LLANWONNO ENERGY PROJECT

Green Infrastructure Statement

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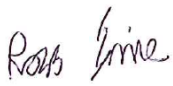
Ross Irvine		27th March 2025

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1 INTRODUCTION

1.1 On 7 February 2024, Welsh Government published the revised Planning Policy Wales (PPW) Edition 12. PPW 12 included revisions to Chapter 6 (Biodiversity), one of these key changes being the recommendation for a Green Infrastructure Statement to be submitted with all planning applications. The aim of this Green Infrastructure Statement ('GI Statement' or 'the Statement') is to evidence how green infrastructure has been incorporated into the 'Application Boundary', defined as the red line boundary of the planning application.

1.2 This GI statement has been prepared on behalf of Cenin Renewables Ltd (the Applicant) in support of an application The construction and operation of up to eight wind turbines (30.4MW) and solar PV panels (30.7MW) with battery storage facility and associated infrastructure/hardstanding at Land to the north east of Porth, south of Llanwonno.

1.3 Additional information regarding the development proposals is provided within Chapter 2: Site and Project Description of the Environmental Statement (ES).

Policy Context

Planning Policy Wales

1.4 Green Infrastructure (GI) is the network of natural and semi-natural features, such as green spaces, rivers and lakes, that intersperse and connect places. For small developments, GI can include landscaping, grass verges and sustainable drainage systems, whereas on a larger development scale this can consist of, but not be limited to, the creation of species rich meadows, woodlands and the improvement of linkages between areas of existing biodiversity value.

1.5 PPW makes it clear that the quality of development should be enhanced by integrating GI through appropriate site selection and use of creative design. Section 6.2 'Integrating Green Infrastructure and Development' states:

> *'With careful planning and design, green infrastructure can embed the benefits of biodiversity and ecosystem services into new development and places, to overcome the potential for conflicting objectives, and contribute to health and wellbeing outcomes.*
>
> *The green infrastructure statement will be an effective way of demonstrating positive multi-functional outcomes which are appropriate to the site in question and must be used for demonstrating how the step-wise approach (Paragraph 6.4.21) has been applied.'*

1.6 The GI Statement should highlight any baseline data considered and surveys and assessments undertaken, including habitats and species surveys, arboriculture surveys and assessments, sustainable drainage statements, landscape and ecological management plans, open space assessments, green space provision and active travel links.

1.7 Additionally, the GI statement should demonstrate how the Building with Nature Standards have been considered as part of the development proposals and how the step-wise approach has been incorporated.

1.8 PPW Chapter 6 states that the 12 Building with Nature Standards represent good practice and are an effective prompt for developers to improve the quality of their schemes and demonstrate the sustainable management of natural resources.

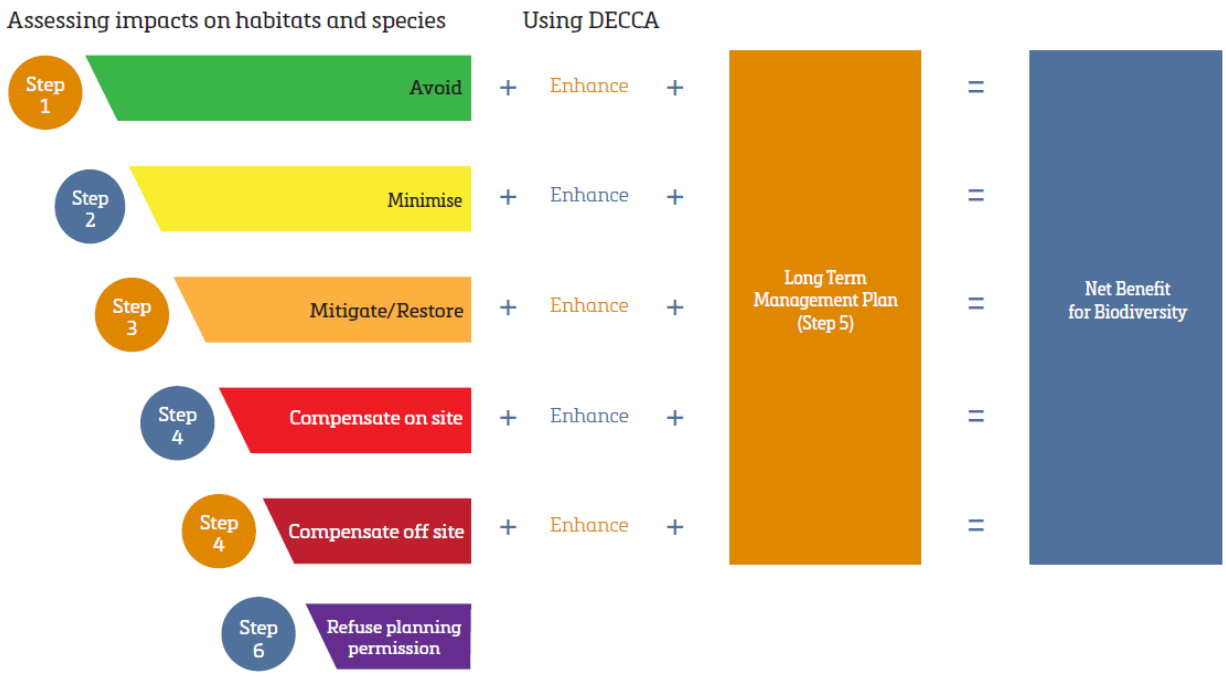

Figure 1: Step-wise Approach (PPW 12)

