

**PROPOSED WIND FARM
AT KELLYSTOWN, CO. LOUTH**

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**BIODIVERSITY ENHANCEMENT
AND MANAGEMENT PLAN**

FINAL DRAFT REPORT

21/10/24

Prepared for

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by

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1.0 INTRODUCTION

1.1 Background

This Biodiversity Enhancement and Management Plan (BEMP) has been prepared in support of the Environmental Impact Assessment Report (EIAR) produced for the proposed Kellystown Wind Farm Co. Louth. Full details of the Proposed Development are given in **Chapter 2** of the EIAR.

As part of the Development, a relatively small area of wet grassland (c.500 m²), which is part of an extensive wetland habitat that includes a lake, marsh and transition mire, will be directly impacted as a result of the proposed development of a track leading from Turbine T03 to Turbine T05. As the wetland complex is rated of National Importance, mitigation is being provided to off-set the habitat loss through the implementation of a Biodiversity Enhancement and Management Plan (BEMP), as described in this report.

Mitigation is also required to offset the loss of hedgerows (estimated at 300 m) as a result of the Proposed Development. This will be achieved by a replanting programme which forms part of the BEMP.

As part of the mitigation for bats, there is a requirement for the implementation of buffers around the turbines, which will result in the removal of hedgerows and sections of forestry treelines. This loss will be offset by a tree planting programme. The tree planting area (0.5 ha) will adjoin an existing mature broadleaved treeline northwest of Turbine T05 and will increase the area of the known existing important roosting and foraging features for bats within the Site.

All of the areas for the BEMP are within the Redline Boundary for the Proposed Development (see **Figure 1**).

The programme described in this report will be implemented in accordance with published guidance and best practice, namely:

- SNH (now NatureScot) "Planning for development: What to consider and include in Habitat Management Plan – Guidance" (Version 2, March 2016).

