year will therefore be analysed and presented in an annual report to be prepared by an appropriately qualified ecologist/s. This report will include recommendations regarding any changes to management practices and/or monitoring requirements that may be considered necessary.

NVC MONITORING SURVEYS (UNITS A, B, C, D AND E)

- 5.3.3 Habitat monitoring needs a robust baseline to be repeated at intervals over a long period, to cover a wide area, and be sufficiently sensitive to register changes. A detailed assessment of the entire application Site looking at fine-scale changes to vegetation composition and structure is not appropriate in this situation as the management plan targets specific species, habitats and areas.
- 5.3.4 The monitoring strategy proposed is:
- Establishment of the post-construction baseline (habitat surveys undertaken of Units A, B, C, D and E) in the first summer post-construction);
 - Walkover surveys by a competent ecologist every other year for the duration of Proposed Development lifespan following the baseline survey, to provide a high-level review of the management; and
 - Full NVC monitoring surveys in years 1, 2, 3, 5 and then every 5 years for 25 years (indicative at this stage) after the post-construction baseline survey, or as appropriate (frequency may be greater or less with agreement from the steering group).
- 5.3.5 The first NVC monitoring survey would be completed in the summer following completion of construction, and this would be used as the baseline condition. It is proposed that the requirement for monitoring would be determined based on a high-level visual assessment completed during the steering group site visits, which would seek to assess whether changes in vegetation community boundaries are likely to have occurred. If a change is likely to have occurred, this would trigger the need for a monitoring NVC survey.

ADDITIONAL PEATLAND HABITAT MONITORING (UNIT A)

- 5.3.6 Further to the NVC survey, long-term monitoring of the peatland habitats in Unit A through the post-construction baseline and in years 1, 2, 3, 5 and then every 5 years for 25 years will also include monitoring of the following variables:
- Cumulative Sphagnum cover;
 - Proportion of ground with standing water; and
 - Proportion of wet/waterlogged ground (i.e. with the water table at least at the ground surface, if not above it).
 - The NVC survey will also gather information regarding the structure and composition of the vegetation, species abundance, evenness and diversity, and the presence of positive and negative indicator species as standard.
 - Dipwells will be installed at a range of monitoring points where ditch blocking is proposed, with the purpose of measuring water table depth. The number and location of such monitoring points will be determined at HMP implementation stage. Monitoring will be carried out for at least one year prior to drain-blocking works and will continue for at least five years henceforth.

- 5.3.7 Specific peatland monitoring measures described above will gather sufficient data to inform future management, and assess the trajectory of plant species and habitats.
- 5.3.8 Monitoring of the peatland habitats will inform the management of Unit A, and would seek to maintain or enhance the condition of the peatland habitats.

HEDGEROW MONITORING (UNIT D)

- 5.3.9 Hedgerows within Unit D will be monitored through the implementation of hedgerow surveys, which will be undertaken according to methodology set out in the Hedgerow Survey Handbook (Defra, 2007).
- 5.3.10 The monitoring strategy proposed is thus:
- Establishment of the baseline (surveys undertaken in the first summer post-construction); and
 - Walkover surveys by the steering group (or agreed representative) every other year following the baseline survey, to provide a high-level review of the management; and
- 5.3.11 The first hedgerow survey would be completed in the summer following completion of construction, and this would be used as the post-construction baseline condition. It is proposed that the requirement for monitoring would be determined based on a high-level visual assessment completed during the steering group site visits, which would seek to assess whether changes in vegetation community boundaries are likely to have occurred. If a change is likely to have occurred, this would trigger the need for a monitoring hedgerow survey.
- 5.3.12 Conservation action for the hedgerows will be incorporated into the HMP depending upon the results of the hedgerow surveys, and in accordance with suggestions detailed in the Hedgerow Survey Handbook. For example, if the woody component of the hedge is too narrow/low, the cutting regime may be altered.