The Well-being of Future Generations (Wales) Act 2015

1.9 The Well-being of Future Generations (Wales) Act ('the Act') outlines the seven well-being goals:

1. A prosperous Wales
2. A resilient Wales
3. A healthier Wales
4. A more equal Wales
5. A Wales of more cohesive communities
6. A Wales of vibrant culture and thriving Welsh language
7. A globally responsible Wales

Figure 2: The Seven Connected Well-Being Goals for Wales

1.10 The Act outlines a definition of "sustainable development" as 'the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals.'

1.11 The Act places a duty on public bodies to align with the 'sustainable development principle' meaning that any bodies must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs.

Future Wales: The National Plan 2040

1.12 Future Wales is the national development framework, setting the direction for development in Wales to 2040.

1.13 Policy 9 'Resilient Ecological Networks and Green Infrastructure' is of particular relevance to Green Infrastructure. This policy seeks to ensure that *"action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit), the resilience of ecosystems and green infrastructure assets must be demonstrated as part of development proposals through innovative, nature based approaches to site planning and the design of the built environment*".

Local Policy: Rhondda Cynon Taf Local Development Plan up to 2021

1.14 The Local Planning Authority for the Proposed Development is Rhondda Cynon Taf County Borough Council (RCTCBC).

1.15 The development plan for the Site is the RCTBC Local Development Plan, adopted March 2011.

1.16 The following policies from the LDP are relevant to green infrastructure:

- Policy **AW5 New Development**
- Policy **AW6 Design and Placemaking**
- Policy **AW8 Protection and Enhancement of the Natural Environment**

Revised Local Development Plan 2022 - 2037

1.17 Rhondda Cynon Taf County Borough Council are preparing a Revised Local Development Plan for the period 2022 – 2037 which will replace the current LDP. The RLDP preparation is currently at Consultation on the Deposit Revised LDP stage. Adoption of the RLDP is anticipated in May 2026.

1.18 The preferred strategy identifies a need to protect, enhance and provide further green and blue infrastructure. More good quality, accessible open and green spaces in RCT is needed in places. There is also a need to preserve and enhance green infrastructure and all suitable natural assets that can help to address climate change.

1.19 Proposed **policy SP1: Climate Change and Carbon** states that development proposals must demonstrate climate consideration, aim to reduce carbon emissions and where possible mitigate against the causes of climate change.

1.20 Natural assets play a large part in tackling climate change. The Revised LDP will seek to protect green infrastructure and the multifunctional role it can play in reducing carbon emissions e.g. the management of peat bogs, protection of carbon storing semi-natural habitats and soils, appropriate forms of planting, protection of trees and natural regeneration of woodland.

1.21 Proposed **policy SP2: Placemaking and Sustainable Communities** states that new development will be expected to contribute to the vision of the future of RCT, which is for communities that are inclusive, cohesive, safe, supported and valued. This policy states that development should incorporate new and connected green infrastructure, promoting biodiversity.

1.22 Proposed **policy S5: Green Infrastructure and Open Space** emphasises that Green Infrastructure plays a significant role in providing appropriate habitats for biodiversity in RCT. The protection, management and enhancement of such places in RCT is therefore a key responsibility of the RLDP.

2 SITE CONTEXT AND EXISTING BASELINE

Development Site Context

2.1 The Site comprises land to the north east of Porth, south of Llanwonno, which lies approximately 5km from Pontypridd. The Site is approximately 112.36 hectares (ha) and consists of several parcels of land.

2.2 The Site is located approximately 270m east of the consented Llwyncelyn Wind Project which comprises two turbines (application reference: 15/1635/FUL, approved in 2017). Installation of the Llwyncelyn Wind Project has commenced with construction to be completed by early 2025.

2.3 The Site comprises agricultural land and woodland, with one building structure to the south east of the Site. The Site is currently used for semi-improved pasture in an extensive pattern of irregularly shaped large fields.

2.4 The following Public Rights of Way (Prow) are adjacent to the Site (no PRoW directly traverses the Site):

- Footpath YCC/28/3
- Footpath YCC/36/2
- Bridleway YCC/14/1

2.5 The Site is located within a Sandstone Resource area, allocated by Policy AW14 of the RCTBC LDP.

Landscape

2.6 The Site is also partially located within a Registered Landscape of Special Historic Interest.

2.7 The Site is outwith any National landscape designations, however there are national designations within the LVIA study area including the Brecon Beacons National Park (BBNP) which lies to the north of the Proposed Development at approximately 14km to the Site at its nearest point.