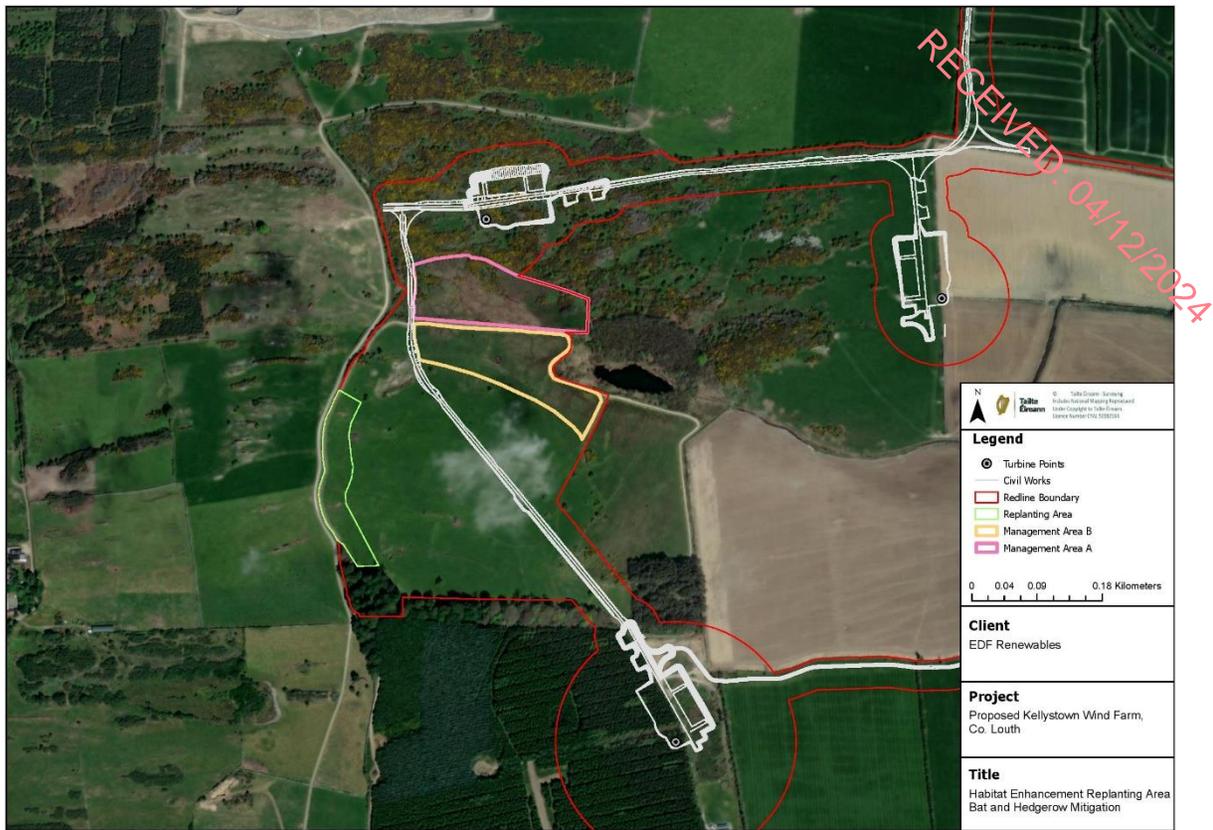


Figure 1. Locations of areas for the BEMP.

1.2 Outline Description of Proposed Wind Farm Site

The Proposed Development is located in the southern part of County Louth, approximately 8.3 km north of Drogheda and approximately 3 km south-southeast of the village of Dunleer (see **EIAR Chapter 1: Figure 1.2**). The Wind Farm Site lies approximately 6.5 km from the County Louth coastline. The Site is accessed via local public roads which branch off from the R132. The M1 motorway is located approximately 2.5 km to the west.

The Redline Boundary of the Wind Farm Site covers a total area of 64.5 ha. The Site is situated within an agricultural landscape used for both pastoral and arable farming. The agriculture practised is generally of an intensive nature. Commercial forest plantations occur scattered through the landscape though are of a relatively small size. Quarries are a feature of the wider area, with Kilsaran Quarry adjoining the northern part of the Site for the wind farm. The Piperstown Livery and Equestrian Centre adjoins the southern part of the Site for the wind farm.

The elevations within the Wind Farm Site range from approximately 91 m to 126 m above Ordnance Datum, with a rise across the site from the southeast to the north. The bedrock geology underlying the Wind Farm Site is mapped predominantly as the Clogherhead Formation, which consists of thickly bedded calcareous greywacke (siltstone). This outcrops within the western portion of the Site.

Superficial soils present within the Site consist of thin glacial till soils. Thicker glacial tills derived from Lower Palaeozoic sandstones are present towards the south and east of the site. Alluvium is present throughout the site, mainly associated with river valley bottoms.

The Site drains eastwards towards the Irish Sea via several streams, as follows:

- the Hammondstown Stream, which meets the sea c.20 km downstream at Annagassan Port in Dundalk Bay;
- the Slieveboy Stream, which goes to sea c.11 km downstream at Port/Lurganboy Beach;
- the Piperstown Stream and Drumshallon Lough Stream, which join together as the Termonfeckin Stream and enter the sea c.8.5 km downstream of the Site, at Termonfeckin Beach.

The Wind Farm Site study area is dominated by Improved agricultural grassland (GA1), Arable land (BC1) and Conifer plantation (WD4). The fields are bounded by mostly Hedgerows (WL1), Treelines (WL2) or woodland edge, with stone walls also present. Scrub (WS1), usually gorse or blackthorn, is a feature of the Site. Ecologically, the feature of highest value is the Drumshallon Lough wetland system, which comprises a mesotrophic lake (FL4) associated with wet woodland (WN6), Wet grassland (GS4), Marsh (GM1) and a small area of Transition mire (PF3) (latter Annex I listed habitat). Two stands of mature Broadleaved woodland (WD1) occur on site and are also of ecological note. Grassland which is managed at a low intensity (classified as Neutral grassland GS1) is present on site, along with a small Gravel/sand quarry (ED1) and some other Disturbed (ED) habitats.

From a wider conservation perspective, the Dundalk Bay system and the River Boyne and Estuary system are the dominant features of the area.

1.3 Objectives of the BEMP

Objective no. 1

To preserve and enhance existing wetland habitat, rated as of National Importance, by removal of grazing and control of spread of gorse scrub to offset the loss of wet grassland, and to comply with Policy Objective NBG 20 of Louth County Development Plan 2021-2027 (to protect and enhance wetland sites that have been rated A (International), B (National), C+ (County), C and D importance in the Louth Wetlands Surveys and any subsequent version thereof).

Objective no. 2

To offset the loss of hedgerows (c.300 m) by a tree and shrub planting programme.

