Rooaunalaghta Green Energy Ltd.

Chapter 6 Biodiversity

Appendix 6.6: Habitat Management Plan (HMP)

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03	23/10/2026	1	1	Site description	JOC

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1. INTRODUCTION

1.1. Background

This plan, which has been prepared by Woodrow APEM Group on behalf of Rooaunalaghta Green Ltd., presents a Habitat Management Plan (HMP) in support of the Environmental Impact Assessment Report (EIAR) for the proposed wind farm development at Rooaunalaghta, Co. Mayo.

This HMP sets out: (i) ecological mitigation measures required to avoid or reduce effects associated with the Proposed Development; (ii) reinstatement measures for habitats temporarily affected during construction; and (iii) additional biodiversity enhancement measures that are not relied upon to mitigate significant ecological effects. The status and purpose of individual measures are identified within this HMP and should be read in conjunction with the mitigation commitments set out in EIAR Chapter 6 Biodiversity. Measures undertaken specifically to reduce the risk of bat collision and/or barotrauma, including vegetation-height management, tree and scrub clearance and modification of selected linear features, constitute operational mitigation measures. Additional enhancement measures are measures which provide a net benefit to biodiversity over and above that required to mitigate effects of the Proposed Development and are not relied upon to avoid or reduce significant effects or adverse effects on the integrity of any European Site.

1.2. Site description

The proposed wind farm site is located approximately 2.5 km southwest of Shrule, Co. Mayo and approximately 3.5 km northwest of Headford, Co. Galway. The lands of the site are primarily comprised of agricultural fields bounded by stone walls, hedgerows and treelines with pockets of scrub and woodland in the eastern half of the site.

The proposed wind farm site is located on either side of the R334 Regional Road, which runs in a northwest-southeast direction connecting Headford and Ballinrobe. The area surrounding the site can be described as rural with a mostly dispersed settlement type (though some clustering at Moyne). The nearest settlements are Moyne village to the southeast of the site and Glencorrib to the northwest, both along the R334.

The proposed wind farm site encompasses an area of approximately 222 ha and comprises a contiguous, irregularly shaped land parcel. The site extends approximately 1.2 km in a north-west/ south-east direction and approximately 3.2 km in a north-east/ south-west direction. Topography across the site ranges in elevation from approximately 25 m to 60 m AOD. Access to the proposed wind farm site is provided directly from the regional road (R334), which connects with the N84 National Secondary Road at Headford, Co. Galway.

1.3. Description of proposed project

The proposed project comprises the proposed wind farm site together with associated electrical and grid infrastructure and all necessary ancillary works required for its construction, operation and maintenance. The principal components of the proposed project are as follows:

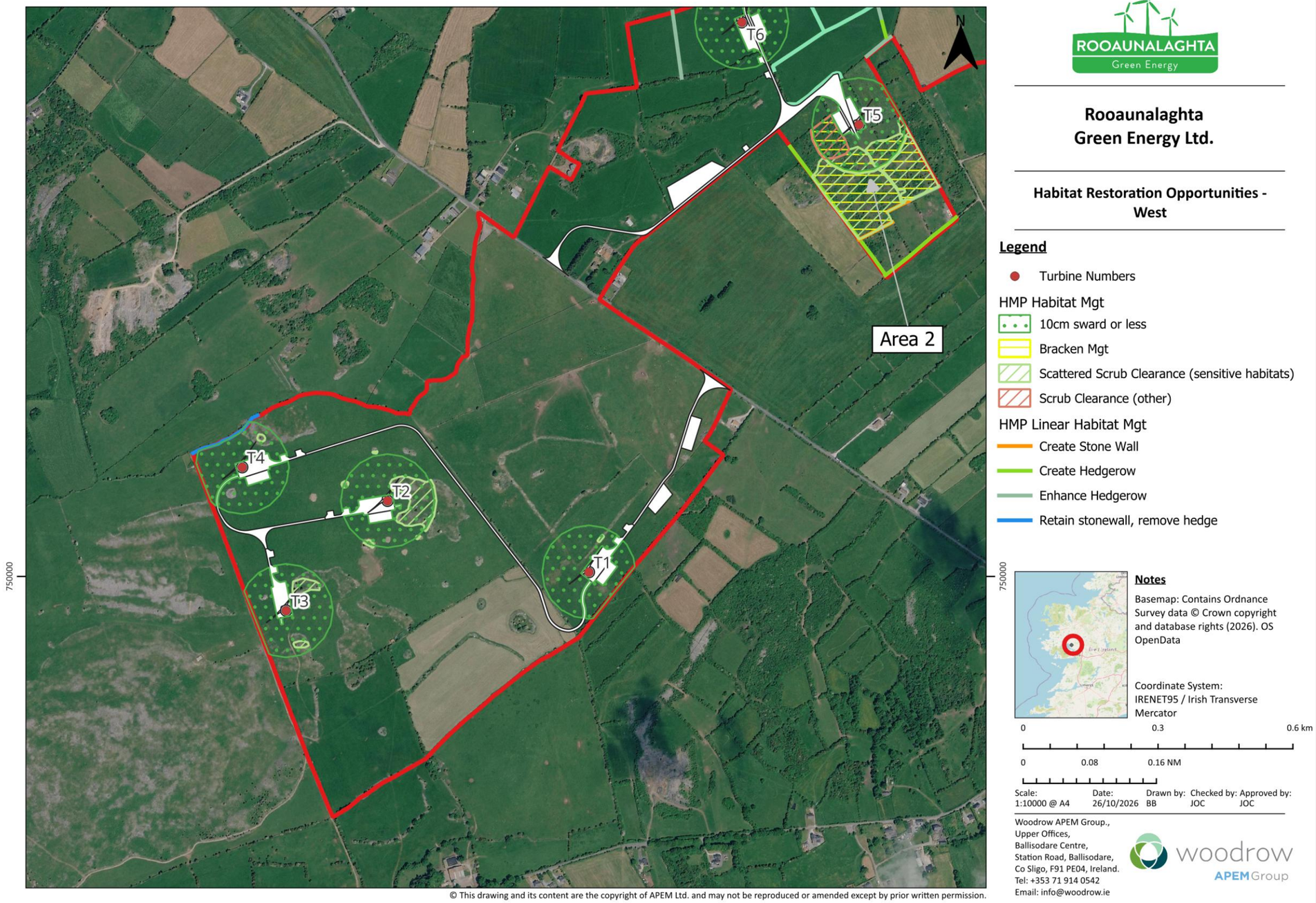
- A wind farm comprising 13 wind turbines with associated foundations, hardstanding areas, and internal access tracks;
- A permanent onsite control building;
- 33 kV underground electrical and communications cabling connecting the turbines to the control building;
- A permanent 110kV "loop-in" electrical substation, including a control building with welfare facilities and associated electrical plant;
- Grid Connection Route (GCR), comprising 33 kV underground cabling between the control building and the 110 kV substation, and 110 kV underground cabling connecting the substation to the national electricity grid.
- Temporary works along the Turbine Delivery Route (TDR) to facilitate delivery of turbine components.

Ancillary works associated with the proposed project include site entrances, temporary construction compounds, borrow pit development, drainage and sediment control measures, underground electrical and communications cabling, a lidar unit, worker welfare facilities at the substation, as well as landscaping and reinstatement works. A detailed Project description is available in **Chapter 2** of the EIAR.

1.4. Overview

The purpose of this HMP is to provide a comprehensive framework for the ecological management measures associated with the Proposed Development. These measures comprise operational ecological mitigation, reinstatement of habitats temporarily affected by construction, and additional biodiversity enhancement measures. This HMP should be read in conjunction with EIAR **Chapter 6 Biodiversity** and its associated appendices, which provide the ecological baseline, impact assessment and rationale for the mitigation measures described herein.

Table 1 sets out all of the habitat management measures to be undertaken. **Table 2** identifies measures considered to be mitigation for the proposed wind farm development and **Table 3** identifies additional habitat enhancement.



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Habitat Restoration Opportunities - West

Legend

- Turbine Numbers

HMP Habitat Mgt

- 10cm sward or less
- Bracken Mgt
- Scattered Scrub Clearance (sensitive habitats)
- Scrub Clearance (other)

HMP Linear Habitat Mgt

- Create Stone Wall
- Create Hedgerow
- Enhance Hedgerow
- Retain stonewall, remove hedge

Notes

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Coordinate System: IRENET95 / Irish Transverse Mercator

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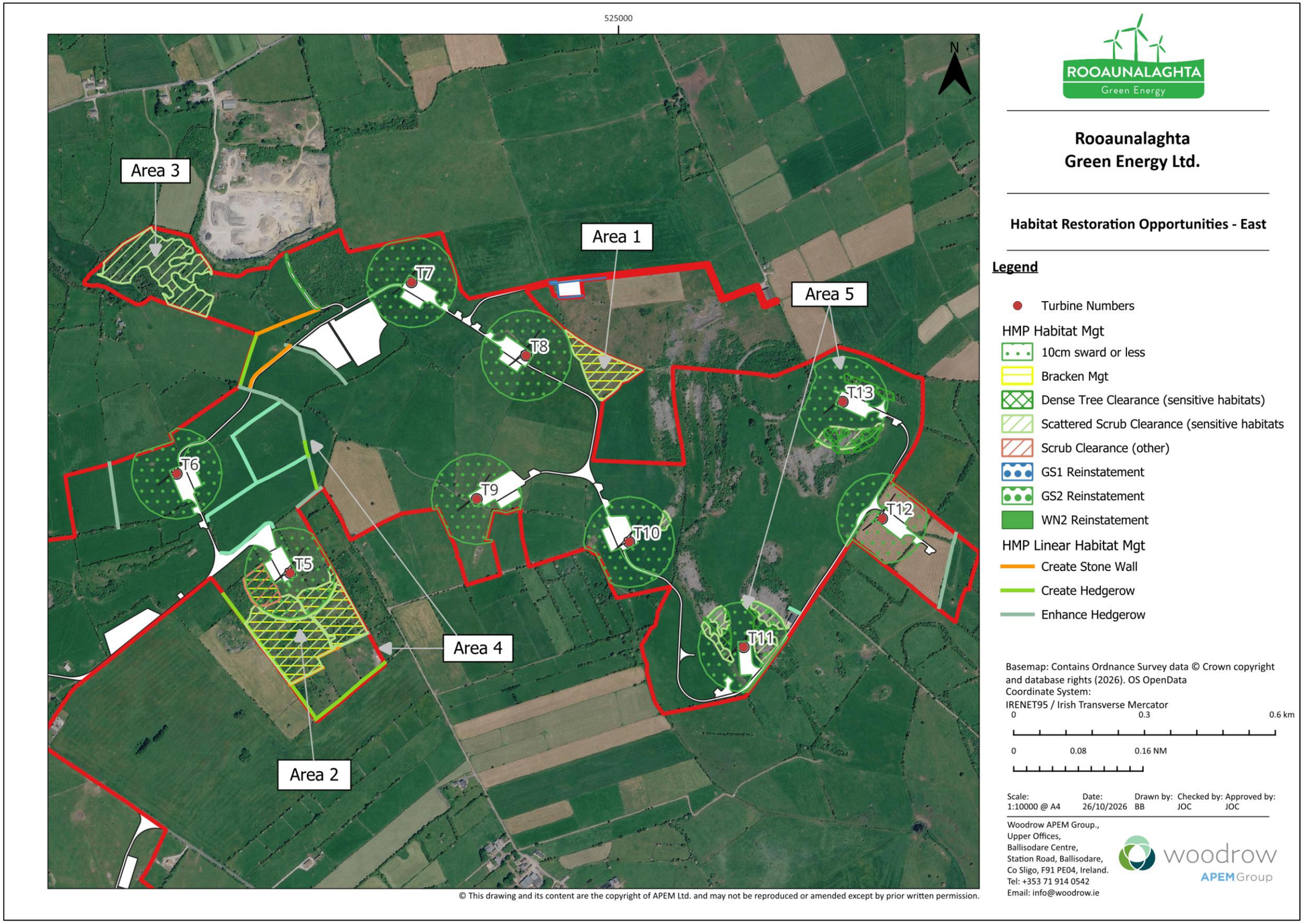
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Figure 1: Habitat restoration opportunities in the western part of the proposed wind farm development.