Topography and Flood Risk

2.8 The Proposed Development is centred at ST 045 025 and is at a maximum elevation of approximately 300 to 350m A.O.D

2.9 The Site is located within Flood Zone 1 / Development Advice Map Zone A, meaning it has a low risk of flooding from all assessed sources. Nearest areas of flood risk to the Site are located within the southern extent of the study area, in association with flood risk from Rhondda Afon.

2.10 The Site is located within the headwaters of the Afon Rhondda and the River Toff.

2.11 OS Mapping shows there are several ordinary watercourses within the immediate study area, used for hydrological assessment:

- Nant Hafod flows south across the south western extent of the study area;
- Nant Blaenhenwysg flows south across the south eastern extent of the study area;
- Llys Nant flows east across the northern extent of the study area; and
- A tributary to the Nant Clydach flowing north in the northern extent of the study area.

Biodiversity

2.12 No statutory designated sites exist within 2 km of the Site.

2.13 Nineteen Sites of Importance for Nature Conservation (SINCs) are present within 2 km of the Site boundary. 5 are designated for their woodland habitats, 6 are designated for their Ffridd habitats, three are designated for their watercourses and 1 is designated for its grassland habitats. The remaining 4 are designated for a mosaic of at least two of the habitat types listed.

2.14 One of these SINCs – Llys Nant & Graig Twyn-y-glog Woodlands – is located partially within the Site boundary (in the central and eastern parts of the Site) and comprises a mosaic of habitats including woodlands. Two other SINCs, Coed-yr-Hafod Woodland complex and St Gwynno Forest, are located adjacent to the Site boundary (to the south and north of the Site respectively) and are also designated primarily for their woodland habitats.

2.15 The full ecological assessments are provided within Environmental Statement (ES) Chapter 9: Terrestrial Ecology and ES Chapter 10: Ornithology.

2.16 Desk study and ecological survey work of the Site to date have comprised the following surveys outlined in **Table 2.1.**

Table 2.1 Ecological Survey Work Conducted to Date

Survey type	Purpose of survey	Date undertaken
Terrestrial Ecology Surveys		
Phase 1 Habitat survey	To characterise the baseline habitat types (in accordance with JNCC, 2010) and condition on and adjacent to the Study Area, and to identify ecological constraints.	Phase 1 habitat survey was completed in April 2022 and updated in August 2024.
Bat survey	To characterise the bat species assemblage and the levels of bat activity across the Study Area during the active period in 2023. To review weather data for the period and identify any apparent relationships between bat activity and weather conditions. To identify suitable roost sites (during 2024).	Bat activity survey was completed during the period April to September 2023. Ground-Level Tree Assessment (GLTA) of the mixed plantation woodland in the central – eastern part of the Study Area (Perry's Wood) was completed in December 2024.
Dormouse survey	To determine presence / likely absence of dormouse within suitable habitat in the Study Area.	Dormouse survey work was completed during the period March to November 2023.
Otter and Water Vole survey	To determine presence / likely absence of otter and water vole within suitable habitat in the Study Area.	Otter and water vole survey was completed in October 2024 (and will be repeated in April 2025).
Ornithological Surveys		
VP survey	To characterise flight activity over the Study Area and adjacent land, and to obtain data consistent with that required for collision risk modelling using SNH's Band Model.	March 2022 – March 2024

Breeding raptor survey	To locate territories of breeding raptor species within the Survey Area and perimeter areas around it (as defined by industry standard guidance (SNH, 2017), providing context to raptor flight activity recorded during VP surveys.	April 2022 – July 2022 April 2023 – June 2023
Breeding wader (and passerine) survey	To locate territories of upland breeding wader species within the Survey Area and adjacent land, providing context to wader flight activity recorded during VP surveys (and to map territories of notable passerine species).	April 2022 – July 2022 April 2023 – August 2023
Nightjar survey	To locate territories of breeding nightjar within suitable habitat adjacent to the Survey Area.	June 2022 – July 2022 June 2023

3 GREEN INFRASTRUCTURE ASSESSMENT

3.1 The proposed development's approach to integrating green infrastructure within the Proposed Development with reference to the step-wise approach is set out below.

3.2 Where applicable, reference has been made to the DECCA[1] framework, to demonstrate how the development proposals have considered ecosystem resilience and the enhancement of ecological networks. The DECCA framework is defined as:

- **Diversity** between and within ecosystems;
- **Extent** of habitats and ecosystems, with the aim of maintaining and increase the area of semi-natural habitat/features and linkages between them;
- **Condition** including structure and functioning of ecosystems, which is affected by multiple complex pressures including climate change, pollution, invasive species, land management neglect etc;
- **Connectivity** between and within ecosystems; and
- **Adaptability** and other Aspects of resilience, i.e. adaptability, recovery and resistance to environmental pressures.

