



APPENDIX 6-4

BIODIVERSITY MANAGEMENT AND ENHANCEMENT PLAN

Biodiversity Management and Enhancement Plan

Proposed Slievegrine
Renewable Energy
Development, Co.
Waterford





DOCUMENT DETAILS

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1. INTRODUCTION

1.1 Background

MKO have prepared a Biodiversity Management and Enhancement Plan (BMEP) to support the EIAR for the Proposed Project, which includes a 23 - Turbine renewable energy development, and associated works. The full description of the Proposed Project is detailed in Chapter 4 of this EIAR. The centre of the Proposed Project is located at the approximate grid reference ITM X620004 Y588150. Where the term 'Plan' is used in this document, this refers to the Biodiversity Management and Enhancement Plan. With biodiversity in global decline, and with due consideration of national and international policy objectives seeking to avoid biodiversity loss and promote biodiversity enhancement and restoration, this BMEP has been prepared in respect of the Proposed Project to take the opportunity to provide a net gain in biodiversity within the Site. The objectives of this Plan, set out below, align with the goals of the 4th National Biodiversity Action Plan. The following documents were reviewed and informed the information presented in this BMEP:

1. *How to guide: Hedgerows for pollinators. National Biodiversity Data Centre Ireland, 2018.*¹
2. *Hedgerow Establishment and restoration. Department of Agriculture, Environment and Rural Affairs, 2022.*²
3. *NBDC (2021). Pollinator-friendly management of Wind Farms. All-Ireland Pollinator Plan, Guidelines 12. National Biodiversity Data Centre*
4. *Native Riparian Woodlands – A Guide to Identification, Design, Establishment and Management, 2008*³
5. *The Classification of Native Woodlands in Ireland and its Application to Native Woodland Management (Cross et al. 2010)*

1.1.1 Objectives

The objectives of this BMEP are as follows:

- To provide biodiversity enhancement within the Site by establishing an area of native woodland of 3.6ha and planting of 5.5km of new hedgerow (inclusive of 1.2km of riparian planting) within the Site in order to increase linear habitat and bolster wildlife corridors
- To protect the water quality of the River Licky from surface water run-off through targeted riparian planting and prevention of poaching of livestock along tributaries within the Site
- To provide additional foraging areas and nesting opportunities for pollinators
- To provide a management and monitoring plan to ensure the success of the proposed biodiversity enhancement measures.

1.2 Statement of Authority

This report has been prepared by Julie Kohlstruck (B.Sc., M.Sc.), who is a Project Ecologist with MKO with over five years of experience in professional ecological consultancy. Julie holds a BSc in Landscape Ecology from the University of Muenster, Germany and an MSc in Landscape Ecology from the University of Oldenburg, Germany. Julie has broad ecological field skills including habitat surveys, invasive species surveys, rare plant surveys, Annex I habitat assessments, mammal surveys and bird surveys. Julie has strong technical reporting skills, with experience preparing ecological reports

¹ <https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Hedgerows-2018-WEB.pdf>

² <https://www.cafre.ac.uk/wp-content/uploads/2022/11/Hedgerow-establishment-and-restoration.pdf>

³ <https://www.woodlandsofireland.ie/wp-content/uploads/No.-4-Riparian-Woodlands.pdf>

including Appropriate Assessment Screening Reports, Natura Impact Statements, Biodiversity Management and Enhancement Plans, Ecological Impact Assessments and biodiversity chapters of Environmental Impact Assessment Reports for a wide range of projects.

This report has been reviewed by Rachel Walsh (BSc. Env., MCIEEM). Rachel is Senior Ecologist with over 6 years' experience in professional ecological consultancy and is a full member of CIEEM. Rachel's key strengths lie in terrestrial flora and fauna ecology, including Irish Vegetation Classification surveys, Annex I habitat surveys, mammal surveys, invasive species surveys and the preparation of invasive species management plans. She also has extensive experience in designing biodiversity and habitat management plans for a range of development and conservation-focused projects. She is highly experienced in scoping and leading ecological baseline surveys and undertaking ecological impact assessments at the planning stage.

2.

