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Botanical Study - Appendix 6-1

Seskin Renewables Wind
Farm Co. Kilkenny and Co.
Laois



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1. INTRODUCTION

1.1 Context

MKO was commissioned to undertake detailed botanical surveys to provide an evaluation and assessment of the habitats occurring on-site at the Proposed Development at Seskin, on the border between Co. Kilkenny and Co. Laois. The detailed assessments focused on the habitats occurring under or immediately adjacent to the Proposed Development footprint. These surveys included detailed botanical surveys / relevé assessments as well as detailed hedgerow condition assessments using methodology in line with the *Hedgerow Appraisal System (HAS)* (Foulkes et al., 2013). Botanical relevés were undertaken during the Multi-disciplinary Ecological Walkovers on the 30th of April 2024 and 1st of May 2024. Hedgerow condition assessments were carried out over 6 site visits on the 28th and 29th of May 2024, the 11th and 12th of June 2024, and the 17th and 18th of July 2024. The detailed methodologies and guidance followed during these surveys are outlined below.

1.2 Survey Methods

1.2.1 Dedicated Habitat and Vegetation Composition Surveys

Detailed botanical surveys / relevé assessments of the Proposed Development were undertaken during the Multi-disciplinary Walkover Surveys carried out in 2024. These surveys provided an understanding of the baseline and informed further survey work following finalisation of the Proposed Development layout.

The habitat assessment surveys described in this report have been undertaken with reference to the following guidelines and interpretation documents:

- Commission of the European Communities (2013) *Interpretation manual of European Union habitats*. Eur 28. European Commission DG Environment.
- NPWS (2019). *The Status of EU Protected Habitats and Species in Ireland*. Volume 2: *Habitat Assessments*. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill
- Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018), *The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats*. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.
- O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013), *The Irish semi-natural grasslands survey 2007-2012*. Irish Wildlife Manuals, No. 78. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.
- Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2010).

1.2.1.1 Vegetation Composition Assessment

Detailed habitat classification and assessment was undertaken by MKO at targeted locations within the site, with relevés undertaken within representative habitats at each turbine base and associated Proposed Wind Farm infrastructure. The results of these relevés are presented in *Section 2* of this Botanical Report. The extent of each habitat on site was mapped using the field maps app. A representative photograph was also taken for each of the habitats recorded on site, including all relevés. The location of all the relevé locations is shown in *Figure 1-1* within *Section 2* of this Botanical Report.

The survey results were then analysed in accordance the Irish Vegetation Classification (IVC) system. The IVC is a project with aims to classify, describe, and map in detail all aspects of natural and semi-

natural vegetation in Ireland within a single, unified framework. The National Vegetation Database (NVD), upon which the IVC is based, holds data for over 30,000 relevés and is the core resource upon which the classification system is based.

A fundamental requirement of the IVC is to “aid in definition and identification of EU Habitat Directive (92/43/EEC) Annex I habitats” and to ‘inform the planning process, for example through environmental impact assessments’.

The Engine for Relevés to Irish Communities Assignment (ERICA)¹ is a web application for assigning vegetation data to communities defined by the Irish Vegetation Classification (IVC). Data can be uploaded, checked for errors and analysed and the results can then be downloaded. ERICA works with both quantitative vegetation cover data (such as are recorded in relevés and other types of botanical recording plots) and presence/absence data, such as species lists. ERICA covers grasslands, woodland, duneland, heaths, bogs, fens, mires, freshwater, saline waters, rocky habitats, scrub, strandline, saltmarsh and weed communities (Perrin et al., 2018). The data collected from the botanical assessments was uploaded to ERICA, analysed and the results data downloaded.

The analysis procedure uses a clustering process to assign classification affinity to vegetation plots based on a degree of membership to each of the communities defined by the IVC. Table 1.1 details the categorising types of plots utilising the clustering analysis. This categorising procedure was utilised to determine if the grassland plots within the study area had any affinity to Annex I grassland and whether further assessment was required.