3.3 Full details of the approach to mitigation and enhancement is provided in ES Chapter 9: Terrestrial Ecology and ES Chapter 10: Ornithology.

3.4 A summary of GI measures in relation to the step-wise approach, is summarised in **Table 3.1 Application of the Step-Wise Approach.**

Table 3.1 Application of the Step-Wise Approach

Step	Development Design Measures
Step 1 – Avoid	The location and micro-siting of the proposed turbines, the design of the proposed solar array, and the routes of access tracks have taken into account and avoided the habitats of highest ecological value (Section 7 priority habitats) within the Proposed Development site; M25 marshy grassland, native species-rich hedgerows and broadleaved woodland. The solar array was designed to avoid the habitats of highest ecological value (Section 7 priority habitats) within the Proposed Development site (listed above), being located entirely within habitats of low ecological value; improved and semi-improved grassland and arable land. In earlier iterations of the proposed layout, the access track to T7 was over a section of the larger canalised stream (in the central-eastern part of the Study Area) with habitat of higher suitability for water vole (a wide channel with sections of shallower bank slope and structurally diverse marginal vegetation), within 30 m of mature oak and birch trees (which were later found to have PRF-M features for roosting bats). The section of proposed track was moved approximately 40 m east (away from the habitat of higher suitability for water vole and mature trees), such that it now crosses a section of the same watercourse of lower suitability for water vole (with streamside vegetation dominated by bracken and bramble, in a steep-sided channel), and the mature trees are approximately 70 m from the nearest part of the proposed track.

[1] Diversity, Extent, Condition, Connectivity and Adaptability as defined by Natural Resources Wales

	The original proposed layout included turbines in land to the west of the final layout (to the south of the existing Llwyncelyn scheme). However, these were located in close proximity to the Lapwing Management Area being created as part of the Llwyncelyn scheme, and expanded as part of the enhancement measures for this scheme. At an early stage of the design process, these turbines were removed from the proposals and the scheme avoided the known lapwing breeding area and Lapwing Management Area, such that no part of the Proposed Development was within the known breeding area and all of the Proposed Development was to the east of the known lapwing breeding area / Lapwing Management Areas. The Proposed Development was reasonably buffered from Lapwing Management Area, such that the nearest edge of the proposed development (a section of access track) is approximately 85 m from it, and the nearest proposed turbine is approximately 170 m from it. A red kite nest was recorded outside the Proposed Development area, but within 300 m of it, during 2022 and 2023. Goodship & Furness (2022) suggest an upper disturbance threshold of 150 – 300 m for red kite. Therefore, no proposed turbines were located within 300 m of the red kite nest site.
Step 2 – Minimise	Taking into consideration other (non-ecological) constraints, it was established that turbines must be located within mixed plantation woodland (Perry's Wood) (which does not meet the definition of a Habitat of Principal Importance under Section 7 of the Environment (Wales) Act, 2016), and is part of the Llys Nant & Graig Twyn-y-glog Woodlands SINC. During the construction phase, habitat loss / modification will be minimised as far as possible within the SINC by minimising the working footprint as far as practicable (approximately 3.85 ha of mixed plantation woodland will be cleared as a result of the Proposed Development). Any temporary lay-down, vehicle access points, material storage or construction compounds (as required during the turbine installation) will be confined to tracks, laybys or appropriate areas as identified / discussed with the Ecological Clerk of Works (ECoW). Retained habitats including buffers and root zones and / or working areas will be clearly demarcated and maintained until works are complete. The marked area will act as an exclusion zone, minimising the area disturbed during construction. All equipment / plant will operate from within the marked working area, and no spoil, vegetation or other materials are to be placed or stored outside of the working area. Bat buffers of 50 m from blade tip to forest edge to reduce the risk of bat-strike (as recommended in SNH, 2021). All other linear features that are likely to be well used by bats (i.e. woodland edge, watercourses and hedgerows) are outside the bat buffers around proposed turbines. Turbine blades will be feathered at idle to minimise the potential for killing or injuring bats. Good-practice working practices (detailed within a CEMP) will be implemented in all sensitive habitats, including at and adjacent to watercourses during the construction of culverts, to minimise construction phase impacts on the habitats and species they support. A red kite nest was recorded outside the Proposed Development area, but within 300 m of it, during 2022 and 2023. Goodship & Furness (2022) suggest an upper disturbance threshold of 150 – 300 m for red kite. The proposed solar array was designed to be no closer than 280 m from the nest.