ECOLOGICAL BASELINE

Multidisciplinary ecological surveys, comprising desk studies, walkover surveys, badger surveys, bat surveys, bird surveys and invasive species surveys were undertaken by MKO between November 2024 and May 2026 as detailed within the EIAR submitted as part of the application.

2.1

Existing Habitats and Flora

A detailed account of the habitats and associated species found within the Site is found within the EIAR (Chapter 6). The following habitats are present within the boundary of the Site:

- > Conifer plantation (WD4)
- > Recently felled woodland (WS5)
- > Improved agricultural grassland (GA1)
- > Scrub (WS1)
- > Wet grassland (GS4)
- > Hedgerows (WL1)
- > Stone walls and other stonework (BL1)
- > Treelines (WL2)
- > Drainage ditches (FW4)
- > Eroding/upland Rivers (FW1)
- > Buildings and artificial surfaces (BL3)

Existing habitats within the Site relevant to the proposed measures set out in this plan are described below.

2.1.1

Hedgerows (WL1) and Treelines (WL2)

Hedgerows (WL1) are located throughout the Site and are frequently found in conjunction with stone walls. The highest concentration of these habitats is within the centre of the Site where they are found as field boundaries for the improved agricultural grassland (GA1) fields. The most frequently found species within these habitats include gorse (*Ulex europaeus*), bramble (*Rubus fruticosus agg.*), hawthorn (*Crataegus monogyna*), rowan (*Sorbus aucuparia*), grey willow (*Salix cinerea*) with bracken (*Pteridium aquilinum*) and nettle (*Urtica dioica*) commonly found at field level. Species found within treeline habitats (WL2) includes ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), bramble (*Rubus fruticosus agg.*), ivy (*Hedera hibernica*), sycamore (*Acer pseudoplatanus*), dog rose (*Rosa canina*) and grey willow (*Salix cinerea*).

2.1.2

The Licky River and Tributaries (FW1)

Multiple tributaries of the Licky_020 and Licky_010 Rivers are located across the centre and south of the Proposed Wind Farm site. All these tributaries converge outside the southern boundary of the Site and flow southward. These tributaries within the Site are located flowing along the field boundaries of Improved agricultural grassland (GA1) and flowing through Conifer plantations (WD4). The various tributaries of these EPA mapped watercourses within the Site have a variety of substrate types including loose pebbles, gravel, sand, cobbles and boulders. The width of these watercourses vary between 1m and 3m wide. There is little vegetation within the watercourses, however, in many areas there is encroaching bankside vegetation such as Gorse (*Ulex europaeus*), Willow (*Salix spp.*), Bramble (*Rubus fruticosus agg.*), Soft Rush (*Juncus effusus*), Birch (*Betula spp.*) and Holly (*Ilex aquifolium*). Evidence of cattle poaching was recorded at several locations throughout the Site during aquatic surveys. Active poaching was recorded along the proposed access track between Proposed Turbines T7 and T15 at the proposed crossing IC7 and along field between proposed turbines T9 and T10 and south of proposed turbine T12.

3. PROPOSED BIODIVERSITY ENHANCEMENT MEASURES

3.1 New Hedgerow Establishment

The potential for translocation of existing hedgerows requiring removal was considered. However, hedgerow condition assessments were undertaken in line with the Hedgerow Appraisal System, as outlined in Appendix 6-1. Following analysis, it was deemed that the conservation value of the existing hedgerows requiring removal was relatively low, and therefore did not warrant translocation. Therefore, new hedgerow establishment is proposed. New hedgerow establishment is more likely to be successful than translocation in this instance, with the proposed establishment and monitoring protocol in place, and will result in a higher value hedgerow type, resulting in a net gain in hedgerow habitat within the Site.

It is proposed to plant 5.5km of new hedgerow within the Site. The proposed hedgerow replanting areas are depicted on Figure 3-1 and have been strategically chosen to link up areas where bat commuting activity has been recorded during the dedicated baseline surveys undertaken. The proposed new hedgerow includes approximately 1.2km of riparian hedgerow planting proposed alongside existing river corridors, in order to provide further benefits of excluding access to the watercourse by livestock, and by providing an additional vegetative buffer to slow down run-off from adjacent lands to the watercourses in these areas.

