

# Peatland Restoration and Management Plan

Cleanrath Wind Farm, Co.  
Cork





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# 1. INTRODUCTION

## 1.1 Background

The EIAR that was prepared for this application prescribed the provision of a Habitat Restoration and Enhancement Plan to offset the loss of peatland habitats that are within the footprint of the subject development. The development footprint is located on 4.13 hectares of peatland habitat. This is less than Cleanrath wind farm development was originally predicted in the original application as two turbines have not been constructed. The peatland habitats on which the windfarm is located consists primarily of a mosaic of Wet Heath, Blanket Bog and Acid Flush with outcropping of Exposed siliceous rock (ER1). The areas of deep peat within the study area have been avoided in the design of the development and all areas that are within the construction footprint have been degraded through extensive grazing of sheep, cattle and/or horses, drainage, peat cutting, forestry or scrub encroachment.

This Peatland Restoration and Management Plan (PRMP) provides details of where measures will be employed to improve the ecological quality of the peatland habitats that are located outside the construction footprint but within the control of the windfarm developer.

The development has resulted in the loss of peatland habitat, associated with Turbines T3, T6, T7, part of T8, T9 & T10. Therefore, this Peatland Restoration and Management Plan (PRMP) provides for the restoration of forestry land, that has been planted on peatland mosaic habitats, back to this peatland habitat.

The extent of lands subject to peatland restoration are shown in Figure 1.1. This includes areas of forestry felling located around Turbines T1, 3, 5 and 8 as well as an additional area of 1.06 hectares of forestry located to the south of T8. Following the implementation of the measures outlined in this report, to offset the loss of peatland habitat, there will be no net loss of peatland habitats on the site.

The bog restoration programme described in this report will be implemented in accordance with the published guidelines and best practice such as the guidelines arising from the EU-LIFE/Coillte '*Irish Blanket Bog Restoration Project*' (2002-2007)', Scottish Natural Heritage (SNH)'s guidance note Planning for development: *What to consider and include in Habitat Management Plans* (Version 2, January 2014).

## 2. PEATLAND RESTORATION AND ENHANCEMENT

### 2.1 Forestry Felling and Peatland Restoration Around Turbines

As shown in Figure 1.1, it is proposed to reinstate areas of coniferous plantation forestry around turbines T1, 3, 5 and 8. These areas have been felled as part of the construction phase of the wind farm, however, some areas will require further maintenance to complete to the required reinstatement to peatland. As shown in Plate 2.3, areas where plantation forestry have been removed, still comprise of peatland vegetation beneath the conifers. In order to facilitate the reestablishment of peatland vegetation within these areas and maintain an effective hydrological regime, the following measures are proposed in these areas:

- Removal of brash from felled areas off-site.
- Drain blocking will be undertaken on a local scale in the immediate surroundings of felled plantation by installing dams at drainage ditches (largely remnant semi-functioning conifer forest drains) to maintain, enhance and restore the favorable baseline hydrological and ecological conditions at each site location. Drains can be dammed using peat dams.
- No additional drainage to be installed in proximity to these habitat areas during the lifetime of the development.
- The use of off road vehicles on the site will be restricted to the existing tracks.
- No application of chemical and organic fertilisers or herbicides and pesticides will be undertaken within the development footprint.
- Self-seeded conifers from adjacent conifer plantation areas will be cleared and removed (by hand or brushcutter) from the newly created peatland reinstatement areas on an ongoing basis during the operational phase.



Plate 2.1 Example of forestry felling already undertaken to the north of T8 with typical peatland vegetation remaining beneath the conifers.

2.2

## Additional Forestry Felling for Peatland Restoration

In order to achieve the required peatland restoration area, additional lands, comprising of immature forestry, located outside of the immediate development footprint will be acquired and restored to peatland habitat. The area identified as most appropriate for peatland restoration is located to the south of Turbine no. 8, see Figure 1.1. An example of the forestry occurring at this location is provided in Plate 2.2. The lands were chosen as the forestry is immature, the vegetation occurring beneath the conifers comprises of typical peatland species (see Plate 2.3) and could therefore successfully be reinstated to peatland if the conifer crop was sympathetically removed.