Step 3 – Mitigate / Restore	In temporary works areas (adjacent to proposed infrastructure), topsoil will be reinstated (where possible) to facilitate regrowth (from the seedbank within the soil) of the vegetative assemblage which formed the baseline habitat. Where mixed plantation woodland (outside the bat buffers around turbines) must be cleared to facilitate construction but is outside the footprint of infrastructure, the habitat will be reinstated. This will involve reinstating topsoil, and planting with a range of native tree and shrub species, representative of that present within the mixed plantation woodland and other woodland adjacent to the Proposed Development (these measures will be detailed within a CEMP.
Step 4 – Compensate	Regular cutting of the (former MG10) marshy grassland south of Perry's Wood will cease, to compensate for the reduction in the extent of this habitat. To compensate for the loss of mixed plantation woodland, measures such as; limited selective felling of non-native species (e.g. spruce sp.), planting of fruiting understorey species (tolerant of low light levels) and overseeding with a woodland ground flora seed mix will be implemented in the retained habitat. 15 bird boxes, 5 bat and 5 dormouse boxes will be installed in the retained mixed plantation woodland (Perry's Wood) to compensate for the loss of suitable natural features for nesting birds, roosting bats and hibernating dormice.
Step 5 – Long Term Management Plan and Additional Measures (including enhancement)	A range of enhancement measures within the mixed plantation woodland on sites are proposed, such as; limited selective felling of non-native species (e.g. spruce sp.), planting of fruiting understorey species (tolerant of low light levels) and overseeding with a woodland ground flora seed mix. Habitat piles and retained dead wood from the pruned / felled materials within the woodland will be created, which will provide habitat for invertebrates and reptiles. Encroaching bracken within semi-improved acid and marshy grassland will be controlled. Encroaching scrub within the small area of dry dwarf shrub heath will be controlled. Field margins within the solar array (between solar panels and walls) will be fenced, to prevent overgrazing and allow the development of a longer and more diverse sward. This habitat will be cut annually in late summer / early autumn. Habitat enhancement measures for reptile including the creation of simple structures such as hibernacula and grass snake egg laying heaps within the fenced field margins will be incorporated in the design. A treatment plan to remove / reduce the invasive species (Japanese knotweed) present in the Study Area will be produced. Land outside the Proposed Development (to the west), will be enhanced, to benefit breeding lapwing, will be detailed in a Lapwing Management Plan (LMP). Outline measures, to be detailed within the plan are as follows: • Creation of a 3.2 ha lapwing management area in the southern half of the field centred on OSGR ST 03872 92713 in which lapwing bred during the second year of survey (additional to those created for the Llwyncelyn scheme)

	• The extension of the existing 3.6 ha lapwing management area in 'Field 1' of the Llwyncelyn LMP, by 1.0 ha. The lapwing management area will be sown with cereal crop during February / early March or will be a set-aside plot (a spring-sown crop / plot within the field will provide vegetative cover from predators for breeding lapwing).

4 BUILDING WITH NATURE STANDARDS

4.1 The Building with Nature (BwN) Standards are the UK's first GI benchmark for the UK built-environment sector and are good practice guidelines to deliver high-quality and defined GI.

4.2 Each of the standards are set out below, referencing evidence of how the standard is being met. Due to the nature of the scheme as wind energy generation, not all BwN standards are directly applicable to the Proposed Development but have been considered generally within the GI strategy.

Standard 1: Optimises Multifunctionality and Connectivity

4.3 The purpose of Building Standard 1 is *"… to ensure that green infrastructure features form and contribute to creating an optimal multifunctional network within the development and wider area, contributing towards the restoration, creation and enhancement or expansion of these networks to achieve the maximum benefits for people, wildlife and environment".*

4.4 A number of measures are proposed by the development to increase quality of existing habitats and their connectivity. This includes the following:

- Control of encroaching bracken within semi-improved acid and marshy grassland. This will enhance the area of suitable foraging and breeding habitat for ground-nesting birds.
- Cessation of regular cutting of the marshy grassland south of the mixed plantation woodland, to mitigate for the reduction in the extent of this habitat. This will increase sward length and invertebrate biomass within the habitat, thereby increasing its suitability for passerines.
- Enhancement of the mixed plantation woodland through measures such as limited selective felling of non-native species, planting of fruiting understorey species (tolerant of low light levels) and overseeding with a woodland ground flora seed mix, will improve the value of the habitat foraging resource.

Standard 2: Positively Responds to the Climate Emergency

4.5 The purpose of Standard 2 is *"… to minimise the vulnerability and exposure of the green infrastructure to wider climate-related hazards and impacts and ensure it maximises opportunities to contribute to net zero carbon goals and nature recovery."*

4.6 The project consists of renewable energy generating infrastructure, both wind and solar. Therefore, on the whole it responds to the climate emergency by utilising wind and solar resources for generation of clean energy, reducing national reliance on fossil fuels. Cenin have long term plans to utilise Llanwonno Energy Project to sustainably power the University of South Wales 'net zero' Treforest campus.