WALKOVER SURVEYS (UNITS E AND F)

- 5.3.13 Riparian habitats and hibernacula within Units E and F will be monitored through the implementation of walkover surveys.
- 5.3.14 The monitoring strategy proposed is thus:
- Establishment of the baseline (surveys undertaken in the first summer post-construction); and
 - Walkover surveys by the steering group (or agreed representative) every other year following the baseline survey, to provide a high-level review of the management.
- 5.3.15 Conservation action for these habitats will be incorporated into the HMP depending upon the results of the walkover surveys.

5.4 MEASURES AND MONITORING

5.4.1 A summary of the key habitat measures to be implemented and the monitoring and review measures is provided in **Table 50 6**.

Table 50 6 – Indicative scope of measures, monitoring and target outcomes

Feature to be managed and enhanced	Habitat(s)	Unit	Method/measures to be implemented	Monitoring and review	Target outcome
High sensitivity soils, marshy grassland and Blanket Bog	Blanket Bog GWDTEs	Unit A	Ditch blocking, with peat dams to be implemented within deepened and straightened drainage ditches that are present throughout the Site. Removal of encroaching bracken, with a two-cut cycle to be repeated annually for at least the first five years post-construction. Fencing, to ensure that no grazing by sheep or cattle occurs within this unit.	Establishment of the baseline, with surveys undertaken in the first year post-construction. Full NVC surveys to be undertaken in years 1, 2, 3, 5, and then every 5 years for 40 years, or throughout the lifetime of the windfarm after the baseline survey, or as appropriate following direction from the steering group. Dipwells¹⁶ installed at a range of monitoring points will be monitored for at least one year prior to drain-blocking, and will continue for at least five years henceforth. Walkover surveys by the steering group or agreed representatives every other year to provide a high-level review of the management and to prescribe any modifications required. This is	Core monitoring objective to establish whether restoration works are resulting in conditions favourable to the recovery of a functioning peatland habitat. Likely targets will relate initially to stability and revegetation of the target areas, followed by potentially longer-term change in peatland state that will encourage the re-establishment of some ecosystem functions. Annual progress reports will be produced documenting the findings of all monitoring and survey work, comparison with previous findings, identifying key trends and issues, and providing a basis upon which to formulate further actions through the steering group or identified stakeholders.

¹⁶ Dipwells are commonly installed before and after interventions such as drain or ditch blocking to assess whether restoration measures are successfully raising and stabilising the water table. Water levels are measured periodically by inserting a water level probe or measuring tape into the dipwell.

Feature to be managed and enhanced	Habitat(s)	Unit	Method/measures to be implemented	Monitoring and review	Target outcome
				particularly important following year 5 when monitoring surveys are less frequent, to ensure that corrective management is implemented where required. Variables to be recorded during the NVC include <i>Sphagnum</i> cover, proportion of ground with standing water, proportion of wet/waterlogged group, in addition to standard NVC data.	
Upland Heathland	Upland heathland Bracken	Unit B	Removal of bracken, with a two-cut cycle to be repeated annually for at least the first five years post-construction. Reduction of grazing pressure.	Establishment of the baseline, with NVC surveys undertaken in the first year post-construction. Full surveys to be undertaken in years 1, 2, 3, 5, and then every 5 years for 40 years, or throughout the lifetime of the windfarm after the baseline survey, or as appropriate following direction from the steering group. Walkover surveys by the steering group or agreed representatives every other year to provide a high-level review of the management and to prescribe any modifications required. This is particularly important following year 5 when monitoring surveys are less frequent, to ensure that	Core monitoring objective to establish whether restoration works are resulting in conditions favourable to the restoration and creation of both wet and dry heathland habitats. Likely targets will relate to indicators of heath in a 'favourable condition,' such as structural diversity, and a range of growth stages of heather, including the presence of mature heather. Annual progress reports will be produced documenting the findings of all monitoring and survey work, comparison with previous findings, identifying key trends and issues, and providing a basis upon which to formulate further actions through the steering group or identified stakeholders.