Species selected will be indigenous to the local area and will maximise flowering times throughout the year as well as berry availability later in the year as detailed in Table 3-1. New hedgerows will be planted between November – March when the woody hedge plants are dormant. When planting new hedgerow, plants will be closely spaced (a maximum of 50cm apart) and planted in a staggered row. The new hedgerow will need to be protected from poaching by livestock, through the erection of new stockproof fencing where required, which will be at least 1m away from the hedge, and installed on each side if required.

The below listed species, which were identified as being locally present during the detailed habitat surveys undertaken or identified as being suitable native species found within the wider local area, will be used in the species composition. Planting will use larger seedlings, transplants or cuttings (sizing as per the *BS 3936 - Nursery Stock - Part 1: Specification for trees and shrubs*⁴) to ensure connectivity gains are immediate and will be indigenous to the local area. Species to be used include hawthorn (*Crataegus monogyna*) which will make up approximately 75% of the hedgerow mix. The ideal native hedge is made up of 75% Hawthorn and 25% of at least 4 other species⁵, previously recorded on Site. This includes:

- Elder (*Sambucus nigra*)
- Blackthorn (*Prunus spinosa*)
- Grey willow (*Salix cinerea*)
- Rowan (*Sorbus aucuparia*)
- Privet (*Ligustrum vulgare*)

3.1.1 Maintenance of Newly Planted Hedgerows

In order to facilitate the successful establishment of new hedgerows to be planted, the following management measures are proposed (DAERA, 2022):

⁴ British Standard. (1992). *BS 3936 - Nursery Stock - Part 1: Specification for trees and shrubs*.

⁵ NBDC. (2018). *All Ireland Pollinator Plan How-to-guide: Hedgerows for pollinators*. National Biodiversity Data Centre.

- New hedgerow shrub planting will be kept weed and litter free until the new plants are established, particularly from ruderal weeds. Healthy growth will be maintained by allowing the plant to occupy as much of the planting areas as possible to allow them to achieve as close their natural form as possible.
- When the plants are established, the ground flora will not be cut between March and October.
- During spring and autumn maintenance periods all trees and plants will be checked and adjusted/replaced as required, soil firmed, and any dead wood present removed back to healthy tissue and mulch added if required. Where tree guards are no longer required these will be removed to avoid damage to the tree.
- During the first growing season, all standard trees/ semi-mature trees will be watered regularly during any prolonged dry periods during the growing season (i.e. in April, May, June, July and August). During the second growing season the trees will be kept well-watered as often as required, particularly during June, July and August.
- Hedgerows will be trimmed every two – three years, with the cutting height raised 10-15cm each year, with trimming taking place in late winter (January / February), thus allowing flowers and fruit to develop.
- Hedgerows can be trimmed to produce an ‘A’ Shaped hedgerow which allows more light into the base.
- Any tree, hedge or shrub that is removed, uprooted, destroyed or that becomes seriously damaged, defective diseased or dead shall be replaced in the same location with another plant of the same species and size as that originally planted. All such replacements shall be carried out within the first planting season following the loss.

3.2 Native Woodland Establishment

The Proposed Wind Farm site borders the Licky River, part of the Blackwater River (Cork/Waterford) SAC, to the south. This SAC supports a range of aquatic QI species and habitats which are highly dependent on the water quality of the river, in particular freshwater pearl mussel (*Margaritifera margaritifera*). In order to enhance the biodiversity value on Site and create an additional riparian buffer to contribute to the protection of the water quality of the Licky River, it is proposed to establish a new native woodland measuring 3.6ha in area. This woodland will include a riparian boundary along a tributary of the Licky River, measuring approx. 100m in length. The proposed planting area is located at the southern boundary of the Proposed Wind Farm site, south of the Proposed Turbine T10 (Figure 3-1). This location has been strategically sited in an area characterised by high surface water flows.

Woodland planting will follow the guidance laid out in “The Classification of Native Woodlands in Ireland and its Application to Native Woodland Management⁶” (Cross et al. 2010) and “Native Riparian Woodlands – A Guide to Identification, Design, Establishment and Management⁷” (Little et al. 2008).