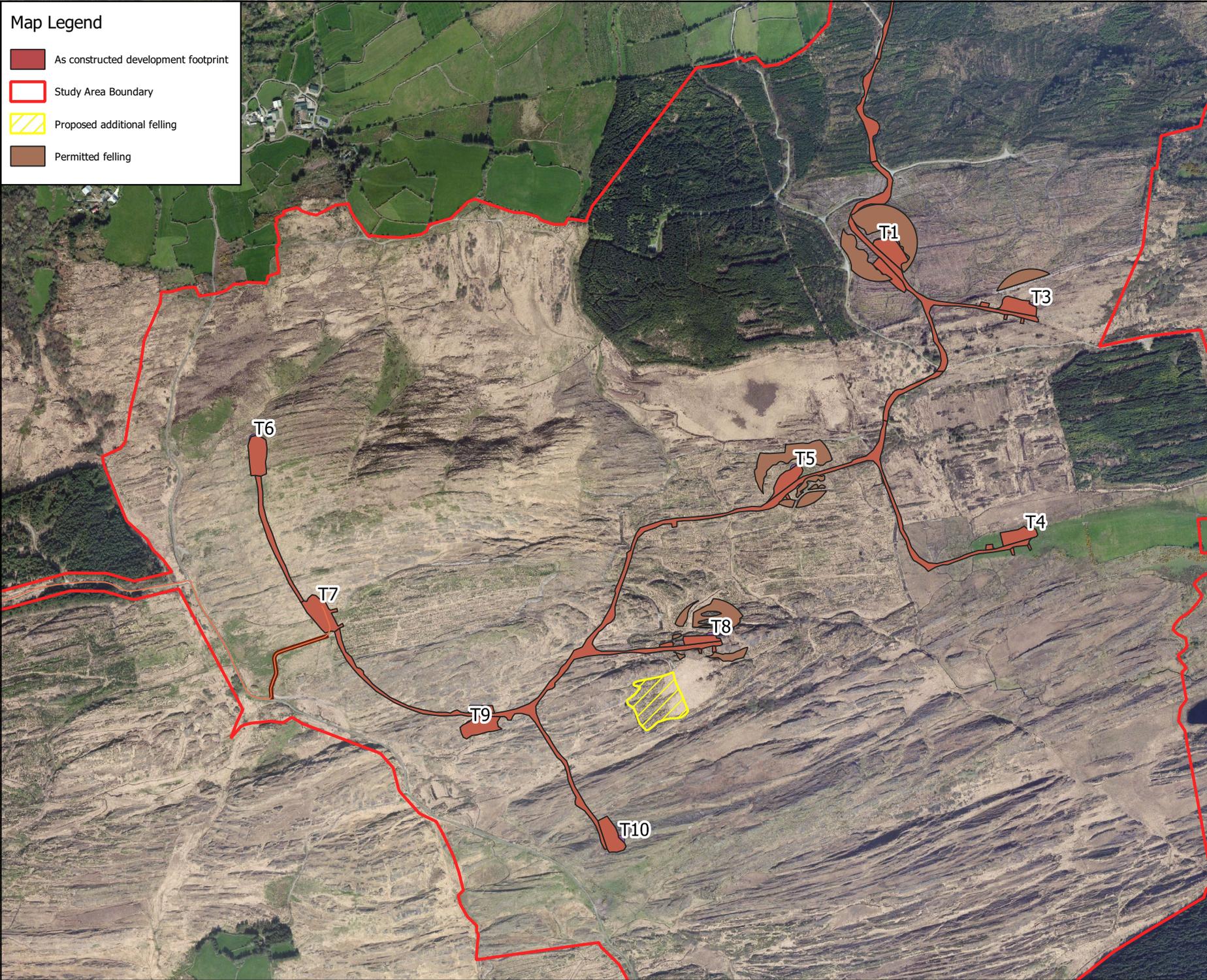
*Plate 2.2 Location chosen for tree removal and restoration to bog, located to the south of T8.*



*Plate 2.3 Example of intact peatland vegetation occurring within existing forestry plantation*

**Map Legend**

- As constructed development footprint
- Study Area Boundary
- Proposed additional felling
- Permitted felling



Drawing Title	
Proposed peatland restoration area	
Project Title	
Cleanrath WindFarm	
Drawn By	DMN
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The management techniques to be undertaken within the replacement area located south of Turbine no. 8 are as follows:

- All coniferous forestry will be felled.
- Following tree felling operations, brash material will be removed off-site and disposed of appropriately to a suitable location.
- Drains will be blocked, where appropriate, using peat dams or plastic dams, see Plate 2.4 & 2.5.
- No additional drainage to be installed in proximity to this habitat during the lifetime of the subject development.
- The planting of forestry will not be permitted in this area.
- No vehicular access will be permitted to or within the dedicated peatland reinstatement area once all initial works are completed.
- Self-seeded conifers from adjacent conifer plantation areas will be cleared and removed (by hand or brushcutter) from the newly created peatland reinstatement areas on an ongoing basis, following the felling of the existing forestry.
- Peat extraction within the proposed peatland reinstatement area will not be permitted.
- Burning and dumping will not be permitted.
- No application of chemical and organic fertilisers or herbicides and pesticides will be undertaken within the development footprint.