Objective no. 3

To enhance habitat for bats and to offset loss of hedging and forest edge due to implementation of bat buffers at turbines.

1.4 Statement of Authority

This BEMP has been prepared by Brian Madden, with expertise on the bat component provided by Oisín O' Sullivan.

Brian Madden BA Mod. (Hons.), PhD, MCIEEM

Brian graduated in Natural Sciences from the University of Dublin in 1984 and earned a Ph.D degree from the National University of Ireland for his research on ecosystem processes in raised bogs. Since 1994, Brian has been the principal ecologist with BioSphere Environmental Services.

Brian has carried out botanical surveys and habitat assessments for most terrestrial habitats which occur on the island of Ireland. He is also an experienced ornithologist, with particular interest in birds of peatland and wetland habitats.

BioSphere Environmental Services has been involved in energy related projects, and particularly wind farms, since the 1990s. Many of the projects have included Biodiversity Enhancement and Management Plans, including Castlepook Wind Plan, Co. Cork, Oweninny Wind Farm, Co. Mayo and Eglisk Wind Farm, Co. Tyrone.

Oisín O Sullivan – Senior Ecologist & Technical Lead on bat surveys

Oisín O'Sullivan is a Senior Ecologist with Woodrow, APEM group. Oisín has completed a B.Sc. in Ecology and Environmental Biology at University College Cork. His final year thesis involved bat surveys of urban habitats in Cork City. His work with Woodrow has focused on bat data analysis including bat call identification and bat roost/habitat suitability surveys. Oisín has developed a high level of proficiency with Kaleidoscope, Ecobat and BatExplorer, all of which are analysis software used to assess bat calls and activity. Oisín's current work involves coordinating, surveying, analysing data, and writing summary bat activity reports for all onshore wind developments that Woodrow has worked on in the 2021-2024 survey seasons. This also involves the use of R to provide data on bat activity relative to weather conditions. Oisín is a Qualifying member of CIEEM and holds a license to survey bat roosts from the Department of Culture Heritage and the Gaeltacht DER-BAT-2023-77 and a handling license (C231/2023) issued by NPWS.

2.0 PLAN DETAILS: OBJECTIVE 1 - WETLAND ENHANCEMENT

2.1 Background

The Drumshallon Lough wetland complex is described in detail in the **EIAR Chapter 6**. Briefly, the complex comprises lake, marginal swamp vegetation, wet woodland, wet grassland, marsh and transition mire. It is a semi-natural to natural wetland system and supports an associated diverse flora and fauna (including breeding snipe). In particular, transition mire is listed on Annex I of the EU Habitats Directive (Transition mires and quaking bog, code: 7140). At the Drumshallon site, the conservation status and the functionality of the transition mire is considered generally good, with occasional grazing/wallowing by cattle the main threat.

Drumshallon Lough was surveyed by Foss *et al.* (2012) in the Louth Wetlands Survey. It was labelled as site no. LH119. Due to the presence of transition mire, a rating of C+ County importance was given to the site. The rating was subsequently upgraded to B National importance (see www.WetlandSurveysIreland.com)

For the purpose of the Plan, the wetland enhancement area, which is within the Redline boundary, is divided into two management areas, A and B (see **Figure 1**). Wetland Management Areas A and B are separated by a substantial stone wall and by a more recent track (used for horse riding) (see **Plate 1**). The entire Wetland Management Area (A & B) within the BEMP has an area of 3.52 ha.

Wetland Management Area A

Management Area A occurs to the northwest of Drumshallon Lough and is characterised by the presence of marsh, transition mire and wet grassland (see **Plates 2 & 3**). As the ground rises to the north and west of the wetland, gorse and blackthorn scrub becomes prevalent. Management Area A has an area of 1.78 ha.

The western boundary of Sector A will be demarcated by the wind farm track leading from Turbine T04 southwards towards Turbine T05, and, as noted, the southern boundary is demarcated by a stone wall. The northern and eastern boundaries are unmarked.

The wetland within Management Area A has a relatively good conservation status, with occasional grazing by cattle the main threat leading to localised poaching and nutrient input (see **Plate 4**). The spread of gorse scrub onto the slightly drier marginal areas is also a threat (see **Plate 5**).