3.2.1 Woodland Species

The existing habitat in the proposed woodland planting area is wet grassland (GS4). It is proposed that the woodland to be established will be of a species mix corresponding with a sub type of the *AF- Alder-meadowsweet* woodland type defined in (Cross et al. 2008, Plate 3-2 below). Tree species will include a primary species mix of pedunculate oak (*Quercus robur*), alder (*Alnus glutinosa*) and grey willow (*Salix cinerea*). It is likely that the woodland would conform most closely to the ‘wet pedunculate oak-ash woodland (WN4) category (Fossitt 2000), as outlined in Appendix 1 of Cross et al. (2010). However, there will be no planting of ash due to biosecurity concerns associated with the potential for infection of

⁶ <https://www.woodlandsofireland.ie/wp-content/uploads/No.-6-Woodland-Classification.pdf>

⁷ <https://www.woodlandsofireland.ie/wp-content/uploads/No.-4-Riparian-Woodlands.pdf>

trees by ash dieback (*Hymenoscyphus fraxineus*). Trees will be of native origin and will be of advanced nursery stock where possible. Additionally, the following measures will be applied when planting trees:

- Mark out the area for planting so it is clear exactly where planting will be established.
- Trees will not be evenly spaced and instead will be spaced out randomly to mimic natural plant spacing. They will be planted at lower planting densities in order to allow natural recolonisation by other native species, particularly shrubs.
- Newly planted trees will need to be protected from poaching by livestock, through the installation of new stockproof fencing which will be at least 2m away from the treeline, and on each side if required.

	Sessile oak	Birch	Rowan	Holly	Scots Pine	Ash	Hazel	Hawthorn	Pedunculate oak	Wild cherry	Crab apple	Alder	Grey willow	Spindle	Elm	Yew	White-beam	Purging buck-thorn	Goulden rose	Silver birch	Salix species
AF Alder-meadowsweet (<i>Alnus glutinosa</i> – <i>Filipendula ulmaria</i>) woodland type																					
AF1 Ash – remote sedge (<i>Fraxinus excelsior</i> – <i>Carex remota</i>) sub-type				(x)		x	(x)	x	(x)			x	x								
AF2 Alder – bramble (<i>Alnus glutinosa</i> – <i>Rubus fruticosus</i>) sub-type						(x)		x				x	x								
AF4 Hawthorn-herb-Robert (<i>Crataegus monogyna</i> – <i>Geranium robertianum</i>) sub-type						x		x				x									
AF5 Birch – water mint (<i>Betula pubescens</i> – <i>Mentha aquatica</i>) sub-type		x				x		(x)				x	x						(x)		
SU Almond willow-nettle (<i>Salix triandra</i> – <i>Urtica dioica</i>) sub-type												x	x								x

Plate 3-2 A list of the appropriate tree and shrub species to plant in each riparian woodland sub-type. (Adapted from Cross et al. 2010). Please note however, that no planting of Ash is proposed.

3.3 Maintenance of established Hedgerows and Woodland

In order to facilitate the successful establishment of the new trees to be planted within the Site, the following measures are proposed:

- During spring and autumn maintenance periods all trees and plants will be checked and adjusted/replaced as required, soil firmed and any dead wood present removed back to healthy tissue and mulch added if required. Where tree stakes and ties are no longer required these will be removed to avoid damage to the tree;
- During the first growing season, all standard trees/ semi-mature trees will be watered regularly during any prolonged dry periods during the growing season (i.e. in April, May, June, July and August), if required. During the second growing season the trees will be kept well-watered as often as required, particularly during June, July and August.
- Any tree, hedge or shrub that is removed, uprooted, destroyed or that becomes seriously damaged, defective diseased or dead shall be replaced in the same location with another plant of the same species and size as that which was originally planted. All such replacements shall be carried out within the first planting season following the loss.
- Replanted trees will be inspected following the main growing season (i.e. in September) for the first three years of growth, where the requirement for replacement planting will be assessed. If any trees are dead or damaged these will be replaced using the same species within the next



planting season. Recommendations for ongoing or remedial management required will be specified within a periodic Monitoring Report (see Section 4).

3.4 Water Quality Protection

Watercourses and tributaries to the River Licky within the Site where poaching was recorded will be fenced off for livestock. Where linear riparian planting is proposed along a watercourse, this will also be fenced off for livestock as detailed in section 3.1.1 and access to the watercourse will thereby be restricted also. Fencing will be erected 1.5m from the top bank of the watercourse following the guidance detailed by Farming for Water⁸. The proposed fencing and riparian planting will act as an additional buffer against sediment and nutrient run-off from fields. These measures align with the objectives of the Water Framework Directive, and it is anticipated that these measures will result in added benefits to riparian habitats and fauna within and downstream of the Site.