Table 1-1: Categorising types of plots using clustering analysis (after Wiser & de Cáceres, 2013).

Plot Type	Definition
Assigned	The plot has membership ≥ 0.5 for one of the vegetation communities and therefore relates to the core definition of that vegetation community.
Unassigned	The plot has membership ≥ 0.5 for the noise class and is poorly represented by the current classification scheme
Transitional	The plot has membership < 0.5 for all vegetation communities and for the noise class. It falls within the scope of the current classification scheme but does not relate to the core definition of any of the vegetation communities.

Habitats considered to be of ecological significance and in particular having the potential to correspond to those listed in *Annex I of the EU Habitats Directive*, where present, were identified and classified as KERs.

¹ Perrin, 2019, ERICA – Engine for Relevés to Irish Communities Assignment V5.0 User’s Manual, Online, Available at: https://biodiversityireland.shinyapps.io/vegetation-classification/_w_9cd4889a/manual.pdf

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1.2.2 Hedgerow Condition Assessments

1.2.2.1 Hedgerow Appraisal System (HAS)

Background:

Hedgerows within the Proposed Development site were assessed using a method adapted from the Hedgerow Appraisal System (HAS) (Foulkes et al., 2013). This methodology was used to record the extent (i.e. quantitative survey) floristic composition, context, physical structure, condition, and management of hedgerows (i.e. qualitative survey) on the site. This detailed survey methodology for hedgerows was applied to hedgerows within the footprint of the Proposed Development with potential to be impacted (i.e. those hedgerows that fall within the bat felling buffers around each of the turbines and other associated infrastructure (turbine hardstand, road infrastructure etc.). Prior to the initial ecological site visit, all hedgerows identified within the development footprint were mapped using landcover data from *Tailte Éireann's National Land Cover Map 2018 (Lydon and Smith, 2018)*. The hedgerows identified were also checked against the *1st Edition Ordnance Survey map (1841)* to identify whether they followed Townland Boundaries.

Two definitions of hedgerows are used when applying the HAS. Murray and Foulkes (2006) define hedges or hedgerows as:

“Linear strips (4m wide or less) of woody plants with a shrubby growth form that cover more than 25% of the length of a field or property boundary that have been deliberately established or managed. They often have associated banks, walls, ditches (drains), or trees.”

Hedges that have developed into lines of trees which no longer display a shrubby growth form (remnant hedgerows) are also considered for recording purposes. In order to maintain consistency with other habitat surveys in the Republic of Ireland, hedgerows meeting the following definition of Fossitt (2000) were also recorded (abbreviated):

Hedgerows WL1: *Linear strips of shrubs, often with occasional trees, that typically form field or property boundaries. Dimensions of hedgerows are taken here as being mainly less than 5m high and 4m wide. When wider or taller than this, or dominated by trees, the habitat should be considered as a narrow strip of scrub or woodland, or as a treeline - WL2. Some hedgerows may be overgrown or fragmented if management has been neglected, but they should still be considered in this category unless they have changed beyond recognition. Linear strips of low scrub are included in this category if they occur as field boundaries.*

Hedgerows were surveyed at 30m intervals and labelled with unique identifiers on Fieldmaps and data on each hedgerow collected using a proforma set up on Survey 1,2, 3 database. The following attributes covered by the *HAS Methodology* (Foulkes et al., 2013) were recorded for each 30m sample strip.

Context:

Hedgerows were assessed by location, aspect, farm type, and surrounding environment, including adjacent land and habitat links. The purpose of recording these factors was to enable assessment of the potential significance of the surrounding landscape on hedgerow ecology and the structure of the hedge, as distinct from other influences such as management.

Construction:

Each hedgerow's construction was determined by its linearity and features like drains, banks, and walls. These characteristics can be indicative of the period of hedgerow origin and are largely of a fixed nature and unlikely to change over time.