Feature to be managed and enhanced	Habitat(s)	Unit	Method/measures to be implemented	Monitoring and review	Target outcome
				corrective management is implemented where required.	
Biodiversity of grassland	Neutral grassland Acid grassland	Unit C	Removal of bracken, with a two-cut cycle to be repeated annually for at least the first five years post-construction. Reduction of grazing pressures, through the provision of stock proof fencing and controlling of livestock grazing. The aim of the livestock grazing would be to maintain the sward height at approximately 20-25 cm, and to allow for seasonal grazing only. Stocking rates to be checked and varied depending on the grazing and poaching of the habitats when checked in September.	Establishment of the baseline, with NVC surveys undertaken in the first year post-construction. Full surveys to be undertaken in years 1, 2, 3, 5, and then every 5 years for 40 years, or throughout the lifetime of the windfarm after the baseline survey, or as appropriate following direction from the steering group. Walkover surveys by the steering group or agreed representatives every other year to provide a high-level review of the management and to prescribe any modifications required. This is particularly important following year 5 when monitoring surveys are less frequent, to ensure that corrective management is implemented where required.	Core monitoring objective to establish whether restoration works are resulting in conditions favourable to the biodiversity of grassland habitats. Likely targets will relate to indicators of NVC habitats of less modified grassland with increased structural diversity, such as U4a community presence. Annual progress reports will be produced documenting the findings of all monitoring and survey work, comparison with previous findings, identifying key trends and issues, and providing a basis upon which to formulate further actions through the steering group or identified stakeholders.

Feature to be managed and enhanced	Habitat(s)	Unit	Method/measures to be implemented	Monitoring and review	Target outcome
Supplementation of woodlands, lines of trees and hedgerows	Woodland, treelines and hedgerows	Unit D	Planting of deciduous trees in gaps treelines, woodland and shrubs within hedges.	Establishment of the baseline, with NVC surveys undertaken in the first year post-construction. Full surveys to be undertaken in years 1, 2, 3, 5, and then every 5 years for 40 years, or throughout the lifetime of the windfarm after the baseline survey, or as appropriate following direction from the steering group. Walkover surveys by the steering group or agreed representatives every other year to provide a high-level review of the management and to prescribe any modifications required. This is particularly important following year 5 when monitoring surveys are less frequent, to ensure that corrective management is implemented where required.	Core monitoring objective to establish whether restoration works are resulting in conditions favourable to the woodland habitats. Annual progress reports will be produced documenting the findings of all monitoring and survey work, comparison with previous findings, identifying key trends and issues, and providing a basis upon which to formulate further actions through the steering group or identified stakeholders.
Small, Medium Altitude Rivers	Bankside habitats	Unit E	Placement of locally sourced native deadwood and locally sourced stone and rocks to create bankside structure. Planting of riparian shrub plant species.	Walkover surveys by the steering group or agreed representatives every other year to provide a high-level review of the management and to prescribe any modifications required.	Core monitoring objective to establish whether restoration works are resulting in conditions favourable to the woodland habitats. Annual progress reports will be produced documenting the findings of all monitoring and survey work, comparison with previous findings, identifying key trends and issues, and providing a basis upon which to

Feature to be managed and enhanced	Habitat(s)	Unit	Method/measures to be implemented	Monitoring and review	Target outcome
					formulate further actions through the steering group or identified stakeholders.
Inland Rock and Scree Outcrops	Hibernacula	Unit F	Placement of locally sourced stone and rocks to create hibernacula.	Walkover surveys by the steering group or agreed representatives every other year to provide a high-level review of the management and to prescribe any modifications required.	Core monitoring objective to establish whether restoration works are resulting in conditions favourable to the woodland habitats. Annual progress reports will be produced documenting the findings of all monitoring and survey work, comparison with previous findings, identifying key trends and issues, and providing a basis upon which to formulate further actions through the steering group or identified stakeholders.

6 FIGURES

Figure 5O.1 – Site Location

Figure 5O.2 – Habitat Management Unit Boundaries

Figure 5O.3 – Habitat Map

Figure 5O.4 – Soil Map

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