3.5 Pine Marten/ Red squirrel

Red squirrel feeding remains were recorded within the Site. These feeding signs were recorded within proximity of the footprint of Proposed Turbines T19 and T21. Pine marten scat was recorded between the Proposed Turbines T10 and T12, and within the footprint of the T19 hardstand.

No breeding sites for either species were recorded by surveyors and no significant loss of supporting habitat for these species is expected as a result of the Proposed Project. However, the Proposed Project presents an opportunity to provide enhancement measures for these species in the form of artificial breeding sites. These den/nest boxes act to provide artificial breeding sites facilitating the raising of young during the spring and summer, in addition to providing shelter from environmental conditions and predators.

In relation to pine marten, these boxes have proved to be a very successful conservation tool in Scotland, with many boxes being occupied continuously over a number of years and were used by breeding females to raise their young (Croose et al., 2016). A similar study carried out in Scotland in relation to red squirrel also showed that nest boxes can be a useful conservation tool to mitigate the impacts of forest operations (de Raad et al., 2021).

3.5.1 Proposed Nest/Den Box Installation

It is proposed to erect two pine marten den boxes and two red squirrel nest boxes within the Proposed Wind Farm site. The red squirrel boxes will be installed in the vicinity of Proposed Turbines T19 and T21, the pine marten den boxes will be installed to the west of Proposed Turbine T12 and in the vicinity of Proposed Turbine T19. These will be erected immediately post construction (to avoid disturbance to these species during construction). They will be erected along existing mature tree lines within this area and in suitable locations where future tree felling (associated with forestry) will not occur. The following boxes (or similar) should be used:

- Pine marten - <https://www.nestbox.co.uk/products/pine-marten-den-box>
- Red squirrel - <https://connectingtonature.ie/products/squirrel-house-wooden>

The proposed number of boxes has been informed by woodland habitat types within the Proposed Wind Farm site and information provided by the Vincent Wildlife Trust (Constructing, erecting, and monitoring Pine Marten Den Boxes⁹).

⁸ <https://farmingforwater.ie/app/uploads/2025/02/Bovine-Exclusion-for-Water-Bodies.pdf>

⁹ <https://www.vwt.org.uk/news-media/blog/learning-how-to-install-pine-marten-den-boxes>

3.5.1.1 Tree Selection

Boxes will not be installed until after the Proposed Wind Farm has been constructed, this will allow an optimal location to be identified. Selection of a suitable tree will require the installer to seek out a tree that they deem to be fit for the purpose. Although these guidelines were provided in relation to pine marten den boxes the same would apply in relation to the installation of red squirrel nest boxes. The following guidelines will aid the installer in selecting a tree that is suitable for installation:

- Ensure the boxes are installed on a tree a suitable distance from human roadways and paths, and away from areas targeted for woodland management or harvesting in the near future, to avoid disturbance of the box.
- Locating the box near pre-existing animal trails may increase the likelihood and speed with which the box is discovered
- The boxes are likely to produce the greatest benefits if they are installed in large, undisturbed, prey-rich woodlands where natural den sites such as tree cavities are scarce or absent.
- The tree itself must be a living tree with a straight trunk and a minimum DBH (diameter at breast height) of 20cm.
- Typical trees within the conifer plantations that pine marten boxes are usually hung on include the following species: Sitka spruce (*Picea sitchensis*), Scots pine (*Pinus sylvestris*), Norway spruce (*Picea abies*), lodgepole pine (*Pinus contorta*) or Larch (*Larix* sp.).
- Finally, when choosing a site for a box, future requirements to view the boxes for signs of use or to check their condition will be considered.