Standard 3: Maximises Environmental Net Gains

4.7 The purpose of Standard 3 Maximises Environmental Net Gains is to *"… ensure new development uses green infrastructure to help mitigate any unavoidable residual harms to the local environment resulting from development, particularly from new sources of air or noise pollution and soil degradation. As with all Standards, the purpose here is to secure benefits that go beyond statutory minimums and encourage greater enhancement of the local environment for people and wildlife, which in-turn aids individual wellbeing, social cohesion, community wellbeing and supports wildlife".*

4.8 The key characteristics of the standard include to:

1. mitigate unavoidable harmful environmental impacts through green infrastructure;
2. improve the local environment by delivering environmental net gains with regards to air, water and soil quality and, where there is scope, space for people and wildlife; and
3. where applicable, address local priorities for environmental net gain – demonstrated through meeting the linked Building with Nature Standards, in particular Standard 4: Champions a Context Driven Approach.

4.9 Measures proposed by biodiversity and ornithological assessments ensure a net benefit for biodiversity is achieved. Measures include:

- Provision of 5 bat, 5 dormouse and 15 bird boxes in the onsite woodland.
- The creation of habitat piles and retained dead wood from the pruned / felled materials within the woodland, which would provide habitat for invertebrates and reptiles.
- Habitat enhancement for reptile including the creation of simple structures such as hibernacula and grass snake egg laying heaps;
- Lapwing management areas - enhancement of land outside the Proposed Development to the west is being proposed as Lapwing management areas to benefit breeding lapwing. Further information of these will be detailed in a Lapwing Management Plan (LMP).
  - Creation of a 3.2 ha lapwing management area in the southern half of the field centred on OS grid reference ST 03872 92713 in which lapwing bred during the second year of surveys (additional to those created for the Llwyncelyn scheme). There will also be an extension of the existing 3.6 ha lapwing management area in 'Field 1' of the Llwyncelyn LMP, by 1.0 ha.
  - The lapwing management area will be sown with cereal crop during February / early March or will be a set-aside plot (a spring-sown crop / plot within the field will provide vegetative cover from predators for breeding lapwing).

Standard 4: Champions a Context Driven Approach and Standard 5: Creates Distinctive Places

4.10 The purpose of Standards 4 and 5, respectively are *"… to ensure from the outset that the project team and development's green infrastructure features take account of and is shaped by existing local policy, physical landscape and community priorities"* and *"... to ensure the design of green infrastructure, alongside any built form, is integral to the creation of a great place and used to reinforce the distinctiveness of the local area."*

4.11 Local context is at the forefront of the Proposed Development's siting and design. The EIA process has influenced the iterative design process of the Proposed Development through the identification of constraints. This process is summarised below:

- 2019 - At the start a wide search area was being considered around the land north of Llwyncelyn. Topography was a key factor at this stage and indicative layouts were produced to accommodate a large wind farm. The site layout was designed to fit sensitively into the landscape while providing high yields. The visual impact was assessed by a landscape and visual consultant. At this stage the consented Llwyncelyn wind project was integrated as part of the proposed extended scheme.
- 2020-2021 - A number of environmental considerations were looked at, such as landscape and visual aspects, noise, shadow flicker, wind shear, coal, peat studies were undertaken to check site feasibility.
- 2022- A habitat survey of the Site was undertaken to inform ecological constraints.
- 2023-2024 - wider landscape surrounding the Site was assessed for viability of additional solar to increase the project's overall generation capacity. The University of South Wales were interested in partnership and take electricity from Llanwonno Energy to power their Treforest Campus towards a groundbreaking net zero campus. As a result, increased generation was considered on site on topography that lends itself well to south facing solar photo voltaic opportunities.
- 2024 - a stand-alone scheme was designed to be entirely separate from the consented Llwyncelyn scheme but would share its trunk road for efficiency purposes. The Site layout design went through several iterations resulting in a robust final design incorporating solar panels, eight wind turbines with individual tower heights to fit in the landscape, and a BESS energy storage facility.

- 2025 – Further design iterations were carried out and the final design freeze layout was produced in GIS format to incorporate an improved solar layout, updated BESS design, improved track layout and construction compound.

4.12 The Applicant's approach to consultation follows best practice recommendations and has involved dialogue with RCTCBC and members of the public.

Standard 6: Secures effective Place-keeping

4.13 The purpose of Standard 6 is *"… to ensure early and effective planning for and implementation of management, maintenance and monitoring of green infrastructure".*

4.14 The key characteristics of the standard include to:

- achieve a more resource efficient approach to management and maintenance; and
- ensure the long-term management and maintenance of the green infrastructure, including through a suitable governance structure that can adapt the management plan as required to deliver the outcomes and benefits, sufficient funding, and appropriately trained and qualified personnel.

4.15 All new habitat creation, restoration and enhancement measures discussed in this GI statement, would be subject to a long-term management, maintenance and monitoring plan to ensure the full and successful establishment of the proposals and the successful maintenance and management of existing vegetation. This will be outlined within an Outline Habitat Management Plan that will be prepared and submitted with the DNS application.