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Habitat Restoration Opportunities - East

Legend

- Turbine Numbers

HMP Habitat Mgt
- 10cm sward or less
- Bracken Mgt
- Dense Tree Clearance (sensitive habitats)
- Scattered Scrub Clearance (sensitive habitats
- Scrub Clearance (other)
- GS1 Reinstatement
- GS2 Reinstatement
- WN2 Reinstatement

HMP Linear Habitat Mgt
- Create Stone Wall
- Create Hedgerow
- Enhance Hedgerow

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Figure 2: Habitat restoration opportunities in the eastern part of the proposed wind farm development.

Table 1: Habitat Management to be Undertaken

Important ecological feature (IEF)	Dense tree clearance (sensitive habitats)	Scattered scrub clearance (sensitive habitats)	Scrub clearance (other habitats)	Bracken management	Short sward management	Enhancement of hedgerows	Creation of hedgerows next to existing stone walls	Creation of new stone walls	Habitat reinstatement following temporary loss
BL1 Stone Walls								✓	
WL1 Hedgerows / WL2 Treelines						✓	✓		
HD1 Dense bracken / GS1 Dry calcareous and neutral grassland / HH2 Dry calcareous heath mosaic		✓		✓					✓
ER2 Exposed calcareous rock	(✓)	✓							
GA1 Improved agricultural grass									✓
GS1 Dry calcareous and neutral grassland		✓		✓					
GS2 Dry meadows and grassy verges									✓
WN2 Oak-ash-hazel woodland									✓
Bat species	✓	✓	✓	✓	✓	✓	✓	✓	

Table 2: Habitat Mitigation and Offsetting Measures

Important ecological feature (IEF)	Highest evaluation / importance	Approx. area or length within the study area	Approx. area or length lost	Approx. area or length to be re-instatement	Approx. area or length of habitat creation	Approx. area or length of habitat restoration	Actions
BL1 Stone Walls	Local (higher) importance	20.98 km	0.68 km	None	0.44 km	None	New stone walls to be created.
WL1 Hedgerows / WL2 Treelines	Local (higher) importance	8.51 km	0.48 km	None	0.75 km	None	Planting of hedgerows – mitigation for boundary feature loss.
FW4 Drainage ditches	Local (higher) importance	0.39km	0.34 km	None	0.50 km	None	Creation of new drainage ditches.
HD1 Dense bracken / GS1 Dry calcareous and neutral grassland / HH2 Dry calcareous heath mosaic	County/ Regional importance	1.37 ha	0.28 ha	0.06 ha	None	1.03 ha	Re-instatement of any damaged grassland / heath resulting from construction activities in the buffer zones on surrounding onsite substation and access track. Active management of scattered scrub and bracken to restore habitat condition.
GS2 Dry meadows and grassy verges	National importance	2.10 ha	0.11 ha	0.11 ha	None	None	Re-instatement of damaged grassland resulting from construction activities of temporary track to quarry to the north.
HD1 Dense bracken / WS1 Scrub	Local (higher) importance	1.11 ha	[0.51 ha]	None	None	None	Restoration to permanent grassland but due to risk to bats of turbine collision or barotrauma the habitat management is not attempting to specifically restore the habitat to GS1 Dry calcareous and neutral grassland, instead targeting permanent grassland.

WN2 Oak-ash-hazel woodland	Local (higher) importance	2.32 ha	0.02 ha	0.02 ha	None	None	Re-instatement following removal of temporary access road to quarry.

Table 3: Habitat Enhancement Measures

Important ecological feature (IEF)	Highest evaluation / importance	Approx. area or length within the study area	Approx. area or length lost	Approx. area or length of habitat enhancement	Actions
WL1 Hedgerows / WL2 Treelines	Local (higher) importance	8.51 km	0.48 km	0.86 km	Restoration of hedgerows.
ER2 Exposed calcareous rock	National importance	11.44 ha	None	2.37 ha	Active management of scattered scrub and enhancement of 'wooded' limestone pavement to 'exposed' limestone pavement.
GS1 Dry calcareous and neutral grassland	National importance	8.56 ha	None	7.71 ha	Active management of scattered scrub and bracken to enhance habitat condition.

1.5. Habitat restoration areas

The habitat restoration locations are shown on **Figure 1** and **Figure 2**. The HMP actions and how they relate to the Important Ecological Features (IEFs) is provided in **Table 1**.

1.5.1. Area 1: Enhancement of HD1 dense bracken / GS1 dry calcareous and neutral grassland/ HH2 dry calcareous heath mosaic habitat

An area of approximately 0.22 ha of HD1 dense bracken / GS1 dry calcareous and neutral grassland / HH2 dry calcareous heath mosaic habitat will be permanently lost to facilitate the proposed wind farm developments onsite control building, with potentially another 0.06 ha lost to temporary impacts from construction activity. Habitat enhancement within retained HD1/GS1/HH2 mosaic habitat in the surrounding areas of the proposed project, covering c. 1.03 ha, will include targeted management to reduce the cover and extent of bracken (*Pteridium aquilinum*) as well as scattered scrub management. Any areas of the habitat temporarily lost to construction works will be re-instated to GS1 dry calcareous and neutral grassland.

1.5.2. Area 2: Management and enhancement of GS1 dry calcareous grassland near T5

Areas of GS1 dry calcareous grassland occur within a wider management area within the proposed wind farm site near T5, with the GS1 covering approximately 3.63 ha (including areas within the buffer zone for bats) will be subject to active management to maintain and enhance their ecological value. Active intervention management will include scrub clearance, bracken management and the maintenance of a short sward within 104 m of the turbine. An adjacent area of HD1 dense bracken / WS1 scrub mosaic will also be subject to the similar management.

1.5.3. Area 3: Management and enhancement of GS1 dry calcareous grassland at the northern end of the proposed wind farm site.

An area of approximately 2.27 ha of GS1 dry calcareous grassland in the northern part of the proposed wind farm site will be subject to active scrub management to maintain and enhance the ecological value of the grassland. The applicable scrub-cover target will reflect the Annex I habitat type and condition criteria represented within the management area and will be confirmed against the mapped habitat polygons and baseline condition assessment.

1.5.4. Area 4: Field boundary creation and enhancement of stone walls, hedgerows and treelines near T5, T6 and T7.

New lengths of stone wall will be created using stone from walls being lost to construction to create 0.44 km of new stone wall. In addition, approximately 0.75 km of new hedgerows will be planted, typically next to existing stone walls, to enhance the landscape connectivity for bats away from the turbine locations. Enhancement of retained hedgerows will include infilling gaps by planting native species. Management will focus on promoting a varied age structure and maintaining connectivity across the landscape. The proposed measures will contribute positively to biodiversity within the proposed project by increasing habitat availability, structural diversity and ecological connectivity.

1.5.5. Area 5: Dense tree and scrub clearance to reduce risks of bat collision and barotrauma at T11 and T13

To reduce the risk of bat collisions and barotrauma at T11 and T13 small areas of wooded Annex I priority habitat [8240] limestone pavements* are to be cleared and restored to exposed limestone pavement habitat.

The vegetation-management distances applied around turbines vary according to the height of the vegetation concerned. The 104 m, 109 m and 119 m distances referred to within this HMP represent the applicable separation distances for the vegetation-height categories assessed for the Proposed Development (described in more details in **EIAR Chapter 6** (**section 6.7.2.4**) (**Table 4**). The derivation of these distances and the turbine dimensions on which they are based are provided in EIAR Chapter 6 and the associated bat assessment.

Table 4: Bat buffer calculations using the turbine model in relation to feature height and the buffers recommended by NatureScot (2021)

Turbine Model	Feature Height (m)	Turbine Buffer Distance (m)
Vestas V136	0	104
	3	107
	5	109
	10	114
	15	119

1.5.6. Habitat Management Around Turbine Locations

To reduce the risk of bat collisions and barotrauma at the turbine locations habitat management will be undertaken to reduce the suitability of the habitat for foraging and commuting. Habitat management actions will include maintaining a short-sward of 10 cm or less within a 104 m buffer surrounding all of the turbine locations. This will be achieved by grazing and / or cutting grass swards to maintain a short sward as well as active intervention clearing scattered scrub from exposed limestone pavement areas within 109 m (buffer for vegetation up to 5m high) of the turbines (at T1 – T5, T10 – T11 and T13).

1.5.7. Habitat Re-instatement Following Temporary Loss

Grassland habitats lost to temporary construction works will be re-instated following the completion of construction activities. This will primarily be in the form of improved agricultural grassland but also includes small areas of GS2 dry meadows and grassy verges as well as GS1 Dry calcareous and neutral grassland (within a mosaic habitat with HD1 dense bracken and HH2 dry calcareous heath) and WN2 oak-ash-hazel woodland.

2. AREA BASED HABITAT MANAGEMENT

The vegetation-management distances applied around turbines vary according to vegetation height. The 104 m, 109 m and 119 m distances used within this HMP represent the relevant horizontal separation distances for the vegetation-height categories assessed for the Proposed Development. These distances have been derived from the turbine dimensions and bat-mitigation methodology presented in **EIAR Chapter 6** (**section 6.7.2.4**). For clarity, the applicable buffer and management requirement for each vegetation-height category is summarised in **Table 5**.

Table 5: Vegetation Management Distances for Bats

Habitat Type	Maximum Vegetation Height (m)	Required Horizontal Separation (m)	Management Requirement	Turbine Number(s)
ER2 Exposed calcareous rock	<0.1	104	Short sward management	T1 – T5, T10 – T11, T13
ER2 Exposed calcareous rock (including scattered scrub)	5 m	109	Scattered scrub management (sensitive habitats)	T1 – T5, T10 – T11, T13
ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	≥ 15 m	119	Dense tree and shrub clearance (sensitive habitats)	T11, T13
HD1 Dense bracken / WS1 Scrub	5 m	109	Scrub management (non-annex I habitats); Bracken Management	T5
GA1 Improved agricultural grassland	<0.1	104	Short sward management	T1 – T13
GS1 Dry calcareous and neutral grassland	<0.1	104	Short sward management	T2, T5, T10
GS1 Dry calcareous and neutral grassland (including scattered scrub and bracken)	5 m	109	Scattered scrub management (sensitive habitats); Bracken management	T5

For land subject to vegetation management activities outside of the horizontal separation areas for the turbines the objectives of management are to achieve and / or maintain favourable threshold levels of scrub and bracken as set out in Annex I habitat condition monitoring guidance (**Table 6**). For Area 1 these deliver offsetting, however for Areas 2 and 3 these deliver Annex I habitat enhancement

of land not being directly impacted by infrastructure. During the operational lifetime of the wind farm, when the monitoring thresholds for scrub and bracken are exceeded (base on monitoring results), then the management intervention should be repeated.

Area 1 is a mosaic habitat of HD1 dense bracken / GS1 dry calcareous and neutral grassland / HH2 dry calcareous heath therefore the condition target of the collective cover of scrub, bracken and heath (woody) species being < 5% is not considered appropriate. Instead, the threshold levels for [4030] European dry heaths should be applied.

Table 6: Annex I Habitat Scrub and Bracken Condition Monitoring Targets

Annex I Habitat Type	Habitat Condition Target	Source	Management Requirement	Management Area
4030 European dry heaths	Cover of scattered native trees and scrub < 20%	Perrin *et al.*, 2014	Scattered scrub management (sensitive habitats)	Area 1
	Cover of bracken < 10%	Perrin *et al.*, 2014	Bracken management	Area 1
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites)	≤ 5% collective cover of scrub, bracken and heath (woody species)	Martin *et al.*, 2018	Short sward management	Area 2, Area 3

2.1. Tree and scrub clearance from Annex I habitats

The management objectives are to address scrub encroachment and establishment, which can greatly reduce local biodiversity, damage archaeological features, and restrict animal and human movement. The removal of scrub from certain high nature value habitats can be vital where there is a threat to the habitat or where it facilitates better management of that habitat. To reduce the risk of bat collision and barotrauma as a result of the turbine operation tall shrub and tree vegetation should be removed from the area surrounding the turbine locations. Other scrub clearance on Annex I habitats is to be undertaken to reduce scrub cover within the 'exposed' limestone pavement, calcareous grassland and dry calcareous heath to maintain a favourable habitat condition assessment criteria attribute.