Structure and Condition:

The structure relates to the physical dimensions of the hedge (height, width, cross sectional profile, quantity and age profile of trees). Condition was assessed by gaps, basal growth density (i.e. in the bottom metre of the hedge), bank erosion and overall vigour. These attributes can vary significantly over time and, where repeat surveys are undertaken, can be the main indicators of quality and condition. Furthermore, by assessing trends, the long-term sustainability of the hedgerow can be determined.

Management:

This covers the type and method of hedgerow management, including flailing, laying, coppice management, short- and long-term absence of management, and evidence of past management of the hedgerow.

Floristic Data:

Species were recorded from the 30-metre strips. Hedgerows were categorised into three layers;

- a) **Tree layer** - Hedgerow trees are any trees within the hedge that have been deliberately or incidentally allowed to grow, as distinct from the shrub layer of the hedge.
- b) **Shrub layer** - The shrub (understorey) layer includes shrubs such as thorns, woody climbers and tree species that have a shrubby growth form, normally due to management such as cutting or laying.
- c) **Ground flora** - This includes all herbaceous broadleaved plants, grasses, rushes and ferns found in the hedge bottom, some of which may be indicators of hedgerow age or origin (e.g. derived from scrub, old or ancient woodland). The list of ground flora species to be recorded followed that outlined in Appendix E of the HAS (Foulkes et al., 2013).

Species Diversity Significance:

The significance of Hedge (woody) Species and Ground Flora species within a hedgerow was determined by applying the criteria summarised in the table below:

Table 1-2 Criteria used to assess the Significance of Hedgerow Species (Foulkes et al., 2013)

Hedgerow (Woody) Species Diversity Significance:					
Significance Level:	0 - Low	1 - Slightly	2 – Moderately	3 - Significant	4 - Highly
Tree / Shrub / Climber Species Count:	1-3 species per 30m strip	4/5 species per 30m strip	6/7 species per 30m strip	8/9 species per 30m strip	10+ species per 30m strip
Ground Flora Species Diversity Significance:					
Significance Level:	0 - Low	1 - Slightly	2 – Moderately	3 - Significant	4 - Highly
Species Count (from Species list):	<2 species per 30m strip	2-3 species per 30m strip	4-5 species per 30m strip	6-7 species per 30m strip	>7 species per 30m strip
Pteridophytes (Ferns) (from Species list):				3-5 species	>5 species
Other factors influencing Significance:	Dominated by ruderal species*				

* Ruderal species - Weedy vegetation that shows a preference for growing on compacted, ploughed, or otherwise disturbed ground - nettles / docks / thistles / cleavers. (Foulkes et al., 2013).

Hedgerow Significance:

Following data collection, the appraisal system was used to identify hedgerows of historical, ecological, or landscape significance and assess their condition based on the recorded data. The system ranks hedgerows on a scale of 0 - 4 (0 being lowest) across five categories: Historical Significance, Species Diversity, Structure/Construction and Associated Features, Habitat Connectivity, and Landscape Significance. A score of 4 in any category indicates a hedgerow of high significance (Heritage Hedgerow). These hedges should be prioritised for retention and management. Hedges with lower scores may still hold value depending on the context. The list of hedgerow and ground flora species that were considered when calculating species significance, as per Foulkes et al., 2013, is included in Appendix A of this Botanical Report. The assessment criteria used to determine hedgerow significance by Foulkes et al., 2013 is also detailed within Appendix B. Letters in brackets indicate the relevant categories from the recording methodology.



Map Legend

- Relevé Locations
- Proposed Turbines
- Infrastructure with Bat Buffer
- EIAR Site Boundary

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



Map of Relevé Locations within North of Site

Project Title

AIP Seskin Wind Farm

Project No.	Drawing No.	Scale
231103	1.1	1:5,500
Drawn By:	Checked By:	Date
BOC	DM	19/06/2025

MKO

Email: info@mkofireland.ie / Website: www.mkofireland.ie

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- Map Legend
- Relevé Locations
 - Proposed Turbines
 - ▨ Infrastructure with Bat Buffer
 - ▭ EIAR Site Boundary

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



SITE LOCATION - NOT TO SCALE

Drawing Title
Map of Relevé Locations within South of Site

Project Title
AIP Seskin Wind Farm

Project No.	Drawing No.	Scale
231103	1.2	1:5,500
Drawn By	Checked By	Date
BOC	DM	19/06/2025



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2.