Wetland Management Area B

Management Area B occurs to the west of Drumshallon Lough (and south of Area A) and is characterised by the presence of wet grassland and patches of marsh (see **Plate 6**). Seepage lines indicate connectivity to Drumshallon Lough and associated wetland habitats. Wetland Management Area B has an area of 1.74 ha.

As with Management Area A, the western boundary will be demarcated by the wind farm track, and the northern and north-eastern boundaries are marked by the existing horse riding track. The southern-eastern boundary is marked by a ridge of mineral soil (rudimentary track). The southern boundary is not physically marked but is readily recognised as the base of the sloping ground which rises to the south.

This entire area is subject to grazing by cattle, with severe poaching at the eastern end (see **Plate 7**). Elevated nutrient levels as a result of the cattle are likely (with linkage to the lake).



Plate 1: View of existing track and stone wall separating Wetland Management Area A (left in image) and Wetland Management Area B (right in image), looking eastwards towards woodland at Drumshallon Lough, (June 2023).



Plate 2: View westwards over area of marsh, wet grassland and transition mire within BEMP Wetland Management Area A. The stone wall demarcates the southern boundary. Image also shows the rising ground to the west and north dominated by scrub. (June 2023).



Plate 3: The transition mire within Area A is characterised by species such as bogbean and common bog cotton. (June 2023).



Plate 4: View of recently cattle trampling in Wetland Management Area A. (September 2024).



Plate 5: View of gorse scrub encroaching into wet grassland along northern margin of Wetland Management Area A (looking southeast). (December 2023).



Plate 6: View of wet grassland dominated by rushes in Wetland Management Area B, looking northwest. (September 2023).



Plate 7: View of severe poaching by cattle in the easternmost part of Management Area B, looking westwards. (September 2023).

2.2 Proposed Management Methodology

In order to preserve and enhance the existing quality of the wetland habitats, stock grazing will be excluded from both of the BEMP areas (A & B) and gorse scrub will be controlled in Management Area A.

It is noted that any other activities, such as insertion of drains or new tracks, will be prohibited within the area of the Plan for the lifetime of the project.

2.2.1 Measure no. 1: Exclusion of stock grazing

Both Management Areas A and B will be made stockproof by the erection of suitable fencing where required. The existing horse riding track will be excluded from the Plan area and will be fenced along its southern edge (there is an existing fence here which may be adequate). The stone wall along the southern boundary of Management Area A will provide a suitable boundary though any gaps present or that may appear over the years will need to be repaired.

At the commencement of the Plan, the boundaries of Management Areas A and B will be determined (and marked) by a surveyor. An inspection will then be carried out of the entire area to establish where new fencing is required or where existing fencing needs repairs. Locations for access points

to each Management Area will also be identified. An ecologist will accompany the relevant person carrying out the above tasks and will be on site when the fencing is being erected.

Once the sectors are made stockproof, the project ecologist will carry out annual monitoring (see monitoring section below) and will recommend if and when an appropriate level of seasonal grazing for the habitats can take place in future years. It is likely, however, that grazing will be restricted entirely for at least two years to allow the areas to stabilise and recover from past events.

2.2.2 Measure no. 2: Control of gorse

As noted, gorse is present along the northern and western boundaries of Management Area A, and occurs as dense stands on the sloped ground further to the north of Area A. While the spread of gorse will always be a feature of the area (due to the widespread presence in wider area), the control and, in as far as possible, removal of gorse from the Management Area will be beneficial for establishment of semi-natural grassland, which would be expected to be of a wet or neutral character and useful for insects and other wildlife.

At the commencement of the Plan, an assessment of the extent of gorse presence within Management Area A will be made by the project ecologist. The aim will be to remove as much as possible in the early years of the Plan (Years 1-3) and to then monitor the situation and repeat the process as necessary over the lifetime of the Project.

While gorse is an extremely difficult species to control, the amount within the management area is relatively low and the control can be spread over several years. Due to the adjoining wetland habitats, the preferred method of control will be by manual methods rather than the use of chemicals or herbicides.

In Year 1, the main gorse clumps within the management area, or an identified manageable portion of the area, will be cut to base in autumn (after the bird nesting season) by using chainsaws or a similar mechanical tool. Also, young seedling plants will be plucked (using appropriate gloves). Disposal of the cut material will be achieved through mulching on site or removal of material offsite. To facilitate the works, it is considered that use of a lightweight farm vehicle in these marginal areas would be appropriate and would not cause any significant damage to the wetland habitat.