Tree and scrub clearance on Annex I habitats has been broadly split into two classes:

- Dense tree and scrub clearance where areas of wooded limestone pavement will be cleared of trees and shrubs to make the environment less favourable for bats (to reduce the risk of collision with the turbine and barotrauma). The habitat will be locally converted from wooded limestone pavement to exposed limestone pavement. Dense wooded limestone pavement occurs near T11 and T13 covering 0.89ha (refer to **Table 7** for individual clearance area sizes ranging from 0.01 ha up to 0.19 ha, **Figure 3**).

- Open and scattered scrub clearance where Annex I habitats will be managed to maintain scrub cover levels relatively low to benefit the habitat condition of the Annex I type and also will reduce the risk of collision with the turbine and barotrauma. Open and relatively scattered scrub to be managed occurs near T1, T2, T3, T4, T5, T10, T11 and T13 covering 9.19ha (refer to **Table 8**).

2.1.1. Tree and shrub management

Scrub and woody cover are a natural component of limestone pavement vegetation and species-rich grasslands, and can provide shelter, habitat edge and overall vegetation complexity, increasing the value of the habitat for birds, mammals and invertebrates. Variable age classes of scrub layers further provide structural heterogeneity important for biodiversity. On limestone pavement areas the thin soils and resultant summer drought, combined with natural or appropriately managed grazing pressure largely restrict scrub encroachment, succession and development of woody cover of open limestone pavement habitat.

However, in certain cases, the invasion by scrub can threaten to reduce the area and quality of Annex I habitats such as Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) [6210] and Limestone pavement [8240] (DHLGH, 2023) and active intervention management may be required. The presence of taller vegetation such as trees and scrub can also increase the likelihood of bat collision or barotrauma resulting from turbine operation.

Scrub and woodland associated with limestone pavement can itself provide ecological value. Consequently, tree and scrub removal will be targeted and restricted to the mapped management areas required to achieve the stated habitat-management and/or bat-mitigation objectives. The limits of clearance will be demarcated prior to works by a suitably qualified ecologist and woody vegetation outside the prescribed management areas will be protected from accidental damage.

2.1.1.1. Method

The methodology follows the approach and good practice guidance developed under the Burren LIFE Programme, and has been approved by the Department of Housing, Local Government and Heritage for use within sites of high nature conservation importance such as the East Burren Complex SAC (DHLGH, 2023). The management operations have been designed to avoid damage to qualifying features of the site including Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) [6210] and Limestone pavement [8240]:

- All works will take place outside of the bird nesting season (March- August inclusive).
- Remove all trees and shrubs at targeted locations by felling with a chainsaw or brushcutter between September and February.
- Immediately after cutting treat the stumps with an appropriate approved herbicide to minimise regrowth.
- Where the felled timber and brash can be removed from the Annex I habitat without damaging the main habitat type this should be undertaken. In calcareous grassland areas where vehicle access is more appropriate, either remove cut material either in large movable pieces or chip and remove arisings from the habitat.
- Monitor managed areas and spot-treat any regrowth with an appropriate approved herbicide.

Table 7: Dense Tree and Shrub Clearance (sensitive habitats)

Location	Habitat(s)	Area
Turbine 11	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	0.17 ha
Turbine 11	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	0.02 ha
Turbine 11	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	0.19 ha
Turbine 13	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	0.19 ha
Turbine 13	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	< 0.01 ha
Turbine 13	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	< 0.01 ha
Turbine 13	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	0.13 ha
Turbine 13	ER2 Exposed calcareous rock / WN2 Oak-ash-hazel woodland mosaic	0.18 ha
	TOTAL	**0.89 ha**

Table 8: Scattered Scrub Management (sensitive habitats)

Location	Habitat(s)	Area
Turbine 1	ER2 Exposed calcareous rock	0.01 ha
Turbine 2	ER2 Exposed calcareous rock, GS1 Dry calcareous and neutral grassland	0.82 ha
Turbine 3	ER2 Exposed calcareous rock	0.19 ha
Turbine 4	ER2 Exposed calcareous rock	0.02 ha
Turbine 5	ER2 Exposed calcareous rock, GS1 Dry calcareous and neutral grassland	3.68 ha
Turbine 10	ER2 Exposed calcareous rock	0.06 ha
Turbine 11	ER2 Exposed calcareous rock	0.81 ha

Turbine 13	ER2 Exposed calcareous rock	0.30 ha
Area 1	HD1 Dense bracken / GS1 Dry calcareous and neutral grassland / HH2 Dry calcareous heath mosaic	1.03 ha
Area 3	GS1 Dry calcareous and neutral grassland	2.27 ha
	TOTAL	**9.19 ha**

2.1.1.2. Monitoring and measures of success

Annex I habitat monitoring thresholds for scrub cover targets should be applied outside of the 109 m bat buffer surrounding turbines where management is undertaken. Outside of these areas Annex I habitat monitoring specifications set scrub cover targets below which the attribute is considered to be favourable for that habitat type. Semi-natural dry grasslands & scrub facies on calcareous substrates [6210] the collective cover of scrub, bracken and heath (woody species) < 5% (Martin *et al*., 2018), for European dry heaths cover of scattered native trees & shrubs < 20% (Perrin *et al*., 2014), and for Limestone pavement (exposed) (8240) – scrub cover ≤ 25% (Wilson & Fernández, 2013).

Monitoring of the success of the scrub management will be undertaken (following the assessment methodology relevant to the habitat (Perrin *et al*., 2014; Wilson & Fernández, 2013; O'Neill *et al.*, 2013; and Martin *et al*., 2018)) and reported in Year 1, 2, 3 and 5. This will involve periodic inspections over the first year followed by annual monitoring for the next two years. Additional monitoring will occur in Year 5. Success will be measured by reducing scrub cover levels below target thresholds. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

Where scrub or tree management forms part of the operational bat-mitigation strategy, the requirement to maintain the prescribed vegetation conditions will continue throughout the operational lifetime of the wind farm. Following Year 5, periodic inspection and remedial management will continue at a frequency sufficient to ensure that woody regrowth does not compromise the applicable turbine separation distance.

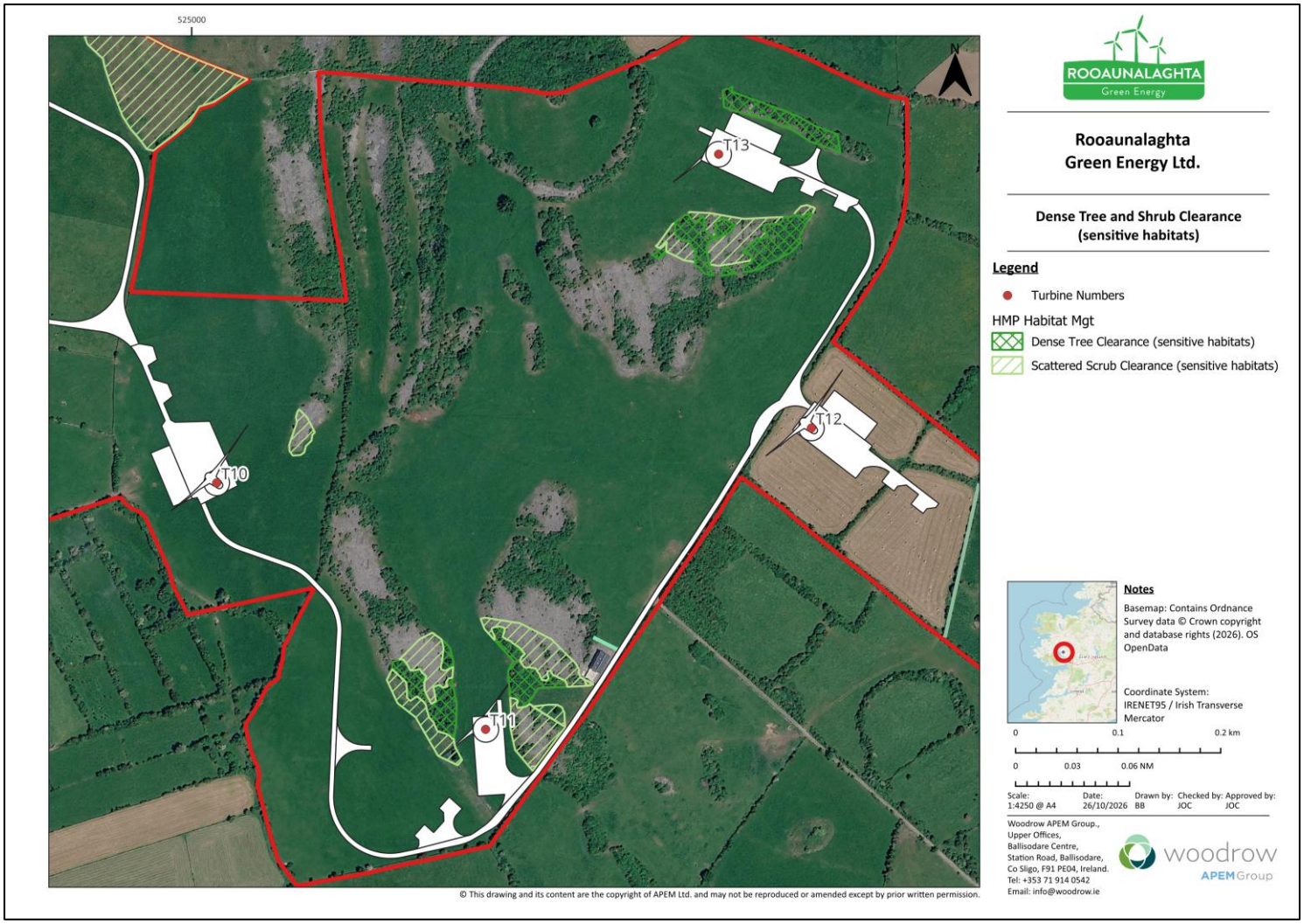


Figure 3: Tree and scrub management on sensitive habitats at T10, T11 and T13.

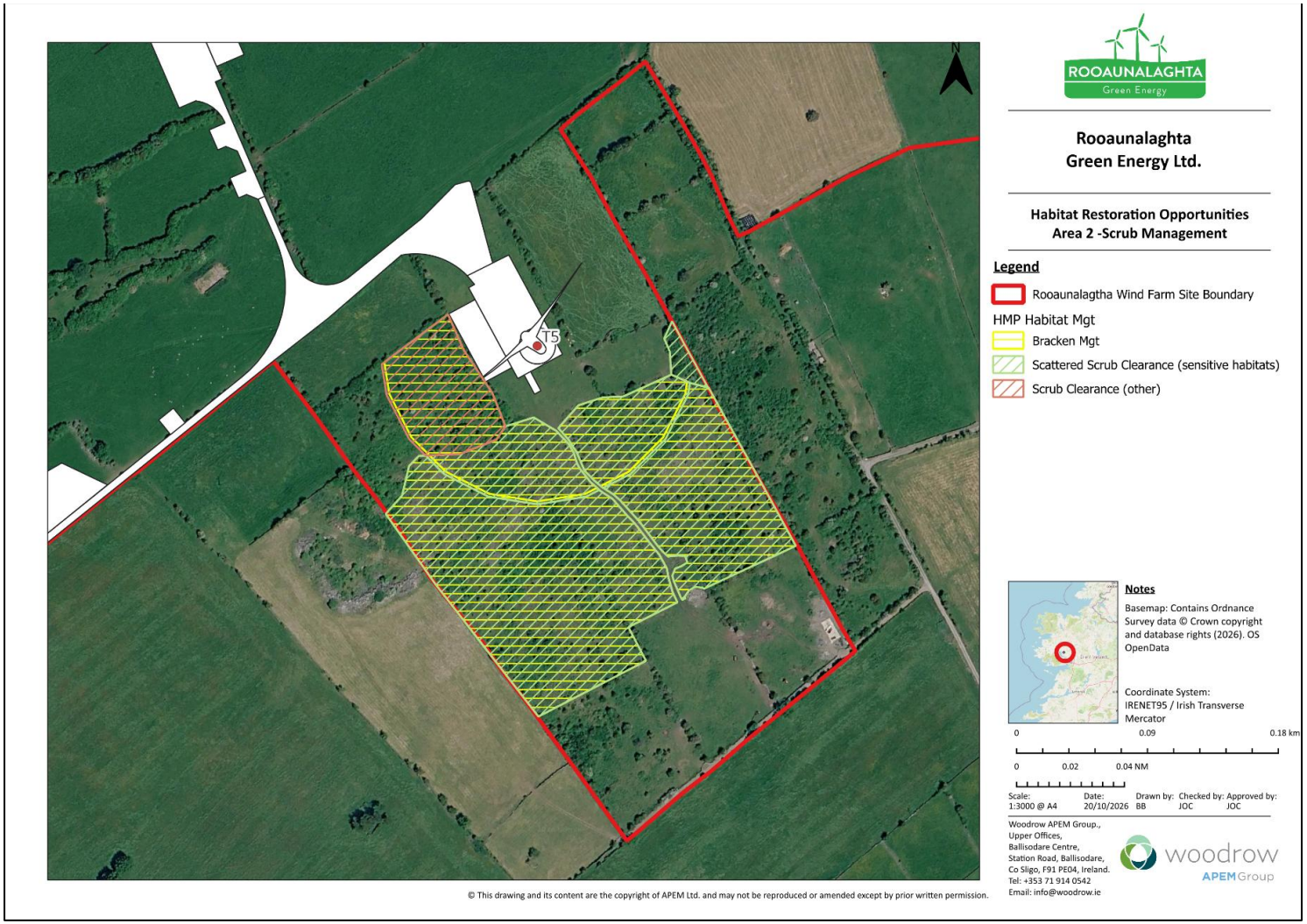


Figure 4: Scrub management at T5.