3.6 Pollinator Foraging/Nesting Habitats

Berms/embankments will be created around Proposed Project infrastructure with excess excavated soils in areas identified as being suitable by the designer. It is proposed to maximise the potential biodiversity benefit of these areas, in line with the recommendations in the National Biodiversity Data Series No. 25 *Pollinator-friendly Management of Wind Farms*¹², and in line with the objectives of the All-Ireland Pollinator Plan. New soil berms/embankments will be allowed to revegetate and recolonise naturally, using the native seed bank. No pesticides, herbicides or fertiliser will be used on these berms. Allowing the native seedbank to establish will create foraging habitat for pollinators.

Safe places for bees to nest are crucial to the survival of each species. Adult solitary bees die in autumn, leaving the next generation behind as pupae in nests to emerge as adults the following spring. Adult bumblebees also die in autumn, except for the new queens. These queen bumblebees need to find a safe place to hibernate over winter and emerge the following spring to begin building a colony of their own. Pollinators usually forage within close vicinity of their nest sites. Solitary bees commonly forage within 300m of their nest¹⁰. Ireland's 62 species of mining solitary bees nest by making tiny burrows in bare earth. Therefore, as well as the above measures providing pollinator foraging habitat within the Site, it will be beneficial to provide nearby nesting habitat.

It is proposed to maintain south-facing embankment slopes of new berms/embankments free of vegetation to provide bare soil for nesting pollinators including solitary bee species. This can be carried out on compacted soils of berms that are stable and free draining. While allowing colonisation of most of the berm with vegetation, south facing slopes will be kept bare by manual removal or scraping back of vegetation when required as identified following the monitoring plan in Section 4. Loose soils are not

¹⁰ NBDC (2021). *Pollinator-friendly management of Wind Farms. All-Ireland Pollinator Plan, Guidelines 12. National Biodiversity Data Centre* - <https://pollinators.ie/wp-content/uploads/2022/12/Wind-Farm-Pollinator-Guidelines-2022-WEB.pdf>

required in this instance and it is proposed that soil berms are compacted to avoid any sediment run-off.

3.6.1 Management

- > Manually formed south facing slopes of embankments, kept free of vegetation on the southern facing side.
- > No use of pesticides, herbicides or fertilisers on berms/embankments
- > Bumblebees nest in long or tussocky grass. Leave long grass uncut along the base of hedgerows from March until October.



Plate 3-3 Embankment used by nesting mining bees. Source: National Biodiversity Data Centre.



Map Legend

- EIAR Site Boundary
- Proposed Turbine Locations
- Proposed Project Footprint
- River/Stream
- Special Area of Conservation

Proposed Biodiversity Enhancement Measures

- Proposed Native Woodland Planting
- Proposed Hedgerow Planting
- Proposed Riparian Hedgerow Planting
- Livestock Fencing

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

SITE LOCATION - NOT TO SCALE

Drawing Title

Proposed Biodiversity Measures

Project Title		
Proposed Slievegrine Renewable Energy Development, Co. Waterford		
Project No.	Drawing No.	Scale
240740	3-1	1:30,000
Drawn By	Checked By	Date
AMcL	JK	25/09/2026

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Map Legend

- EIAR Site Boundary
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Proposed Biodiversity Enhancement Measures

- Proposed Native Woodland Planting
- Proposed Hedgerow Planting
- Proposed Riparian Hedgerow Planting
- Livestock Fencing

Spatial Reference
Name: IREN95 Irish Transverse Mercator
Datum: IREN95
Projection: Transverse Mercator

SITE LOCATION - NOT TO SCALE

Proposed Biodiversity Measures

Project Title: Proposed Slievegrine Renewable Energy Development, Co. Waterford

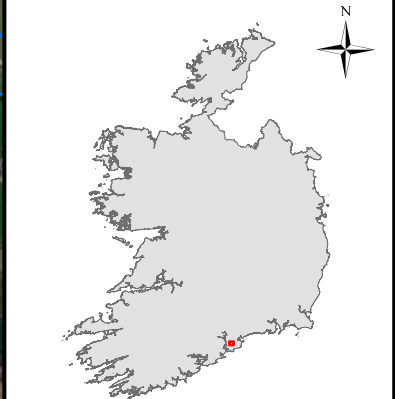
Project No. 240740	Drawing No. 3-1a	Scale 1:15,000
Drawn By AMcL	Checked By JK	Date 25/09/2026