In Year 2, there will be further removal as necessary, as well as follow-up checks on the area cleared in the previous year. This process will continue on an annual basis for Years 1-5 of Plan and then at two-year intervals. Taking into account that the area involved is relatively small and that the existing gorse cover is not continuous over extensive areas (see **Plate 5**), it is anticipated that the manual control of regrowth should be effective.

As the gorse cover is reduced grassland is expected to expand into the cleared areas. To maximise the diversity of the sward in the drier marginal areas (where a neutral type of grassland is likely to develop), local patches will be cut in the autumn period using a scythe or strimmer. This will also

help to control gorse seedlings. The cut material will be raked and taken off site. As the areas of grassland will be relatively small in extent, all of this work can be done manually.

During the operation of the Plan, the project ecologist will keep up-to-date on research on gorse removal and especially the availability of environmentally safe herbicides to apply to cut stumps to kill root stock.

2.3 Monitoring

To confirm that the objectives of the wetland enhancement plan are being achieved, the area of enhancement will be monitored during the lifetime of the wind project. SNH (2016) note that a Habitat Management Plan should be a live document, which may be altered following monitoring results, unexpected events or evolving guidance. Any alterations would only occur following approval by the relevant stake-holding parties.

2.3.1 Monitoring for wetland enhancement

After the Wetland Management Areas A and B are fenced to exclude grazing stock, a series of permanent quadrats will be set up for the purpose of monitoring of vegetation change over time. The location of these quadrats will be marked using wooden pegs and the grid reference will be recorded using GPS. It is expected that up to ten quadrats will be described. These will be of an appropriate size, probably 2 m x 2 m, to take into account the scale of the plan area. The occurrence and cover of vascular plant and moss species will be recorded in these quadrats along with a number of other important parameters such as the height of vegetation, cover of bare peat, peat depth, flowering of plant species etc. This survey will take place in the late summer/autumn period of each monitoring year. Photographs of the quadrats will also be taken on deployment and subsequently during the following years of monitoring.

Monitoring will take place during the wind farm Operational Years 1, 2, 3 & 5 of the Plan implementation, with Year 1 being the base year at the time the works are carried out. After Year 5, a review of the progress will be conducted in light of the Plan objectives, and a programme will be developed for the next 5-Year period of the Plan (and so on for the lifetime of the project).

A report will be prepared for each year of monitoring.

From the monitoring results, an assessment will be made by the project ecologist on whether a level of appropriate grazing would be allowed within Management Areas A and/or B. This would be of a stocking level suitable for the habitats present and would be over a defined period of the year.

2.3.2 Monitoring of gorse removal

As with the main wetland area, a series of permanent quadrats will be set up in the areas where gorse has been removed for the purpose of monitoring of vegetation change over time.

The monitoring will take place in the same years as the wetland monitoring during the wind farm Operational Years

2.4 Time Period for Plan Implementation

Year 1 of the Plan will include the physical measures required to exclude stock from the Management Areas A & B, and the first phase in gorse removal.

Year 1 will coincide with the completion of wind farm construction works.

Year 2 and subsequent years

Throughout the lifetime of the Plan there is a need to ensure that the fencing to exclude stock is well maintained. This will be done during an annual inspection of the Management Areas.

From the monitoring of the areas cleared of gorse, a recommendation will be made on where further clearance might be required in the following season.

3.0 PLAN DETAILS: OBJECTIVE 2 – OFFSETTING THE LOSS OF HEDGEROWS

3.1 Background

A total of approximately 300 m of hedgerows will be lost by the road impact points and the new access entrances (see **EIAR Chapter 6: section 6.4.4.1**). With an average width of 3 m, a total minimum area of 900 m² of replacement planting is required to offset this loss. However, this figure will be doubled to 1,800 m² (0.18 ha) in recognition of the importance of local hedgerows. Hence, the loss of hedging will be exceeded by the planting programme.

The planting will take place within a 0.52 ha plot that has been identified to the northwest of Turbine T05 and contiguous with an existing strip of mature broadleaved woodland (see **Figure 1** and **Plates 9 & 10**). The remainder of this plot will be planted with tall woodland species as mitigation for bats (see **Section 4** of this report). The replacement hedgerow planting will complement the taller tree species required for bat mitigation.