2.2. Tree and scrub clearance from non-annex I habitats

The management objectives are to reduce the risk of bat collision and barotrauma by clearing scrub (and bracken) within a 109m buffer of T5. In areas of lower ecological value (non-Annex I habitats) tree and scrub clearance can be undertaken using the methods described above (in **section 2.1**), however the areas to the west of T5 (**Figure 4**) can be managed using alternative techniques.

2.2.1. Mechanical scrub management

The following sets out measures to control scrub and scattered small trees using machinery in areas of lower environmental value than those set out in **section 2.1**. Mechanical scrub removal can be a cost-effective and time-efficient method of scrub management. Large areas of scrub can be removed in a relatively short period of time when compared to using hand tools. However, machinery has the potential to damage habitats, geology and archaeology and must not be used where such damage may occur.

2.2.1.1. Method

Best practice guidance on the use of machinery to control scrub is taken from the Agri-Climate Rural Environment Scheme (DAFM, 2026a):

- Scrub can only be cut outside of the bird nesting season (from 1 September to end of February).
- All target scrub within the mapped area should be removed with a machine-mounted flail or mulcher.
- The use of a machine-mounted brushcutter/flail or tractor mounted topper/hedge trimmer is permitted.
- All mature trees (over 2.4 m tall) outside of the 119 m turbine vegetation-management buffer applicable to vegetation of 15 m height or greater should be retained (see Section 1.5.5 and EIAR Chapter 6).
- Monitor managed areas and spot-treat any regrowth with an appropriate approved herbicide.

2.2.2. Scrub management using hand tools

The following sets out measures to control scrub and scattered small trees using hand tools in areas of lower environmental value than those set out in **section 2.1**.

2.2.2.1. Method

Best practice guidance on the use of hand tools to control scrub taken from the Agri-Climate Rural Environment Scheme DAFM, 2026a):

- Scrub can only be cut outside of the bird nesting season (from 1 September to 28 February).
- Scrub should be cut as low as possible, i.e., less than 30 cm above the ground when using a chainsaw/ bladed strimmer.
- All brash (cut scrub) should be gathered and piled up in suitable locations (outside of the 109 m bat buffer) and left to rot down. Brash should be piled into large, consolidated piles where possible in order to minimise their surface area on priority habitat. Brash may also be piled underneath mature woodland or mature trees.

- Where accessible, the brash may be chipped and removed from site.
- Trees such as oak (*Quercus* spp.), ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), holly (*Ilex aquifolium*), which may be present within the mapped area of scrub and are outside the 119m buffer surrounding T5, should not be cut.
- Treat cut stumps with an appropriate approved herbicide to reduce regrowth.
- Subsequent scrub regrowth must be controlled using the same methods.

Table 9: Scrub Management (non-Annex I habitats)

Location	Habitat(s)	Area
Turbine 5 (within bat buffer)	HD1 Dense bracken / WS1 Scrub	0.51 ha
	TOTAL	**0.51 ha**

2.2.3. Monitoring and measures of success

Annex I habitat monitoring thresholds for scrub cover targets should be applied outside of the 109 m bat buffer surrounding T5. Semi-natural dry grasslands & scrub facies on calcareous substrates [6210] has the collective cover of scrub, bracken and heath (woody species) < 5% (Martin *et al*., 2018).

Monitoring of the success of the scrub management will be undertaken and reported in Year 1, 2, 3 and 5. This will involve periodic inspections over the first year followed by annual monitoring for the next two years. Additional monitoring will occur in Year 5. Success will be measured by reducing scrub cover levels below target thresholds. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

2.3. Bracken management

The management objectives include the management of Bracken, a common fern in the Irish countryside but was originally a woodland species which has spread into many other habitats. It tolerates a range of soil types from very acidic to very alkaline. Under certain conditions bracken can become dominant and where it does so; it can shade out less competitive vegetation leading to the loss of rare and protected heath, and high-quality grassland habitats (DAFM, 2026a). Repeated cutting of bracken is a management technique that has been used to return bracken-dominated sites back to acid grassland/heathland mosaics (Cox *et al*., 2008).

Management of bracken should be undertaken with care; bracken is carcinogenic to humans, and it is also associated with a high occurrence of ticks and can increase the likelihood of transmission of Lyme disease. To reduce the risk, avoid entering areas of mature bracken particularly from August to October (inclusive) (DAFM, 2026a).

2.3.1. Method

Three areas have been identified for bracken management (see **Table 10** and **Figure 2**) including the mosaic habitat area featuring GS1 dry calcareous and neutral grassland and HH2 dry calcareous heath,

as well as areas to the west and south of T5 including GS1 dry calcareous and neutral grassland. Within these areas the bracken should be controlled either by strimming or by other larger scale mechanical methods (cut, rolled or bruised). Best practice guidance on bracken management has been adapted from the Agri-Climate Rural Environment Scheme The methodology described below is used in Agri-Climate Rural Environment Schemes (DAFM, 2026a):

- The habitat enhancement area should be inspected by an appropriately experienced ecologist for ground nesting birds. Should any be detected or suspected then those areas should be avoided.
- All Bracken within the habitat enhancement area must be strimmed or mechanically controlled at least twice in the one calendar year, firstly between May 1st and June 15th and the second 6 weeks later but no later than July 31st.
- Strimming / cutting are the preferred control methods in May or early June on young fronds that have not fully unfurled, whereas Bracken bruiser is more effective on fronds that are fully developed in June.
- Where bracken is mixed with bramble (*Rubus fruticosus* agg.) or other scrub, cutting other vegetation with a flail cutter the previous winter may facilitate access for treatment of bracken later in the year.
- Follow up treatment is required and should be considered in at least two consecutive years (to be informed by monitoring). If there is no commitment to follow up treatment bracken will recover.

The management areas listed in **Table 10** are larger than the 1 ha limit used in the Agri-Climate Rural Environment Schemes (DAFM, 2026a). the areas detailed are for the whole management area and active bracken control will be targeted at the locations where it occurs rather than across the whole area.

Table 10: Bracken Management

Location	Habitat(s)	Area
Area 1	HD1 Dense bracken / GS1 Dry calcareous and neutral grassland / HH2 Dry calcareous heath mosaic	1.03 ha
Turbine 5 (within bat buffer)	GS1 Dry calcareous and neutral grassland, HD1 Dense bracken / WS1 Scrub mosaic	1.22 ha
Turbine 5 (outside bat buffer)	GS1 Dry calcareous and neutral grassland, HD1 Dense bracken / WS1 Scrub mosaic	2.90 ha
	TOTAL	**5.15 ha**

2.3.2. Monitoring and measures of success

Cutting or bruising of bracken will not eradicate bracken from the mosaic habitat but should reduce the frond density and height. To achieve favourable cover levels for the Annex I habitats such as European dry heaths [4030] then the cover of bracken should be < 20% (Perrin *et al*., 2014).

Monitoring of the success of the bracken management will be undertaken (following the assessment methodology relevant to the habitat (Perrin *et al*., 2014; O'Neill *et al.*, 2013; and Martin *et al*., 2018)) and reported in Year 1, 2, 3 and 5. This will involve periodic inspections over the first year followed by annual monitoring for the next two years. Additional monitoring will occur in Year 5. Success will be measured by reducing bracken cover levels below target thresholds. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

2.4. Short sward management

Management objectives include managing the area within a 104 m buffer surrounding each turbine to maintain a short sward ≤ 10 cm in height, thereby reducing habitat suitability for bats and the risk of bat collision and barotrauma. Management may include grazing, cutting or a combination of both active intervention methods.

2.4.1. Method

- Manage by grazing, cutting or a combination of both, to maintain a sward height of 10cm or less.
- Avoid overgrazing resulting in poaching and bare ground exceeding 10% of the area.
- Cut bracken and scrub to ensure vegetation height targets are met.

2.4.2. Monitoring and measures of success

Monitoring of short-sward management will be undertaken annually during Years 1–5 using a structured walkover survey with sward-height measurements taken at intervals along a W-shaped survey pattern. Where sward height exceeds 10 cm, remedial management will be undertaken within one month of the monitoring visit. Thereafter, the prescribed sward condition will continue to be maintained for the operational lifetime of the wind farm, with periodic inspection undertaken at a frequency sufficient to confirm continued compliance with the mitigation requirement.

2.5. Grassland reinstatement following temporary habitat loss

Management objectives are to reinstate areas of grassland habitat temporarily lost due to construction activities to permanent grassland following completion of construction works. Temporary habitat loss largely occurs in improved agricultural grassland (GA1) and other associated habitats that have been ecologically valued as local (lower) importance. However, temporary loss of semi-natural grasslands (i.e. dry calcareous and neutral grassland (GS1), dry meadows and grassy verges (GS2)) may occur within the construction footprint buffer beyond the extent of land take required for the infrastructure.

Temporary wind farm infrastructure includes blade areas, turning heads, temporary compounds and the access track to the quarry to the north of the proposed wind farm development. In addition, buffer areas surrounding the wind farm infrastructure have been applied to recognise the potential for temporary loss of habitat during construction activities. Areas of grassland reinstatement are detailed in **Table 11.**

Reinstatement of grassland habitat shall be undertaken as soon as practicable following completion of construction, subject to suitable ground and weather conditions. Where practicable, sowing should

take place during the main growing season when soils are sufficiently warm and moist to permit rapid germination and establishment. Spring and early summer establishment is preferable where the construction programme allows.