4.16 A detailed Construction Environmental Management Plan (CEMP) will be secured by condition post-consent and produced in consultation with stakeholders (i.e. NRW and RCTCBC). The CEMP will outline measures to prevent effects arising on biodiversity (and other environmental) receptors during the construction phase. The CEMP would include the finer detail associated with sensitive vegetation clearance, sensitive soil management and pollution control amongst other environmental best practice measures.

4.17 All management plans would be secured by a condition of the DNS.

Standard 7: Brings Nature Closer to People and Standard 8: Supports Equitable and Inclusive Places

4.18 The purpose of Standards 7 and 8, respectively are *"… to ensure green infrastructure features are available and accessible to all, at all times, optimising their use and enjoyment",* and *"… to ensure that green infrastructure is used to enhance social cohesion and overcome cultural barriers, encouraging all people to use and enjoy such features."*

4.19 It is important to note that the nature of the development, as renewable energy generating infrastructure is not intended to be used by the public due to safety precautions.

4.20 Enhancement of the mixed plantation woodland within the Site Boundary (Perry's Wood) through measures such as limited selective felling of non-native species, planting of fruiting understorey species (tolerant of low light levels) and overseeding with a woodland ground flora seed mix, will compensate for the reduction in the extent of this habitat in the Proposed Development Site. This habitat is improved for local species and in turn will support local biodiversity as a whole.

Standard 9: Delivers Climate Resilient Water Management and Standard 10 Brings Water Closer to People

4.21 The purpose of Standards 9 and 10, respectively, are *"… to ensure new development uses green infrastructure as a means of above ground water management for regulating water quality and water quantity and flow",* and *"… to ensure that water management constraints and requirements on a project are used as opportunities to enhance the development to create and sustain better places and benefits for people and nature."*

4.22 Water management for the project includes:

- The undertaking and implementation of a Drainage Strategy and SAB application for new impermeable areas arising from permanent development;
- The implementation of a Construction Environment Management Plan to manage surface water runoff and water quality during construction;
- The implementation of an Operational Surface Water Drainage Strategy to ensure adequate management and maintenance of proposed development during operation;
- The implementation of 8m buffers to be maintained from the banks of ordinary watercourse, and where this cannot be achieved, the approval of land drainage consents where applicable.

Standard 11: Delivers Wildlife Enhancement

4.23 The purpose of Standard 11 is to *"… enhance existing and create new, linked habitat for wildlife … [support] the conservation status of priority species and habitats and [deliver] positive benefits for wildlife, within and beyond the boundary (and life) of the development".*

4.24 The key characteristics of the standard include to:

- deliver a biodiversity enhancement;
- follow the mitigation hierarchy approach; and
- employ appropriate mechanisms to secure the successful implementation of green infrastructure (e.g. an appropriate managing group, funding and personnel).

4.25 As evidenced in **Table 3.1**, the step-wise approach has been followed, prioritising avoidance of sensitive ecological receptors during the design iteration, minimising loss as far as practicable.

4.26 Notably, the routeing and design of the solar array and access tracks has prioritised minimising impacts on the habitats of highest ecological value within the Site, whilst rotation and micro-siting of the crane pad locations has been considered to avoid the habitats of highest ecological value within the Site.

4.27 Mitigation and restoration have been incorporated into the design where by habitats are to be replaced beyond their expected loss, and unfavourable conditions are to be restored to enable a fully functioning ecosystem. Bat and dormouse boxes are proposed to be implemented within the woodland area, and existing habitats would be enhanced to expand green infrastructure. The Proposed Development would ultimately deliver a net benefit in terms of replacement and restored habitats.

Standard 12 Underpins Nature's Recovery

4.28 The purpose of Standard 12 is to *"… ensure that opportunities to restore and improve the connectivity of existing and planned for habitats are taken"* to help sustain *"… wider ecological networks and nature recovery goals".*

4.29 Key characteristics of Standard 12 are to:

- identify and, where appropriate, protect existing and planned for key habitat areas for the benefit of priority species;
- identify and protect effective links with or stepping-stones to and from the Application Boundary and existing and planned for, local ecological networks, large-scale areas for wildlife and designated sites beyond the Application Boundary;
- restore, enhance or create effective links with existing on-site habitats (where present) and existing and planned for ecological habitats and networks beyond the Application Boundary; and
- maximise the potential for effective linkages between habitats and enhancement of adjacent and nearby wildlife assets and networks.

4.30 The following measures are proposed to restore and improve existing onsite habitats of lower ecological value:

- Remove / reduce the invasive Japanese Knotweed present on site
- Control encroaching bracken and scrub within semi-improved acid marshy grassland and dry dwarf shrub heath areas.
- Fencing of field margins within the solar array (between solar panels and walls) is proposed to prevent overgrazing and allow the development of a longer and more diverse sward. This habitat will be cut annually in late summer / early autumn.
- Damming recently dug field drains to rewet the marshy grassland, to compensate for the reduction in the extent of this habitat.
- Creation of habitat piles and retained dead wood from the pruned / felled materials within the woodland, which would provide habitat for invertebrates and reptiles.