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- Map Legend
- EIAR Site Boundary
 - Proposed Project Footprint
 - Proposed Turbine Locations
 - River/Stream
 - Special Area of Conservation
 - Proposed Biodiversity Enhancement Measures
 - Proposed Hedgerow Planting
 - Livestock Fencing

Spatial Reference
Name: IREN95 Irish Transverse Mercator
Datum: IREN95
Projection: Transverse Mercator



SITE LOCATION - NOT TO SCALE

Proposed Biodiversity Measures

Project Title Proposed Slievegrine Renewable Energy Development, Co. Waterford		
Project No. 240740	Drawing No. 3-1b	Scale 1:15,000
Drawn By AMcL	Checked By JK	Date 25/09/2026

MKO

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Map Legend

- EIA Site Boundary
- Proposed Project Footprint
- River/Stream

Proposed Biodiversity Enhancement Measures

- Proposed Hedgerow Planting
- Livestock Fencing

Spatial Reference
Name: IREN95 Irish Transverse Mercator
Datum: IREN95
Projection: Transverse Mercator

SITE LOCATION - NOT TO SCALE

Drawing Title

Proposed Biodiversity Measures

Project Title

Proposed Slievegrine Renewable Energy Development, Co. Waterford

Project No.	Drawing No.	Scale
240740	3-1c	1:15,000
Drawn By	Checked By	Date
AMcL	JK	25/09/2026

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4. MONITORING PLAN

A site-specific monitoring and evaluation programme is necessary to ensure that the success of the proposed measures remains long-term. It will also assist in situations where the habitat establishment may not have been successful by providing evidence of shortcomings, allowing a revised management plan to be formulated.

The Plan will be regularly updated and amended where necessary to improve the efficacy of the prescribed works.

4.1 Replanting

Hedgerows and replanted trees will be inspected following the main growing season (i.e. in September) for the first three years of growth, where the requirement for replacement planting will be assessed. If any shrubs are dead or damaged these will be replaced using the same species within the next planting season. After the first 3 years, monitoring will be undertaken in year 5, 10, 15, and 20, which is considered commensurate with the time likely to be required to achieve the habitat objectives proposed. Monitoring results will be reported after each monitoring year. Reports will detail the monitoring works carried out, the results obtained and a review of their success, along with any suggestions for amendments to the plan. Monitoring results will be reported by a suitably experienced ecologist within a Monitoring Report. Any criteria failures will be identified, and corrective actions will be implemented. The Plan will address the measures relating to hedgerow planting and woodland planting.

To confirm that habitat creation and enhancement has been successful, all areas of new vegetation (hedgerows and woodland) will be monitored post-planting. This will be undertaken in partnership between the Developer, the Project Ecologist and the Landowners. The proposed management actions will be conveyed to each of the relevant landowners and management alterations implemented as required to achieve the targets of the management plan.

4.2 Nest boxes

Monitoring will take place yearly after installation of the boxes. It is proposed to install the boxes immediately after construction is complete and the wind farm is in operation. The boxes will be checked yearly during the first 3 years and again in year 5, in line with the replanting monitoring regime set out in Section 4.1 above. This will be to assess whether uptake of the boxes is successful or whether replacements or relocation may be required. Resting sites of pine marten and red squirrel are protected by law under the Wildlife Acts (1976 to 2023) as such checking of the boxes will be undertaken from the ground using binoculars to minimise disturbance. The boxes shouldn't require any maintenance; but may need replacing after time. The following checks will be undertaken on a yearly basis:

- Boxes should be checked for signs of use by either species from the ground (for example in relation to pine marten the box lid made be covered in scat).
- The condition of the attaching line should be checked to ensure it is not damaged or that the tree is not growing into it. If either of these is the case the attaching line should be replaced.
- The general condition of the box itself should be checked. If the boxes have significantly deteriorated replacement boxes should be installed.
- If the boxes need to be replaced this will be done under supervision of an Ecologist

5.

CONCLUSION

This Plan sets out the measures to be implemented to ensure that the Proposed Project will provide biodiversity enhancement opportunities within the Site; specifically, regarding a net gain in hedgerow habitats, riparian planting and native woodland creation.

This Plan has set out measures to be implemented during establishment and management phases to ensure that the measures are successful, as well as regular monitoring and reporting by an ecologist to ensure the success of the prescribed measures.

6.

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