Plantings will consist of native Irish species from certified Irish genetic stock. The species will be typical of hedgerows of the local area, and all are useful biodiversity species. The species will be selected from the following:

- Hawthorn *Crataegus monogyna*
- Blackthorn *Prunus spinosa*
- Hazel *Corylus avellana*

- Alder *Alnus glutinosa*
- Holly *Ilex aquilifolium*
- Rowan *Sorbus aucuparia*
- Grey willow *Salix cinerea* subsp. *oleifolia*
- Downy birch *Betula pubescens*
- Guelder rose *Virburnum opulus*
- Spindle *Euonymus europaeus*
- Crab apple *Malus sylvestris*

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Hawthorn will be the dominant species, comprising up to 40% of the planted area. Hazel and alder will be the principal secondary species, comprising approximately 15% each, with the remainder made up of other species.

3.2 Proposed Management Methodology

The planting of woodland will follow best practice, including guidance from the Department of Agriculture, Food and the Marine ACRES scheme and the Teagasc Native Tree Area Scheme. The following approach will be adhered to for the overall woodland planting scheme within the 0.5 ha plot (see section 4 for conditions specific for bat mitigation):

- The planting of the 0.52 ha plot will take place within the appropriate season and as early as possible in the schedule for construction. The earlier planting is carried out the better, as this will allow time for these features to establish prior to the loss of existing features.
- As noted, plantings will consist of native Irish species from Irish genetic stock.
- The tall trees (see section 4 for recommended species) will be planted along the western side of the plot and will consist of at least two rows.
- For tall trees a minimum tree planting spacing of 3 x 3 metres is required, giving a planting density of 1,100 trees per hectare.
- Smaller tree and shrub species can be planted at higher densities and also less formally and with varying spacing between stands or groups of trees.
- Ground preparation will be limited to inverted (or scrap) mounding, shallow ripping, pit planting and auger planting.
- Fertiliser application will not be permitted.

- The control of competing vegetation is critical for the establishment and growth of young trees. Inadequate vegetation management will result in mortality, loss of growth and vigour and the need for further inputs during the establishment process. This will be done manually using basic tools such as slash hook or bill hook or by pulling away by hand herbaceous material (grasses etc) (see Teagasc “Vegetation Control in Farm Forestry”, Farm Forestry Series No. 2, Crops, Environment and Landuse Programme).
- The entire plot will be fenced to protect from stock animals.
- Any trees that fail within the first five years of planting will be replaced on an annual basis.

3.3 Monitoring

The contractor will carry out an annual inspection for failed trees and will replace same at the earliest opportunity. This will be done for as long as it takes the trees to become fully established. Afterwards, standing dead or fallen trees from storms *etc.* will be left in situ as part of the woodland.

4.0 PLAN DETAILS: OBJECTIVE 3 – BAT MITIGATION

4.1 Background

As described in **Chapter 7: section 7.3**, the mature broadleaved treeline (or narrow woodland strip) northwest of T05 (see **Figure 1 & Plate 8**) constitutes the most important foraging and roosting habitat for bats onsite. This was determined through potential roost surveys, static detector surveys, and transect surveys. This area constitutes a roost resource. Based on the data provided by static detectors, three species and a genus were active during their respective emergence windows at this location; Leisler’s bat, common pipistrelle, soprano pipistrelle, and *Myotis* spp.. While specific trees could not be confirmed as roosting locations due to frequent roost switching behaviour, it is assumed that all trees with potential roost features are likely to constitute roosts on a transitional basis.

As part of mitigation for this Site, enhancement of this treeline through a replanted extension is proposed. The results of the bat surveys on site detailed that bat activity is largely centred around linear habitat features. As part of the implementation of bat buffers there will be removal of sections of forestry treelines and hedgerow. The area considered most suitable for this replanting is north of the western end of the existing wood as shown in **Figure 1 and Plates 10 & 11**). This area of approximately 0.5 hectares (of which 0.18 ha will be planted with hedging species – see section 3 above) is proposed for enhancement through the planting of broadleaved tree species in a tree line/strip consisting of at least two rows of trees. The enhancement planting shown also maintains a buffer (>266.5 m) to turbines in line with NatureScot *et al.* 2021 and EUROBATs (Rodrigues *et al.*,

2015) for a feature of up to 25 m. This buffer will need to be maintained as the goal of the enhancement is to increase the area of the known existing important roosting and foraging feature for bats. The goal of this enhancement is to improve the foraging potential for bats a suitable distance away from the immediate area of the turbines so as to reduce the likelihood of bats foraging within the rotor swept area of turbines.