RESULTS

The results of the detailed botanical surveys with relevé assessments and hedgerow condition assessments are presented in the following sections. A summary figure of all the relevé locations is presented in *Figure 1-1* above. The locations of all the hedgerows that were assessed within the Proposed Development site are shown on *Figures 2-1* and *2-2* in *Section 2.39* below.

2.1

Turbine 1

The results of the relevé conducted at the proposed location of Turbine 1 are displayed in *Table 2-1*, while the hedgerow assessments for surrounding hedgerows 1A, 1B and 1C are provided in *Tables 2-2 – 2-4*. The results of the relevé conducted at the Proposed Borrow Pit South of Turbine 1 are presented in *Table 2.5*. A summary figure of the hedgerow assessments is included in *Plate 2-2* below.

Turbine 1 will be located on improved agricultural grassland (GA1) habitat, which is bordered by a patch of mixed broadleaved woodland (WD1) to the east and surrounded by hedgerows (WL1) to the north, south and west.

Table 2-1 Botanical Survey Results – Turbine 1

Relevé T1	Grid reference: S 41844 75061	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	20
<i>Ranunculus repens</i>	creeping buttercup	5
<i>Poa annua</i>	annual meadow grass	40
<i>Agrostis capillaris</i>	common bent grass	15
<i>Trifolium repens</i>	white clover	30
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	GLAA - <i>Agrostis capillaris</i> - <i>Trifolium repens</i> grassland	
Affinity to Annex I habitat	No	



Plate 2-1 Example of the receiving habitat at Turbine 1

Hedgerow 1A

Table 2-2 Hedgerow Condition Assessment Results – Hedgerow 1A

Hedgerow ID:	Approximate Location:	Grid reference:
1A	SW of Turbine 1	S 41774 75040
Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	Ciara Hackett David Mesarcik	Continuous, A-shaped hedgerow following a Wall/Bank (<0.5m)
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Prunus spinosa</i>	blackthorn	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Ulex europaeus</i>	gorse	
<i>Crataegus monogyna</i>	hawthorn	
<i>Corylus avellana</i>	hazel	
<i>Ilex aquifolium</i>	holly	
<i>Lonicera periclymenum</i>	honeysuckle	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Hyacinthoides non-scripta</i>	bluebell	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Cirsium vulgare</i>	bull thistle	
<i>Cichorium intybus</i>	chichory	
<i>Galium aparine</i>	cleavers	
<i>Bellis perennis</i>	common daisy	
<i>Achillea millefolium</i>	common yarrow	

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<i>Ranunculus repens</i>	creeping buttercup
<i>Potentilla reptans</i>	creeping cinquefoil
<i>Taraxacum officinale</i> agg.	dandelion
<i>Viola riviniana</i>	dog violets
<i>Veronica chamaedrys</i>	germander speedwell
<i>Glechoma hederacea</i>	ground ivy
<i>Geranium robertianum</i>	herb Robert
<i>Arum maculatum</i>	lords-and-ladies
<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
<i>Vicia sativa</i>	vetch
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	3 - Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	1 - Slightly Significant
Structure, Construction & Associated Features:	1 - Slightly Significant
Landscape Significance:	0 - Low Significance
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

Hedgerow 1B

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Table 2-3 Hedgerow Condition Assessment Results – Hedgerow 1B