5 NET BENEFIT FOR BIODIVERSITY

5.1 Measures that have been proposed for implementation and discussed within the GI statement, in consideration against the stepwise approach, will deliver ecosystem resilience in the following manner:

- Avoidance of sensitive habitats;
- Habitat restoration to reinstate former habitat conditions and reduce pressures on ecosystems;
- Creation of a patchwork of acid grassland habitats; and
- Enhanced features and expanded green infrastructure

5.2 Detailed information on the relevant mitigation / restoration, compensation and enhancement measures are set out in **Table 5.1: Habitat Enhancement Measures**. This includes the relative functions and benefits of each habitat type or landscape feature proposed, their extent, and how the DECCA framework has been incorporated to ensure a net benefit for biodiversity can be delivered.

Table 5.1: Habitat Enhancement Measures

Habitat Type/Landscape Feature	Function and Benefits	Estimated Minimum Extent[2]	DECCA Framework
Creation of habitat piles and retained dead wood	• Habitat piles and retained dead wood from the pruned / felled materials within the woodland will be created, which will provide habitat for invertebrates and reptiles.	5 habitat piles	**Diversity** Cessation of regular cutting of the marshy grassland will encourage a more diverse vegetation community within the habitat, which will support a more diverse faunal assemblages (particularly invertebrates). Reducing the extent and dominance of bracken (through bracken control) will create a more diverse patchwork of grassland and bracken. Fencing (to exclude livestock) and improved management of the grassland within the fenced areas (an annual cut in late summer) will increase the diversity of the sward, and the species it supports (invertebrates and reptiles in particular). **Extent** Reducing bracken to increase the extent of semi-improved grassland habitats.
Cessation of regular cutting of the marshy grassland	• Regular cutting of the marshy grassland south of Perry's Wood will cease, to mitigate for the reduction in the extent of this habitat.	15.86 ha	
Bracken control	• Encroaching bracken within semi-improved acid and marshy grassland will be controlled.	6.22 ha	
Scrub control (within Dry Dwarf Shrub Heath)	• Encroaching scrub within the small area of dry dwarf shrub heath will be controlled.	0.48 ha	
Creation of more diverse grassland (with a longer sward) at field margins	• Field margins within the solar array (between solar panels and walls) will be fenced, to prevent overgrazing and allow the development of a longer and more diverse sward. This habitat will be cut annually in late summer / early autumn.	4.33 ha	
Creation of hibernacula and egg-laying heaps at field margins	• Habitat enhancement measures for reptile including the creation of simple structures such as	7 hibernacula 7 egg-laying heaps	

[2] At the current stage of the Proposed Development and subject to change following Pre-Application Consultation stage.

Habitat Type/Landscape Feature	Function and Benefits	Estimated Minimum Extent[2]	DECCA Framework
	hibernacula and grass snake egg laying heaps within the fenced field margins will be incorporated in the design.		Controlling scrub to increase the extent of Dry Dwarf Shrub Heath.
Removal of Invasive Non-Native Species (Japanese Knotweed)	• A treatment plan to remove / reduce the invasive species present in the Study Area will be produced.	NA	**Condition** Enhancing retained marshy grassland, dry dwarf shrub heath, grassland field margins and woodland (considered to be compensation, so not included in this table). Control of non-native invasive Japanese knotweed within the mixed plantation woodland. Enhancement of the areas in which lapwing breed (and immediately adjacent areas) to improve their condition for the species. **Connectivity** Enhancement of marshy grassland and control of bracken to restore grassland habitats, creating 'stepping stones' through the landscape for species to commute. **Adaptability** Restoration of habitats such as mixed plantation woodland and dry heath to restore natural ecosystem processes. Control of invasive non-native species to reduce the pressure on native habitats. Halting continued damage to habitats (such as marshy grassland) to enable natural regeneration.
Extension of the existing Lapwing Management Area (for the adjacent Llwyncelyn Wind Farm)	• Land outside the Proposed Development (to the west), will be enhanced, to benefit breeding lapwing, will be detailed in a Lapwing Management Plan (LMP). Outline measures, to be detailed within the plan are as follows: – Creation of a 3.2 ha lapwing management area in the southern half of the field centred on OSGR ST 03872 92713 in which lapwing bred during the second year of survey (additional to those created for the Llwyncelyn scheme) – The extension of the existing 3.6 ha lapwing management area in 'Field 1' of the Llwyncelyn LMP, by 1.0 ha. • The lapwing management area will be sown with cereal crop during February / early March or will be a set-aside plot (a spring-sown crop / plot within the field will provide vegetative cover from predators for breeding lapwing).	4.2 ha	

6 REFERENCES

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