Table 11: Grassland Reinstatement

Location	Habitat(s)	Area
Across proposed wind farm development	GA1 Improved agricultural grassland	6.47 h ha
Onsite substation area east of T7	GS1 Dry calcareous and neutral grassland (as part of HD1 Dense bracken / GS1 Dry calcareous and neutral grassland / HH2 Dry calcareous heath mosaic)	0.06 ha
Access track to quarry north of proposed wind farm development	GS2 Dry meadows and grassy verges	0.11 ha

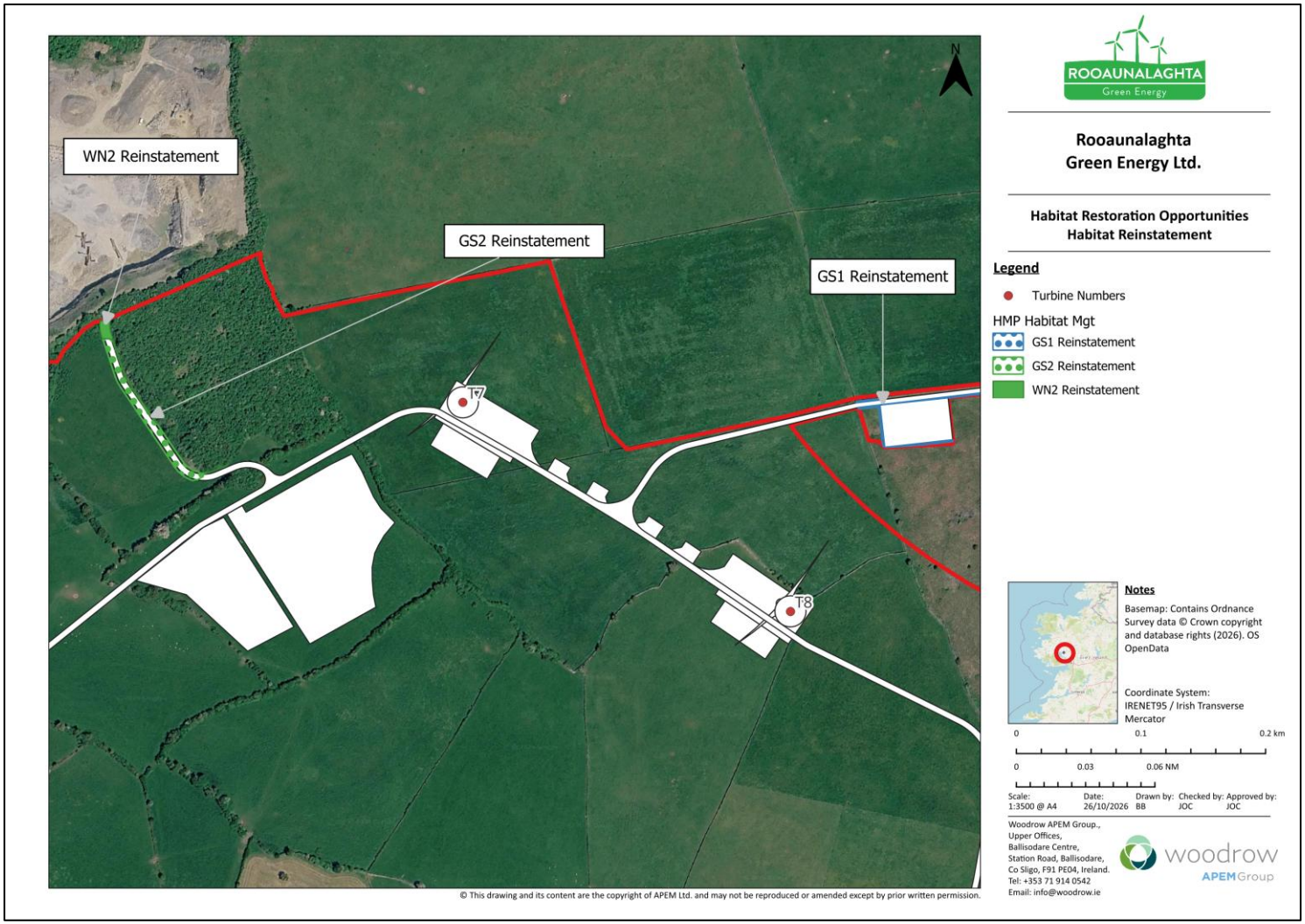


Figure 5: Species-rich Grassland and Woodland Reinstatement.

2.5.1. Ground Preparation (all grassland types)

2.5.1.1. Soil Compaction

Chapter 8 described the sensitivity of the underlying soils to soil compaction and erosion from the construction works to be considered as low on a local scale. However, each area to be reinstated to grassland should be assessed to confirm this before restoration measures are to be implemented. Should soil compaction be identified then this should be addressed through cessation or reduction of vehicle movement, particularly during periods of high soil moisture. Where significant compaction has been identified, appropriate low-disturbance mechanical aeration may be undertaken during suitably dry soil conditions on a limited basis.

2.5.1.2. Topsoil replacement

Topsoil removed from areas subject to temporary construction disturbance shall be retained for subsequent reinstatement and, as far as practicable, reinstated in the area from which it was originally excavated.

- Stored topsoil shall subsequently be spread evenly over the reinstatement area to approximately the original topsoil depth, in so far as practicable, thereby re-establishing the pre-construction soil profile.
- Topsoil shall not be excessively compacted during placement. Wherever practicable, placement shall be undertaken progressively so that machinery does not repeatedly traffic over newly reinstated topsoil. The final surface shall be lightly cultivated, where necessary, to relieve surface compaction and produce an appropriate tilth for establishment of vegetation.
- Finished ground levels shall tie smoothly into the surrounding undisturbed ground and shall reflect the pre-construction landform as far as practicable.

2.5.1.3. Weed species

Areas to be reinstated to grassland should be assessed for the presence of pernicious weed species, both native species such as creeping thistle (*Cirsium arvense*) and broadleaved dock (*Rumex obtusifolius*) but also non-native invasive species. Weed species tend to be good competitors and can compromise the establishment of species-rich grassland swards.

Weed species must be controlled before the sward can be reinstated. To avoid damaging the adjacent semi-natural grassland habitats, any application of herbicide should avoid damaging non-target species (e.g. apply herbicides to target species by spot treating or weed wiping).

2.5.2. Improved Grassland Reinstatement

GA1 improved agricultural grassland is the most abundant habitat to be lost during the construction of temporary infrastructure within the proposed wind farm development. These habitat areas will be reinstated to permanent grassland following the completion of construction works.

2.5.2.1. Method

The following steps have been developed from Teagasc (2017) and DAFM (2026b):

- The seed mixture shall comprise an agricultural grass mixture appropriate to the future management of the land, based predominantly on perennial ryegrass (*Lolium perenne*). White

clover (*Trifolium repens*) may be incorporated where appropriate. Grass and clover varieties shall be selected from the current DAFM Grass and White Clover Recommended List and/or Teagasc Pasture Profit Index. An indicative sowing rate (subject to consultation with the landowner/ farmer to ascertain future grassland management requirements) for a conventional grass/clover sward is 25–28 kg/ha grass seed together with 2.5–5.0 kg/ha medium-leaved white clover where required.

- Prepare a fine, firm and level seedbed, rather than loose cultivated soil. Plough or otherwise cultivate the existing sward/soil as appropriate to produce a fine, firm and level seedbed. Avoid excessive cultivation, particularly on wet soils, as this can damage soil structure. Roll before sowing if the seedbed is loose.
- Seed shall be sown using an appropriate seed drill, grassland seeder or broadcast method capable of providing an even distribution. Sowing depth will be approximately 10 mm, particularly because white clover seed should not be buried too deeply.
- Following sowing, the area shall be rolled using suitable agricultural equipment when soil conditions permit to provide good seed-to-soil contact.
- The establishing sward shall be monitored for excessive weed growth. Where weed control is required, preference should be given to proportionate management appropriate to the weed species present and the intended grassland use.
- Where herbicide treatment is considered necessary:
  - the product shall be approved for its intended use in Ireland.
  - label instructions and statutory conditions shall be followed.
  - treatment shall take account of the presence of clover.
  - application shall be undertaken by an appropriately qualified professional user where required.
  - all applicable watercourse and aquatic buffer zones shall be observed.
- Livestock shall be excluded until the new sward is sufficiently established to withstand grazing without significant uprooting or poaching. Once the sward is sufficiently established, light grazing may be undertaken to encourage tillering.

2.5.2.2. Monitoring and measures of success

Monitoring of the success of reseeded areas will be undertaken in Year 1, 2, 3 and 5 post re-seeding. This will involve periodic inspections over the first year followed by annual monitoring for the next two years. Additional monitoring will occur in Year 5. Success will be measured by achieving a sward coverage of over 90%. Any necessary remedial actions, such as weed control, reseeding or stabilising the ground, will be identified and addressed within one year of each monitoring visit.

2.5.3. Semi-natural grassland reinstatement

The objective of semi-natural grassland reinstatement is to restore temporarily affected areas to vegetation broadly comparable in composition, structure and ecological function to the corresponding pre-construction habitat and/or an appropriate nearby reference habitat. While the impacted areas would have remnant vegetation immediately adjacent, and natural recolonisation from the remnant habitat would be expected, the use of green hay to speed up the recolonisation using donor material from on the site will be undertaken. Green hay has been used to successfully create species-rich

grassland in Ireland and the UK (Kirkham *et al*., 2013; Sullivan *et al*., 2020; Great Irish Grasslands, 2022). These habitat restoration works will be undertaken in the construction buffer areas:

- Access road and around the onsite substation and associated access track within HD1 dense bracken/ GS1 dry calcareous and neutral grassland / HH2 dry calcareous heath mosaic habitat.
- Along the route of the access track running through existing areas of GS2 dry meadows and grassy verges to Lydon Quarry to the north of the proposed wind farm development.

Green hay transfer is considered to be a nature-based solution developed for grassland restoration and reinstatement. It is achieved by the transfer of recently mown grassland cuttings originating from donor sites, in this case retained semi-natural grassland nearby, with a desired species composition, to areas that are being reinstated (i.e. receptor sites). The main advantages of using green hay are that it is a good means of ensuring that fresh seed, from a local source, is used. In addition, a wider range of species may be contained in green hay than is available as seed.

2.5.3.1. Method

The following steps have been derived from Blakesley and Buckley (2016), Wagner *et al*. (2021), Great Irish Grasslands (2022) and Valkó *et al*. (2022) for green hay transfer:

- Donor sites of high-quality semi-natural grassland (in terms of species richness) will be identified, in this case adjacent similar grassland within the proposed wind farm development, as close to the receptor sites as possible;
- The sward of the donor site must be left uncut and ungrazed for between 8 to 12 weeks prior to collecting green hay. This will allow the plants to flower and set seed. Where the donor site is a traditionally managed species rich hay meadow it should be cut at the usual time for that site (usually from mid-July). Most plants in those meadows will have completed flowering and set-seed by hay cutting time, as a consequence of years of such management.
- Donor sites will be checked for grass and wildflower seed production from July onwards, in order to avoid cutting hay too late in the season. (Note: care should be taken if cutting is taking place within the main bird breeding season, which is 1 March to 31 August, inclusive, in locations that aren't usually managed by cutting);
- As a guide, a ratio of 1:3 donor to receptor area will need to be cut. Therefore, donor areas of approximately 0.02 ha of GS1 dry calcareous and neutral grassland and 0.04 ha of GS2 dry meadows and grassy verges will be required.
- The receptor site should be prepared prior to spreading green hay. A fine, firm and level seedbed should be prepared. Where an existing sward persists but is being restored it is necessary to achieve a short sward with 40-50% bare ground.
- As the donor areas GS1 dry calcareous and neutral grassland is relatively small, cut the vegetation with a brush cutter or power scythe. Then either fork the herbage into a trailer and fork it out onto the receptor site or row up the herbage and bale it with a mini baler. Unroll the bales and fork them out onto the receptor area.
- For the slightly larger GS2 dry meadows and grassy verges grassland either cut using the same methods or use a tractor and mower, collecting with a round baler and spreading with a clean rear discharge muck spreader.
- Cut material should be collected within 24 hours of cutting and should not be wilted or turned. Once collected the green hay must be immediately transported to and spread on the receptor site. Green hay cannot be stored for more than a few hours before it heats up. Any heating will threaten the viability of the seeds.
- The hay should be spread thinly and evenly so that it does not create a mulch which will inhibit seed germination. Leave the hay for at least one week in dry weather, or three weeks in wet weather, to allow seed to fall. After this period allow stock (ideally cattle) to graze the site and trample out and bed in the seeds. Alternatively, roll the site lightly.
- In the period immediately after hay spreading (usually July - November), the sward should be kept short so that light can aid germination. This is best done by short periods of intensive grazing. Alternatively, the sward can be cut and the cuttings removed. Prolonged grazing should initially be avoided in order to reduce the risk of seedlings being selectively grazed.
- In the first spring, it will be necessary to cut or graze the sward to avoid seedlings being shaded out by the existing vegetation. A short period of intensive grazing, or cutting (with the cuttings removed) is required.