Hedgerow ID:	Approximate Location:	Grid reference:
1B	SSW of Turbine 1	S 41731 74950
Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	Ciara Hackett David Mesarcik	Dense, A-shaped hedgerow approx. 1.5 - 2.5m high
Hedgerow (Tree) Species Present:		
Species		Common Name
<i>Prunus spinosa</i>		blackthorn
<i>Ulex europaeus</i>		gorse
<i>Crataegus monogyna</i>		hawthorn
<i>Hedera helix</i>		ivy
Ground Flora Species Present:		
Species		Common Name
<i>Rubus fruticosus</i> agg.		brambles
<i>Galium aparine</i>		cleavers
<i>Bellis perennis</i>		common daisy
<i>Ranunculus repens</i>		creeping buttercup
<i>Viola riviniana</i>		dog violets
<i>Veronica chamaedrys</i>		germander speedwell
<i>Arum maculatum</i>		lords-and-ladies
<i>Urtica dioica</i>		nettle
<i>Vicia sativa</i>		vetch
Species Diversity Significance*		
Hedgerow (Woody) Species Diversity:		1 - Slightly Significant
Ground Flora Species Diversity:		2 - Moderately Significant
Historical, Ecological and Landscape Significance:		

Historical Significance:	2 - Moderately Significant
Structure, Construction & Associated Features:	0 - Low Significance
Landscape Significance:	0 - Low Significance
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.4

Hedgerow 1C

Table 2-4 Hedgerow Condition Assessment Results – Hedgerow 1C

Hedgerow ID:	Approximate Location:	Grid reference:
1C	SSW of Turbine 1; E of T2	S 41647 74787
Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	Ciara Hackett David Mesarcik	Semi-opaque, overgrown hedgerow, >4m high, following double ditch feature.
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Corylus avellana</i>	hazel	
<i>Ilex aquifolium</i>	holly	
<i>Lonicera periclymenum</i>	honeysuckle	
Ground Flora Species Present:		
Species	Common Name	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Galium aparine</i>	cleavers	
<i>Ranunculus repens</i>	creeping buttercup	

<i>Potentilla reptans</i>	creeping cinquefoil
<i>Cirsium arvense</i>	creeping thistle
<i>Taraxacum officinale</i> agg.	dandelion
<i>Viola riviniana</i>	dog violets
<i>Veronica chamaedrys</i>	germander speedwell
<i>Glechoma hederacea</i>	ground ivy
<i>Geranium robertianum</i>	herb Robert
<i>Hedera helix</i>	ivy
<i>Dryopteris filix-mas</i>	male fern
<i>Urtica dioica</i>	nettle
<i>Polypodium spp.</i>	polyploidy fern
<i>Vicia sativa</i>	vetch
<i>Brachypodium sylvaticum</i>	wood false-brome
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	3 - Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	4 - Highly Significant
Landscape Significance:	0 - Low Significance
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

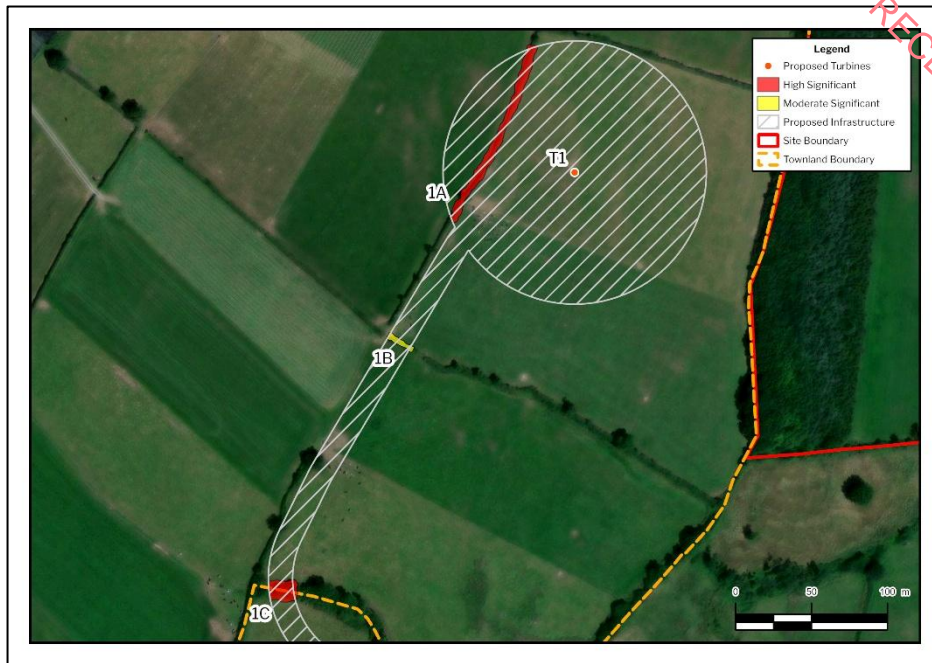


Plate 2-2 Map Section showing the Locations of Hedgerows 1A, 1B and 1C relative to Turbine 1