This measure is also to offset the loss of linear features as a result of the implementation of bat buffers (to reduce collision with rotating blades).

This woodland's capacity for roost potential will be reviewed by an ecologist once the planted trees reach a diameter at breast height (DBH) of 30 cm (based on lowest average DBH for damage roost features & Irish bats in data from BTHK 2024). Artificial veteranisation of trees to increase roost potential will be carried out as considered necessary. This aims to have the new planted treeline provide a similar roost resource as the existing one determined to be of value to bats for both roosting and foraging.



Plate 8: View of existing broadleaved treeline that is identified as of high value for bats. Ash, oak and beech are the main tree species. (September 2024).



Plate 9: View looking northwards from edge of existing woodland over the plot for woodland planting – the plot will run parallel to the stone wall. (September 2024).



Plate 10: View looking southwest towards the area for the woodland planting – this will extend from the end of the existing woodland strip and alongside the stone wall in right of image. (September 2024).

4.2 Proposed Management Methodology

The approach to the planting of the woodland plot has already been described in **section 3.2** above.

As noted, at least two lines of trees will be planted along the western side of the plot.

On maturity, these trees will have attained a similar height as those within the existing broadleaved woodland strip.

Formerly **ash**, which is widespread in the local area including the existing wood, would be used as a principal tall tree species but is not being planted due to ash dieback disease.

It is proposed that **pedunculate oak** *Quercus robur* will be the principal tall tree species, with oak (species not certain) already present in the existing wood.

While **beech** *Fagus sylvatica* is a non-native species, it is well naturalised in Ireland and freely self-sown. As it is a very useful tree for bats, and already well represented in the adjoining wood, some beech will be planted.

Aspen *Populus tremula* is a native species of moderate size (up to 20 m) and is fast growing.

Wild cherry *Prunus avium* is a native species and a particularly handsome tree growing to 20 m or more.

Silver birch *Betula pendula* is a native species though at times can be difficult to identify positively. It is a medium sized tree though can reach up to 20 m. It is also fast growing.

Oak will be principal species forming 50% of the plantings. Due to the value of beech for bats, beech will form 25% of the plantings. The remainder will be of the other listed species (as available).

Apart from the non-native beech, all stock will be certified of Irish genetic stock. For beech, the stock will be derived from seed collected in Ireland

4.3 Monitoring

As already noted in **section 3.3**, the contractor will carry out an annual inspection for failed trees and will replace same at the earliest opportunity. This will be done for as long as it takes the trees to become fully established.

In addition, a bat ecologist will visit the stand at the time when the trees are expected to have reached a diameter at breast height (DBH) of 30 cm for the purpose of selecting trees to carry out artificial veteranisation.

5.0 OVERVIEW

The BEMP for the Kellystown Wind Farm project will preserve and enhance part (3.52 ha) of a wetland system, which will offset the loss of a relatively small area of wet grassland (c.500 m² or 0.05 ha) as a result of the Proposed Development. By including a large area of wetland within the Plan compared to the relatively small loss as a result of the Proposed Development, the Plan recognises and highlights the importance of this wetland system, which has been rated as of National Importance and is listed in the Wetlands Inventory for County Louth.

The BEMP will also offset the loss of hedgerows as a result of the Proposed Development by a native woodland replanting programme, which will double the area of hedging that is lost.

The BEMP also mitigates the impacts on bats by provision of enhanced habitat through tree planting in a plot which adjoins existing broadleaved woodland shown to be of high importance for bats.

The success of these measures will be evaluated through a detailed monitoring and reporting programme.

It is anticipated that with the implementation of the BEMP, the overall ecological value of the Site will increase over time, with benefits not just for habitats and bats but also birds, mammals and invertebrates.

The objectives for the Plan are achievable, as the methods to be used are straightforward and have been implemented at many other sites throughout Ireland.

It is noted that the Plan will allow for remediations and/or modifications to ensure that the objectives are being achieved throughout the lifetime of the Proposed Development

A reporting schedule will be agreed with the Planning Authority as evidence of compliance.

6.0 REFERENCES

Fossitt, J. (2000) *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.

Scottish Natural Heritage (2021). *Bats and onshore wind turbines - Survey, Assessment and Mitigation*.

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