- Any perennial weeds which have colonised should be controlled early on, e.g. by spot treatment with herbicide. Any annual weeds are likely to be controlled by the regular cutting or grazing outlined above.
- In subsequent years, the re-instated semi-natural grassland areas should be managed as per the adjacent areas of similar habitat.
- Where monitoring identifies that establishment of positive indicator species for the target habitat has been low then process of applying green hay should be repeated.

2.5.3.2. Monitoring and measures of success

Monitoring of the success of reseeded areas will be undertaken and reported annually (applying the survey methodology set out in relevant guidance (O'Neill *et al*., 2013 and Martin *et al.*, 2018)). This will involve periodic inspections over the first year followed by annual monitoring for the next two years. Additional monitoring will occur in Year 5. Success will be assessed by comparison with the pre-construction baseline and an appropriate nearby reference/donor area, considering vegetation cover, species composition, characteristic positive indicator species, undesirable or invasive species, vegetation structure and evidence of successful establishment. The grass: broadleaf-herb ratio will be recorded as a supporting metric rather than used as the sole measure of restoration success.

Evaluation of vegetation structure and species composition will be conducted using a 2 m x 2 m relevé in July of each monitoring year in Year 1, 2, 3 and 5 post re-seeding, coinciding with the peak flowering period for most plants. Any necessary remedial actions, such as reseeding or stabilizing the ground, will be identified and addressed within one year of each monitoring visit.

2.6. Woodland reinstatement following temporary habitat loss

Management objectives are to reinstate a small area (0.02 ha) of woodland habitat temporarily lost due to construction activities to back to permanent woodland equivalent to WN2 Oak-ash-hazel woodland lost to the construction of an access track to the quarry to the north of the proposed wind farm development. As retained woodland habitat occurs immediately adjacent and the planting area is 8 m wide the planting area it is not proposed to establish ground flora species instead these will be allowed to naturally recolonise the area.

2.6.1. Broadleaved woodland reinstatement

The following sets out measures to plant, establish and maintain a woodland species mix based around guidance produced by Woodlands of Ireland (Little *et al.*, 2009; Cross *et al*., 2010). The establishment methodology will be:

- Planting will be undertaken in the appropriate season (October to March) however, periods of heavy rain, frost or snow should be avoided.
- A robust and varied planting pattern tends to work best, with a combination of planted clumps and open areas being recommended,
- Ground preparation will be limited to inverted mounding, shallow ripping, pit planting or auger planting.
- Planting material will be of native origin or Irish provenance, preferably grown from locally sourced seeds.

- Woodland planting will include pedunculate oak (*Quercus robur*), hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), holly and wild cherry (*Prunus avium*). Due to the plant health risks ash will not be planted. No one species makes up more than 70% of the total number of plants.
- 50 tree or shrub saplings should be planted within the 0.02 ha.
- Trees will be left to mature without cutting and protected with a tree guard.
- The control of competing vegetation such as grasses and bramble will be controlled through organic mulching (e.g. wood chip, straw), trampling where practical or strimming around the hedgerow plants during the first and second year to ensure the new plants are not outcompeted by weeds. Do not strim the saplings.
- Leaf litter and dead wood arising naturally or from management of the woodland will be left in-situ in order to create habitat for invertebrates.
- Stockproof fencing should be erected to prevent livestock access to the planted area.
- Do not use herbicide to control weeds but, if necessary, a non-drip weed wipe can be used by a suitably qualified contractor to control invasive species.
- Failed or dead plants (identified during monitoring) will be replaced the following planting season.

2.6.2. Monitoring and measures of success

Periodic inspections of newly planted woodland will be undertaken within the first year. The primary aim of these inspections will be to assess growth, identify failed plants or invasive species, and determine whether competing vegetation will need to be controlled. Annual monitoring will continue for the following two years, with a final assessment conducted during Year 5. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

3. BOUNDARY / LINEAR HABITAT MANAGEMENT

3.1. Stone wall creation and repair

Management objectives are to create new lengths of Stone wall and restore or repair existing sections. Stone walls form the most widespread field boundary type across the proposed wind farm development and will be maintained and enhanced as important landscape features, while improving livestock grazing control and landscape connectivity for wildlife, including bats.

3.1.1. Stone wall creation

The following sets out measures to create new lengths of stone wall within the proposed wind farm development using stone from walls being lost to construction of wind farm infrastructure. New dry-stone walls shall be constructed using locally sourced stone of a lithology, size and character consistent with existing traditional field walls within the surrounding landscape.

3.1.1.1. Method

Guidance on establishing stone walls was consulted (TCV, 1999; Clare County Council, 2026) and the following steps provide a guide for freestanding double dry-stone walls but may be adapted to maintain local walling styles and traditions:

- Study nearby traditional walls and reproduce the local construction technique. Existing traditional walls in the surrounding area shall be used as the reference for wall dimensions, batter, stone arrangement and coping style.
- Walls shall be constructed without mortar using traditional local dry-stone walling techniques.
- Use wooden profiles and string lines where appropriate to control the wall profile.
- Foundations shall be comprised of suitably large, stable stones and shall be wider than the wall above.
- The foundations (or footings) should be set in a trench a few centimetres wider than the wall, dug down to a firm base.
- Use the biggest stones, except those that are good for coping, wallheads or throughstones to form the foundations but they should be steady and unable to slip. Place the long edges of the stone into the wall whenever possible.
- Pack between the footings with angular, free draining hearting stones.
- Above the foundation layer, stone shall generally be laid on its natural bedding plane in horizontal courses (lines of stones of even height) for ease of construction, strength and appearance. Use the biggest stones in the bottom of the wall and the smallest in the top.
- Place stones level or dipping outwards slightly and where possible with the long edge into the wall.
- Try to ensure that each joint in one course is bridged by a stone in the next course.
- Use solid angular stones to act as hearting stones, keeping them at or just below the level of the face stones.
- Throughstones should be located at regular intervals straddling the wall, tying the two sides of the wall together to stop it bellying out and collapsing. They can be slightly longer than the wall's width but must not be shorter. Ensure that they pin all the stones below them.
- Voids between larger facing stones shall be packed using smaller stones or spalls, while retaining appropriate small cavities within the completed structure.
- Coping shall reflect the traditional form exhibited by existing walls within the locality. Keep the top of the coping even by using a line. Avoid wedging the stones to keep them steady.
- As the wall head is the wall section least well supported and most prone to damage, therefore these should be constructed using the largest and most rectangular stones available.

For freestanding single dry stone walls:

- The wall is constructed using a single stone in width.
- Larger stones are used lower down the wall and smaller stones higher up resulting in the wall getting thinner higher up the wall than lower down.

3.1.1.2. Monitoring and measures of success

Periodic inspections of newly created stone walls will be undertaken to identify any lengths that require repair. Monitoring shall assess the structural integrity and continuity of the wall, evidence of

damage or collapse, development of vegetation, establishment of invasive non-native species and evidence of use by fauna. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

Monitoring visits should be undertaken in year 1 post construction, in year 3 and again in year 5.

3.1.2. Stone wall restoration / repair

The management objectives are to address gaps in the walls, as these no longer act as barriers to livestock movement and their value as connecting habitats across the landscape is reduced. The following set out measures to restore/repair lengths of stone wall within the proposed wind farm development that have collapsed or have been identified as being unstable such that they no longer act as a field boundary feature capable of retaining livestock within the field area. Restored/repaired dry-stone walls shall be constructed using locally sourced stone of a lithology, size and character consistent with existing traditional field walls within the surrounding landscape.

3.1.2.1. Method

Guidance on establishing stone walls was consulted (TCV, 1999; Clare County Council, 2026) and the following steps provide a guide for freestanding double dry stone walls but may be adapted to maintain local walling styles and traditions:

- Study nearby traditional walls and reproduce the local construction technique. Existing traditional walls in the surrounding area shall be used as the reference for wall dimensions, batter, stone arrangement and coping style. Walls shall be constructed without mortar using traditional local dry-stone walling techniques.
- Construct wall as described above for new stone walls (**Section 3.1.1**).
- Remove and sort all the unstable stones so that you have a firm base to work from. Separate out coping stones.
- Use the old stone for rebuilding – don't clean off old moss and vegetation and ensure any additional stone used is of the same type as the original.
- Step the ends of the gap so that you can tie in the new wall.

3.1.2.2. Monitoring and measures of success

Periodic inspections of newly created stone walls will be undertaken to identify any lengths that require repair. Monitoring shall assess the structural integrity and continuity of the wall, evidence of damage or collapse, development of vegetation, establishment of invasive non-native species and evidence of use by fauna. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

Monitoring visits should be undertaken in year 1 post construction, in year 3 and again in year 5.

3.2. Hedgerow Creation and Enhancement

The management objectives are to maintain and enhance Hedgerows, which are an important habitat in the Irish landscape. The total length of hedgerows within the proposed wind farm site was recorded

as approximately 2.51 km, along with approximately 6.00 km of treelines (including overgrown hedgerows). Hedgerows across the site are largely associated with stonewalls and act as field boundaries. Hedges have a wide range of benefits including shelter for both livestock and crops, biodiversity through producing seeds and pollen and nesting habitats, water filtration, carbon sequestration and wildlife corridors (DAFM, 2026a). Hedgerow creation aims to increase the length of these boundaries within the proposed wind farm development, while enhancement aims to improve and fill in hedges that have been damaged or mismanaged in the past. The stockproof element and shelter for animals will be improved by this measure.

In addition to implementing enhancement measures, all retained hedgerows will be safeguarded by establishing a setback from the edge of the hedgerow vegetation, ensuring protection from construction activity.

3.2.1. Hedgerow creation

Hedgerow creation will typically take place adjacent to existing stone walls as occurs elsewhere across the proposed wind farm site. The establishment of hedgerows in these locations is aimed at enhancing these routes for bat commuting across the landscape avoiding the areas immediately surrounding the turbines. Prior to planting, the final alignment of all new hedgerows will be checked against the turbine vegetation-management buffers and bat-mitigation requirements. New planting will not be undertaken where it would increase habitat suitability for foraging bats within the prescribed turbine separation distance or create a new commuting feature directing bats towards turbine locations. A total of approximately 0.76 km of new hedgerow will be created across the proposed wind farm site.

The time taken for a planted hedgerow to develop can be influenced by a number of factors including the species planted, climatic conditions, herbivory, etc. However, typical timescales for hedgerow creation:

Establishment phase (0-5 years) – The hedge develops root systems and begins forming a dense structure and continuous cover.

Functional hedge development (5-10 years) – Hedge begins to function as a continuous hedge if maintained appropriately.

Maturing hedgerow structure (10-20 years) – Hedges generally start developing the height, width, woody structure, flowering and fruiting characteristics typically associated with a mature hedgerow habitat.

Mature hedgerow (20+ years) – Greater structural diversity, flowering and fruiting tends to support higher biodiversity value as they have more opportunities to support greater numbers of nesting birds, invertebrates, fungi, lichens and associated flora.

3.2.1.1. Method

Best practice guidance on establishing and maintaining hedgerows was consulted (e.g. Teagasc, 2010; Teagasc, 2022; Teagasc, 2024, DAFM, 2026a). The following steps will be adopted during planting to maximise successful establishment of new hedgerows and treelines:

- Planting will be undertaken in the appropriate season (October to March) however, periods of heavy rain, frost or snow should be avoided.