2.5

Proposed Borrow Pit South of Turbine 1

A Borrow Pit is proposed within an area of improved agricultural grassland (GA1) in the field south of Turbine 1. The field is surrounded by hedgerows (WL1).

Table 2-52 Botanical Survey Results – Proposed Borrow Pit 1

Relevé B1	Grid reference: S 41766 74895	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	40
<i>Lolium perenne</i>	perennial ryegrass	60
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	GL2C- <i>Holcus lanatus</i> – <i>Lolium perenne</i> grassland	
Affinity to Annex I habitat	No	



Plate 2-3 Example of receiving habitat in the footprint of the proposed Borrow Pit

2.6 Turbine 2

The results of the relevé conducted at the proposed location of Turbine 2 are displayed in *Table 2-6*, while the hedgerow assessments for surrounding hedgerows 2A and 2B are provided in *Tables 2-7* and *2-8* below. A summary figure of the hedgerow assessments is included in *Plate 2-5* below.

Turbine 2 will be located on an improved agricultural grassland (GA1) habitat, which is surrounded by hedgerows (WL1) to the north and west.

Table 2-6 Botanical Survey Results – Turbine 2

Relevé T2	Grid reference: S 41276 74853	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	20
<i>Lolium perenne</i>	perennial ryegrass	95
<i>Alopecurus pratensis</i>	meadow foxtail grass	5
<i>Ranunculus repens</i>	creeping buttercup	50
<i>Ranunculus acris</i>	meadow buttercup	10

<i>Taraxacum officinale</i>	common dandelion	5
<i>Trifolium repens</i>	white clover	10
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	GL2C- <i>Holcus lanatus</i> – <i>Lolium perenne</i> grassland	
Affinity to Annex I habitat	No	



Plate 2-4 Example of the receiving habitat at Turbine 2

2.7 Hedgerow 2A

Table 2-7 Hedgerow Condition Assessment Results – Hedgerow 2A

Hedgerow ID:	Approximate Location:	Grid reference:
2A	NNE of Turbine 2 (Adjacent to T2 access road)	S 41731 74950

Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	Ciara Hackett David Mesarcik	Continuous, overgrown, semi-opaque hedgerow, >4m high, following wall/Bank 0.5-1m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Fagus sylvatica</i>	beech	
<i>Prunus spinosa</i>	blackthorn	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Salix cinerea</i>	grey willow	
<i>Crataegus monogyna</i>	hawthorn	
<i>Corylus avellana</i>	hazel	
<i>Ilex aquifolium</i>	holly	
<i>Lonicera periclymenum</i>	honeysuckle	
<i>Hedera helix</i>	ivy	
<i>Quercus robur</i>	pedunculate oak	
<i>Euonymus europaeus</i>	spindle-tree	
Ground Flora Species Present:		
Species	Common Name	
<i>Hyacinthoides non-scripta</i>	bluebell	
<i>Cirsium vulgare</i>	bull thistle	
<i>Galium aparine</i>	cleavers	
<i>Bellis perennis</i>	common daisy	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Cirsium arvense</i>	creeping thistle	
<i>Rumex crispus ssp. Crispus</i>	curly dock	
<i>Equisetum arvense</i>	field horsetail	