*Plate 2.4 Example of peat dams to be used for on-site drain blocking.*



Plate 2.5 Example of plastic dams to be used for on-site drain blocking.

2.3

## Management of peatlands adjacent to windfarm infrastructure

In addition to the reinstatement measures proposed above, this plan also sets out measures that will enhance the existing peatlands that surround the wind farm development. These are listed below:

- Burning and dumping will not be permitted.
- Application of artificial fertilisers within rehabilitation or enhancement areas will be prohibited.
- The planting of forestry will not be permitted. There is currently forestry activity in the vicinity of the development and conifer seedlings are encroaching on the site on an annual basis during the lifetime of the windfarm development.
- Seedlings of coniferous or other trees or any invasive plants will be removed from this area on an annual basis during the lifetime of the windfarm development.
- Scrub species including Gorse (*Ulex europaeus*) and Bramble (*Rubus fruticosus* agg.) will be removed on an annual basis during the lifetime of the windfarm development.
- No vehicular access will be permitted to or within the dedicated habitat rehabilitation area once all initial works are completed.
- The rehabilitation area will be monitored to assess the success of the rehabilitation plan.
- Where possible, drains will be blocked to restore the natural hydrology of the blanket bog in the area.

2.4

## Timing of Works

Replacement works will be conducted in line with the provisions of the Wildlife Acts 1979-2012 as amended.

2.5

## Monitoring

To confirm that habitat restoration and enhancement has been successful, all areas of restored vegetation will be monitored post-restoration, monitoring results reported and any criteria failures

identified and corrective actions implemented as part of the Cleanrath Operational Environmental Management Plan (OEMP) for the development.

Visual inspections of restored areas within the application site will be carried out biannually during the first two years after restoration to check for potential soil erosion or movement and degradation of replaced turves. Vegetation monitoring will be carried out in years 1, 3, 5 and 10 after restoration. Monitoring will involve the following:

#### **Surface peat assessment**

An assessment of the physical state of the surface peat with regard to:

- Percentage bare peat not covered by vegetation;
- Moisture status (qualitative);
- Intactness (e.g. presence of visible cracking in surface peat; and
- General stability (e.g. presence of peat erosion).

#### **Vegetation sampling**

- A number of fixed relevé sites (i.e. permanent quadrats) will be set up in areas where active management is proposed of previously forested areas. Baseline data will be recorded prior to the commencement of habitat management activities set out in this outline plan. The character of each relevé will be recorded (e.g. species proportions present, vegetation structure and height) and photographs will be taken of each relevé from a fixed point. These relevés will then be re-examined during years 1, 3, 5 and 10 following restoration in order to establish the extent of habitat improvement resulting from management practices.

#### **Hydrological monitoring**

- Water levels within areas where drains are blocked will be recorded bi-annually for two years. A number of phreatic stand pipes will be installed (prior to restoration) to allow monitoring of water levels within both the restoration and enhancement areas. In this way, any positive impacts on the local hydrology can be verified and quantified.

The efficacy of the habitat rehabilitation and enhancement measures employed will be reviewed in years 1, 3, 5 and 10 following commencement of the plan on the basis of the results of vegetation sampling and water level readings from the managed areas. Analysis of the data collected will be the basis for a review of the measures and techniques employed.

### 2.5.1

## **Monitoring of existing reinstated peatlands adjacent to existing infrastructure**

Following the completion of the existing development, the roadside verges, berms and banks of hardstand infrastructure were capped with peat material. This material was initially removed during construction and temporarily stored adjacent to the development footprint for final reinstatement. This reinstatement has therefore further minimised the overall peatland loss associated with the development footprint by reinstating areas of temporarily disturbed ground adjacent to the infrastructure, see Plate 2.6. Many of these areas have begun to revegetate naturally, with purple moor-grass (*Molinia caerulea*) becoming established. In addition, some areas within temporarily disturbed ground were also reseeded with an appropriate upland seed mix to facilitate more rapid vegetation establishment.

The post construction monitoring associated with the peatland restoration measures outlined above will also continue to monitor the continued revegetation of these areas of temporally disturbed ground and

where required, additional measures will be implemented to ensure establishment of peatland vegetation and reduce noxious weeds.



*Plate 2.6 Example of reinstated site access track verge with stripped peat material showing signs of revegetation with purple moor-grass (*Molinia caerulea*) and other grass species.*

## 2.6

## Reporting

Reports detailing the monitoring works carried out, the results obtained and a review of their success, along with any suggestions for amendments to the plan will be prepared in years 1, 3, 5 and 10 following commencement of the plan's implementation.

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