- Areas for hedgerow planting will be marked out using wire or twine (area of c. 1.2-1.5m in width).
- The ground between twines will first be prepared by scraping away vegetation with a mini-digger or small excavator, or cultivated to prepare the ground to be planted and reduce competition from weeds.
- Use 2 year-old bare root stock (i.e. whips). Plants will be of native origin or Irish provenance, preferably grown from locally sourced seeds. Source a diversity of appropriate species so that no one species makes up more than 70% of the total number of plants.
- Hedgerow planting will include the following species: hawthorn, blackthorn (*Prunus spinosa*), holly, hazel, dog rose (*Rosa canina*), spindle (*Euonymus europaeus*) and guelder rose (*Viburnum opulus*).
- Additional native species to use as trees within a stockproof hedge include: pedunculate oak, crab apple (*Malus sylvestris*), rowan and wild cherry.
- Plants will be protected from drying out by keeping plants in a bag until needed.
- Planting of 5 native shrubs per meter will be performed to the appropriate depth, with stems exposed and roots buried, in double staggered rows, with *c*. 33cm between the rows and the same between each plant.
- Plant one native-species tree every c. 50 m along the stockproof hedge. These can also include hedgerow species such as hawthorn, holly and hazel. Mark selected tree saplings to be left to mature unmanaged without being pruned or topped, to enhance hedgerow structure.
- Tree guards will be used to protect tree saplings from herbivory and/or mechanical damage and ensure establishment success.
- Erect a fence c. 1 m from the newly established hedgerows to protect saplings from livestock and reposition fence as hedge expands.
- Reduce competition from other vegetation either by depositing organic mulch (e.g. wood chip, straw) around all plants or strimming around the hedgerow plants during the first and second year to ensure the new plants are not outcompeted by weeds. Do not strim the saplings.
- Do not use herbicide to control weeds but, if necessary, a non-drip weed wipe can be used by a suitably qualified contractor to control invasive species.
- Hedgerows will be watered during the first year to assist with establishment (Note: watering to be adapted based on weather conditions).
- Light pruning will be adopted during the establishment phase (Years 1-5) in order to shape the hedge and encourage denser growth at the base.
- Herbicide application will not generally be used, but if absolutely necessary, a non-drip weed wipe will be used to control invasive species.
- Prune stockproof hedges c. 10 cm above ground level after planting (except for the aforementioned tree saplings and holly saplings).
- Hand prune new hedges during winter (years 1-3) to encourage dense basal growth by cutting saplings back to c. 30 cm of current year's growth.
- Failed or dead plants (identified during monitoring) will be replaced the following planting season.

3.2.1.2. Monitoring and measures of success

Periodic inspections will be undertaken within the first-year post-planting, in order to assess growth and identify failed plants or invasive species. Annual monitoring will continue for the following two years to assess early-establishment, during which time, hedgerows will be subject to a condition assessment following the Heritage Council's Hedgerow Appraisal System (Foulkes et.al., 2013). This will assist in identifying management issues pertaining to weed control, gaps that need to be filled, as well as any fencing damage (where required). A final assessment will be conducted during Year 5 to act as an establishment review, at which time hedgerows should meet the criteria from 'Adequate' to 'Favourable' condition. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

3.2.2. Hedgerow and treeline enhancement

Hedgerow and treeline enhancement will typically take place along sections were the hedgerow or treeline features gaps resulting in breaks in the habitat connectivity across the landscape. The enhancement of hedgerows and treelines in these locations is aimed at enhancing these routes for bat commuting across the landscape avoiding the areas immediately surrounding the turbines. A total of 0.86 km of hedgerow and treeline enhancement is proposed, targeting sections where connectivity is currently reduced and where enhancement can provide the greatest ecological benefit for bat movement across the site. Prior to gapping-up or enhancement, each section will be checked against the bat-mitigation requirements for nearby turbines to ensure that the proposed works do not conflict with the requirement to maintain reduced habitat suitability within the applicable turbine buffer

3.2.2.1. Method

The methodology for gapping up broadly follows that outlined for hedgerow creation (Section **3.2.1.1**):

- If hedgerow cutting occurs, do not cut all hedges in any one year. It is good practice to cut on a minimum 3-year cycle leaving at least one third of the hedgerows uncut each year. It is advisable to cut the hedges in an 'A' shape which allows the base and the sides to receive more light resulting in a denser structure valuable for wildlife.
- Planting will be undertaken in the appropriate season (October to March) however, periods of heavy rain, frost or snow should be avoided.
- Infilling with light whips is difficult as they do not compete well with the existing root structure. It is advisable to infill with stronger plants to ensure survival.
- Plants will be of native origin or Irish provenance, preferably grown from locally sourced seeds.
- Hedgerow planting will include the following species: hawthorn, blackthorn, holly, hazel, dog rose, spindle and guelder rose.
- Additional native species to use as trees within a stockproof hedge include: pedunculate oak, crab apple, rowan and wild cherry.
- Source a diversity of appropriate species so that no one species makes up more than 70% of the total number of plants.
- Prepare the ground so the soil becomes friable (has a crumbly texture) and is clear of other growth.

- Plants will be protected from drying out by keeping plants in a bag until needed.
- Infilling must take place at four plants per metre.
- Plant one native-species tree every c. 50 m along the stockproof hedge. These can also include hedgerow species such as hawthorn, holly and hazel. Mark selected tree saplings to be left to mature unmanaged without being pruned or topped, to enhance hedgerow structure.
- Tree guards will be used to protect tree saplings from herbivory and/or mechanical damage and ensure establishment success.
- Erect a fence c. 1 m from the newly established hedgerows to protect saplings from livestock and reposition fence as hedge expands.
- Reduce competition from other vegetation either by depositing organic mulch (e.g. wood chip, straw) around all plants or strimming around the hedgerow plants during the first and second year to ensure the new plants are not outcompeted by weeds. Do not strim the saplings.
- Do not use herbicide to control weeds but, if necessary, a non-drip weed wipe can be used by a suitably qualified contractor to control invasive species.
- Hedgerows will be watered during the first year to assist with establishment (Note: watering to be adapted based on weather conditions).
- Light pruning will be adopted during the establishment phase (Years 1-5) in order to shape the hedge and encourage denser growth at the base.
- Herbicide application will not generally be used, but if absolutely necessary, a non-drip weed wipe will be used to control invasive species.
- Prune stockproof hedges c. 10 cm above ground level after planting (except for the aforementioned tree saplings and holly saplings).
- Hand prune new hedges during winter (years 1-3) to encourage dense basal growth by cutting saplings back to c. 30 cm of current year's growth.
- Failed or dead plants (identified during monitoring) will be replaced the following planting season.

3.2.2.2. Monitoring and measures of success

As per the monitoring of created hedgerows, periodic inspections of newly planted or infilled hedgerow and treeline sections will be undertaken within the first year. The primary aim of these inspections will be to assess growth, identify failed plants or invasive species, and determine whether competing vegetation will need to be controlled. Annual monitoring will continue for the following two years, with a final assessment conducted during Year 5. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

Table 12: Boundary Feature Creation and Restoration

Location	Habitat(s)	Area
T5, T6, T7	Stone wall creation	0.44 km
T5, T6, T7	Hedgerow creation (next to stone wall)	0.75 km
T5, T6, T7	Hedgerow restoration	0.86 km

3.3. Hedgerow Removal

This management objective aims to reduce the potential for bat associated collision risk along an existing hedgerow boundary feature in proximity to T4. A 0.17 km section of hedgerow to the north of T4 will require removal; however, the adjacent stone wall will be retained to maintain a commuting and navigational feature for bats with the local landscape. Hedgerow removal

Hedgerow length removal will be undertaken in a sensitive manner to ensure that works do not disturb the adjacent stone wall that is being retained.

3.3.1.1. Method

- Hedgerow removal shall be undertaken outside the main bird nesting season (1 March to 31 August inclusive).
- Prior to removal, the section of hedgerow shall be inspected by a suitably qualified ecologist for ecological constraints, including evidence of nesting birds and other protected fauna where relevant. Where mature shrubs or trees, significant cavities or other features potentially suitable for roosting bats occur, these shall be subject to appropriate assessment prior to works.
- Hedgerow removal shall be undertaken progressively and under controlled conditions. Shrubs and small woody vegetation shall be cut back in sections using hand-held equipment. Material shall not be indiscriminately pushed or ripped out using heavy machinery.
- Root systems shall be left in situ but stumps treated with an appropriate herbicide to reduce regrowth.
- Arisings shall not be deposited on adjoining areas of higher ecological value.

3.3.1.2. Monitoring and measures of success

Monitoring in Years 1 will confirm removal and identify any regrowth or invasive non-native species establishment. In years 3 and 5 follow-up monitoring visits to check for regrowth and identify whether remedial action is required. Further periodic inspection (and remedial management if requirement identified) will continue for the remainder of the operational phase where required to maintain the mitigation objective.

Table 13: Boundary Feature Removal for Bats

Location	Habitat(s)	Area
T4	Hedgerow removal (stone wall retained)	0.17 km

3.4. Ditch creation

A series of agricultural drainage ditch that occur beneath the construction footprint of the offsite substation will be lost to construction. **Section 9.5.3.2** in **Chapter 9** sets out that new ditches will be created around the offsite substation and drainage will be diverted along these new lengths.

3.4.1. Methodology

While the ditches are being created to maintain the agricultural drainage of the land they can be enhanced to increase their value for biodiversity.

- Create a channel typical between 70 centimetres (cm) and 100cm deep (but up to 150cm to ensure sufficient longitudinal gradient to maintain flow and minimise sediment accumulation
- Create a variety of depths along the ditch length, and grading to a shallow, wet marginal fringe on outside edge.
- Make sure that the slope of the bank varies along the length of the ditch (most slopes should be between 30 and 45 degrees).
- Natural recolonisation will be used to establish vegetation. Inoculation with vegetation turves from the existing ditches will be used to inoculate the new ditches with plant propagules as well as invertebrates.
- Place the excavated material on top of the bank or in the field next to it, making sure it does not fill hollows or low areas.
- Spread the spoil thinly to prevent a spoil bank from forming.
- These new ditches will be fenced off, excluding livestock from accessing them.

3.4.2. Monitoring and measures of success

Periodic inspections of newly created ditches will be undertaken within the first year. The primary aim of these inspections will be to check for slumping or collapse, as well as colonisation by non-native species. Annual monitoring will continue for the following two years, with a final assessment conducted during Year 5. Any necessary remedial actions will be identified and addressed within one year of each monitoring visit.

4. NON-NATIVE INVASIVE SPECIES

Terrestrial non-native invasive species, which are not listed on the 3rd schedule of the Habitats Regulations S.I. 477 of 2011, were recorded along the GCR. These include and the medium impact species rock cotoneaster (*Cotoneaster horizontalis*), and the low impact species winter heliotrope (*Petasites fragrans*). See **Table 14** below and EIAR **Chapter 6** and **Appendix 6-3** for locations of terrestrial non-native invasive species. Terrestrial non-native invasive species will be removed where they occur within the working construction footprint along the GCR. Cherry laurel (*Prunus laurocerasus*) was also recorded adjacent to the GCR on private property. The recorded population lies outside the proposed construction footprint and no works are proposed that would disturb the stand or create a pathway for its spread. It is therefore not proposed for treatment under this HMP. Should the working area or construction methodology change such that the population could be disturbed, the requirement for additional management will be reviewed prior to works.

Localised occurrences of invasive alien plant species were identified along the TDR. These include butterfly bush (*Buddleja davidii*), including a larger stand in proximity to a derelict structure and plants on private property. **Chapter 2** sets out that vegetation / hedgerow trimming may be required at various locations but as these are not currently specified the locations should be surveyed by an

ecologist prior to cutting to determine whether any invasive plant species control measures need to be put in place.

Table 14: Locations of terrestrial non-native invasive species recorded

Common name	Scientific name	3rd Schedule[1]	Impact level	Location[2]	
				X co-ordinate	Y co-ordinate
Rock cotoneaster	*Cotoneaster horizontalis*	N	Medium	527166.2	751516.4
Butterfly bush	*Buddleja davidii*	N	Medium	(Turbine Delivery Route – to be kept under review)	
Winter heliotrope	*Petasites fragrans*	N	Low	530451.2	750765.6
Winter heliotrope	*Petasites fragrans*	N	Low	(Turbine Delivery Route – to be kept under review)	

4.1. Treatment

The below sub-sections outline measures that will be implemented for the safe removal and disposal of non-scheduled species.

4.1.1. Rock cotoneaster and Butterfly-bush

Where avoidance of this medium impact species is impractical, management methods will also include a combination of physical and chemical treatments. Digging or hand picking of young butterfly bush is only recommended where there are minor infestations, as the grubbing of plants (i.e. physical removal) can provide ideal conditions for the germination of seeds (NRA, 2010). Young rock cotoneaster seedlings can be effectively pulled however larger plants will develop multiple stems from the large root mass making it difficult to remove the whole plant. A combination of physical and chemical treatments will be employed for the removal of this medium impact species. This will consist of the following:

- Small infestations of young plants can be dealt with physically; however, care should be taken to minimise soil disturbance when hand picking or digging, particularly when dealing with butterfly bush;
- Larger plants will be cut back to a basal stump (*Note: for butterfly bush and rock cotoneaster cutting and treatment is recommended during active growth, which ranges from late-spring to early-summer and spring to autumn, respectively*);

[1] *listed on the 3rd Schedule of the Habitats Regulations S.I. 477 of 2011*
[2] *Reference system IRENET95 Irish Tranverse Mercator*

- The cut material will be chipped and/or removed to an appropriately licensed waste facility in order to prevent regrowth;
- Cut stumps will be treated immediately with a systemic herbicide mix that is painted on to the stump. The herbicide concentrations will vary according to which chemical is used.
- Foliar application of triclopyr or glyphosate may be adequate for limited infestations of younger butterfly bush, but should be followed up at 6 monthly intervals (*Note: Only a registered professional user can apply Plant Protection Products that are authorised for professional use*).

4.1.2. Winter heliotrope

According to NRA (2010) Guidelines, the physical treatment of low impact species like winter heliotrope is often challenging due to the risk of reinfestation and further spread, and only practical where infestations are limited in extent. Where this is the case, entire stands of winter heliotrope will be excavated and buried (to a depth of 2m), incinerated or disposed of at an appropriately licensed waste facility. As the recorded population occurs within/adjacent to the public road corridor, the feasibility and responsibility for follow-up treatment will be agreed with the relevant road authority prior to works. Where treatment is undertaken as part of the Proposed Development, follow-up inspection will be undertaken to determine whether regrowth or spread has occurred.

5. IMPLEMENTATION

5.1. Responsibilities

The Developer will retain overall responsibility for implementation of the HMP. Individual management measures may be undertaken by suitably qualified contractors acting on its behalf; however, ecological measures will be subject to oversight by a suitably qualified and experienced ecologist. The ecologist will be responsible, as appropriate, for pre-works checks, confirmation of management extents, ecological supervision, review of monitoring results and identification of remedial measures. Where monitoring identifies failure to achieve a prescribed management or mitigation criterion, the monitoring report will identify the remedial action required, the responsible party and the timeframe for implementation.

The Developer will ensure that access to and management of all land required to deliver operational ecological mitigation is secured for the period during which those measures are required. Where measures occur on third-party land, appropriate landowner agreements or equivalent management arrangements will be maintained.

Treatment of non-native invasive plant species will be undertaken by a horticulturist, agronomist or equivalent with experience in the identification of, and licenced for the removal of, invasive species. The treatment of invasive species with herbicide will be undertaken by personnel who have demonstrated compliance with the Plant Protection Product Regulations.

5.2. Management and Monitoring Schedule

Table 15: Management and monitoring schedule

Feature	Management / monitoring task	Management schedule	Monitoring / reporting criteria	Monitoring / reporting schedule
Habitat - Limestone pavement (and associated Annex I habitats)	Clear *c.* 0.89 ha of dense trees and scrub around T11 and T13 to create/maintain open limestone pavement and reduce habitat suitability for bats.	Initial clearance September to February, outside the bird nesting season. Treat cut stumps and subsequently control regrowth as required.	Confirm clearance undertaken within prescribed areas. Assess woody regrowth and condition of exposed limestone pavement.	Formal monitoring in Years 1, 2, 3 and 5, followed by periodic inspection and management for the remainder of the operational phase where required to maintain the mitigation objective. Remedial work identified by monitoring to be completed within one year.
	Clear/manage scattered scrub within identified sensitive habitat areas around T1, T2, T3, T4, T5, T10, T11 and T13, together with relevant HMP enhancement areas.	Initial scrub cutting September to February. Thereafter control regrowth as necessary to maintain management objectives and bat buffers.	Assess percentage scrub/woody cover and evidence of regrowth. Outside turbine bat-management areas, apply relevant habitat targets: ≤25% scrub for exposed [8240] limestone pavement.	Formal monitoring in Years 1, 2, 3 and 5, followed by periodic inspection and management for the remainder of the operational phase where required to maintain the mitigation objective. Remedial work identified by monitoring to be completed within one year.

Feature	Management / monitoring task	Management schedule	Monitoring / reporting criteria	Monitoring / reporting schedule
Grassland / heath mosaic and calcareous grassland	Control bracken across approximately 5.52 ha, including Area 1 and land around T5, by strimming, cutting, rolling or bruising as appropriate.	Treat at least twice in a calendar year: first treatment 1 May to 15 June, followed approximately six weeks later, with second treatment no later than 31 July. Follow-up treatment for at least two consecutive years, and subsequently as necessary.	Assess bracken cover, density and height. Where the dry heath habitat-condition criterion applies, target <20% bracken cover. Identify areas requiring additional treatment.	Years 1, 2, 3 and 5. Remedial action within one year of monitoring where targets are not achieved.
Grassland and other habitats within turbine buffers	Maintain a short sward ≤10 cm within the prescribed 104 m buffer around each turbine, using grazing, cutting or a combination of both.	Maintain throughout the operational phase. Frequency of grazing/cutting adapted as necessary to maintain sward height.	Structured W-shaped walkover with sward-height measurements. Target ≤10 cm. Avoid excessive poaching/bare ground, with bare ground ≤10%.	Formal monitoring in Years 1, 2, 3 and 5, followed by periodic inspection and management for the remainder of the operational phase where required to maintain the mitigation objective. Remedial work identified by monitoring to be completed within one month of monitoring.
Improved agricultural grassland reinstatement	Reinstate approximately 6.47 ha of GA1 improved agricultural grassland disturbed temporarily during construction.	Reinstate as soon as practicable following completion of construction, subject to suitable ground/weather conditions. Preferably sow during the main growing season when soils are warm and moist.	Establishment of stable grassland sward and absence of significant erosion or problematic weed establishment. Target >90% sward cover.	Periodic inspections during Year 1 and formal monitoring/reporting in Years 1, 2, 3 and 5 post-reseeding. Remedial actions within one year where required.

Feature	Management / monitoring task	Management schedule	Monitoring / reporting criteria	Monitoring / reporting schedule
Semi-natural grassland reinstatement	Reinstate temporarily affected GS1 dry calcareous and neutral grassland / heath mosaic and GS2 dry meadow/verge habitat using green hay from suitable nearby donor grassland.	Receptor ground prepared before transfer. Collect donor hay after seed production, generally from July onwards, and transfer/spread immediately after cutting. Subsequent grazing/cutting used to maintain suitable establishment conditions.	1 m × 1 m quadrat assessment of vegetation structure and species composition. Assess establishment, undesirable weeds and requirement for supplementary restoration.	Quadrat monitoring in July in Years 1, 2, 3 and 5 post-reinstatement. Remedial action within one year where required.
Broadleaved woodland reinstatement	Reinstate temporarily affected WN2 oak-ash-hazel woodland by planting.	Plant October to March, avoiding periods of heavy rain, frost or snow. Weed control, watering and replacement planting during establishment as required.	Assess establishment rates and identify failed planting to be replaced.	Periodic inspections during Year 1; monitoring in Years 1, 2, 3 and 5, with a final establishment assessment in Year 5. Remedial works such as beating up within one year.
Stone walls creation	Create approximately 0.44 km of new dry-stone wall near T5, T6 and T7, using suitable stone including stone recovered from walls affected by construction.	Construct as part of the construction/reinstatement programme using traditional local dry-stone techniques.	Assess structural integrity, continuity, damage/collapse, vegetation development, invasive non-native species and evidence of use by fauna.	Years 1, 3 and 5 post-construction. Repairs/remedial works within one year where required.

Feature	Management / monitoring task	Management schedule	Monitoring / reporting criteria	Monitoring / reporting schedule
Stone walls restoration/ repair	Restore/repair existing dry-stone walls affected by or identified for restoration as part of the HMP.	During construction reinstatement and subsequently as required. Retain/reuse original stone wherever practicable and follow the local walling style.	Structural integrity and continuity; evidence of collapse/damage ; vegetation development; invasive species and evidence of fauna use.	Years 1, 3 and 5 post-construction. Repairs/remedial works within one year where required.
Hedgerow creation	Create approximately 0.75 km of native hedgerow near T5, T6 and T7, generally adjacent to existing/new stone walls.	Plant October to March, avoiding periods of heavy rain, frost or snow. Weed control, watering and replacement planting during establishment as required.	Assess survival, growth, gaps, competition from vegetation, invasive species, fencing and overall hedge condition. Condition to reach Adequate to Favourable under the Hedgerow Appraisal System by Year 5.	Periodic inspections during Year 1; monitoring in Years 1, 2, 3 and 5, with a final establishment assessment in Year 5. Remedial works within one year.
Hedgerows	Establishment pruning of newly created hedgerows to promote dense basal growth and appropriate structure.	Light establishment pruning during Years 1 to 5. Hand-prune new hedges during winter in Years 1 to 3. Selected hedgerow trees to be allowed to mature without topping/pruning.	Assess hedge structure, basal density, plant survival and development of selected standard trees.	Assessed as part of hedgerow monitoring in Years 1, 2, 3 and 5.
Hedgerows / treelines enhancement	Enhance approximately 0.86 km of existing hedgerow/treeline near T5, T6 and T7, including infilling gaps with native	Gap planting October to March. Establishment management including watering, vegetation control, protection and replacement of failed plants as necessary.	Assess plant survival, closure of gaps, vegetation competition, invasive species, fencing condition and continuity of the	Periodic inspections in Year 1, followed by monitoring in Years 2, 3 and 5. Remedial action within one year.

Feature	Management / monitoring task	Management schedule	Monitoring / reporting criteria	Monitoring / reporting schedule
	shrubs and trees.		boundary feature.	
Hedgerow removal	Remove approximately 0.17 km of hedgerow north of T4, retaining the adjacent stone wall, to reduce suitability as a bat commuting feature close to the turbine.	During construction. Removal September to February, outside the main bird nesting season. Pre-removal ecological inspection required. Stumps retained in situ and treated to suppress regrowth.	Confirm required length removed without damage to retained stone wall or adjoining habitats. Check for woody regrowth requiring control.	Formal monitoring in Years 1, 3 and 5, followed by periodic inspection and management for the remainder of the operational phase where required to maintain the mitigation objective. Remedial work identified by monitoring to be completed within one year.
Ditch creation	New ditches to be created around offsite substation.	During construction	Assessing for slumping or bank failure, establishment of native vegetation by natural recolonisation and check for non-native invasive species.	Periodic inspections in Year 1, followed by monitoring in Years 2, 3 and 5. Remedial action within one year.
Non-native invasive species	Pre-construction verification of invasive plant locations within relevant working areas, including rock cotoneaster and winter heliotrope	Prior to construction in affected working areas.	Confirm species presence/absence and distribution/extent; identify avoidance or treatment requirements.	Report prior to construction to inform construction controls and treatment requirements.

Feature	Management / monitoring task	Management schedule	Monitoring / reporting criteria	Monitoring / reporting schedule
	identified along the GCR.			
	Treat rock cotoneaster where avoidance is impracticable using appropriate physical/chemical measures and dispose of arisings appropriately.	Prior to/during construction where affected by works; subsequent treatment if regrowth is identified.	Confirm treatment/removal and assess for evidence of regrowth or spread.	Follow-up as required following treatment and as part of HMP ecological inspections where relevant.
	Treat winter heliotrope where unavoidable within the construction footprint.	During construction preparation/works where avoidance is impracticable, using the treatment specified in the HMP.	Confirm affected material has been appropriately managed/disposed of and that works have not caused avoidable spread.	Construction-stage inspection/reporting. The HMP specifically states that follow-up treatment is not included because the recorded population occurs beside a Council Road.
All HMP measures	Ecological review of implementation and identification of remedial management.	Management undertaken by the developer or suitably qualified contractor. Ecological monitoring by a suitably qualified and experienced ecologist.	Report achievement against the relevant management objectives, quantitative targets and condition criteria, together with required remedial measures.	Overall HMP reporting in Years 1, 2, 3 and 5 post-construction, supplemented by the specific annual monitoring requirements above.

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