<i>Glechoma hederacea</i>	ground ivy
<i>Geranium robertianum</i>	herb Robert
<i>Lonicera periclymenum</i>	honeysuckle
<i>Hedera helix</i>	ivy
<i>Arum maculatum</i>	lords-and-ladies
<i>Cirsium palustre</i>	marsh thistle
<i>Ranunculus acris</i>	meadow buttercup
<i>Cerastium fontanum</i>	mouse-ear chickweed
<i>Urtica dioica</i>	nettle
<i>Polypodium spp.</i>	polypody fern
<i>Plantago lanceolata</i>	ribwort plantain
<i>Polystichum setiferum</i>	soft shield fern
<i>Vicia sativa</i>	vetch
<i>Trifolium repens</i>	white clover
<i>Brachypodium sylvaticum</i>	wood false-brome
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	4 - Highly Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	1 - Slightly Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow/ground flora species for any 30 m sample along the hedgerow.

Hedgerow 2B

Table 28 Hedgerow Condition Assessment Results – Hedgerow 2B

Hedgerow ID:	Approximate Location:	Grid reference:
2B	ESE of Turbine 2 (Adjacent to T2 access road)	S 41361 74792
Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	David Mesarcik	Continuous, A-shaped hedgerow approx. 1.5 - 2.5m high
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
<i>Hedera helix</i>	ivy	
<i>Acer pseudoplatanus</i>	sycamore	
<i>Ulmus glabra</i>	wych elm	
Ground Flora Species Present:		
Species	Common Name	
<i>Hyacinthoides non-scripta</i>	bluebell	
<i>Pteridium aquilinum</i>	bracken fern	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Galium aparine</i>	cleavers	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Viola riviniana</i>	dog violets	
<i>Glechoma hederacea</i>	ground ivy	
<i>Hedera helix</i>	ivy	

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<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
<i>Brachypodium sylvaticum</i>	wood false-brome
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	0 - Low Significance
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

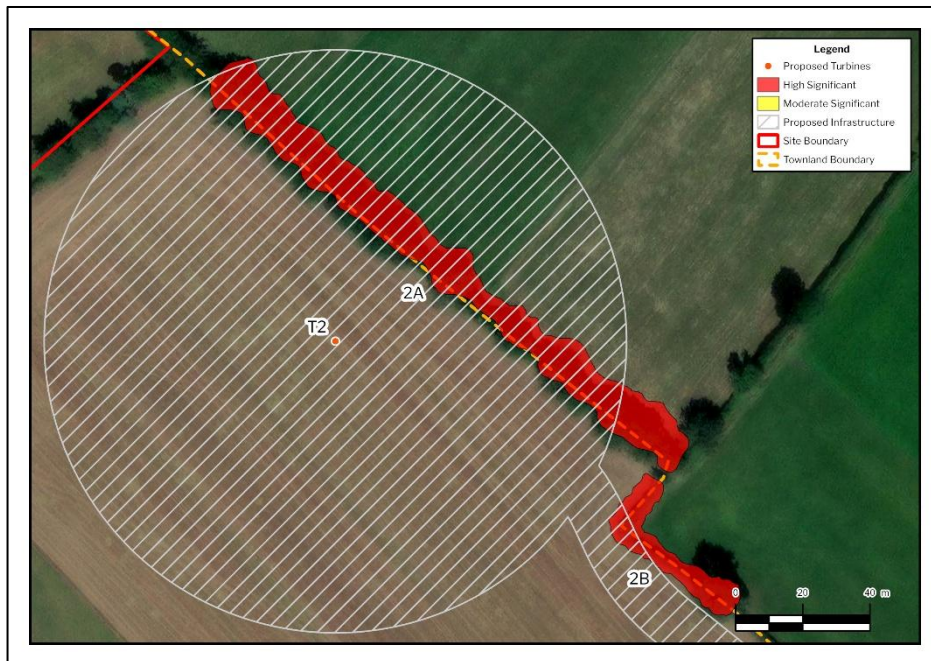


Plate 2-5 Map Section showing the Locations of Hedgerows 2A and 2B relative to Turbine 2

Turbine 3

The receiving habitats at Turbine 3 are described below, while the hedgerow assessments for surrounding hedgerows 3A, 3B, 3C and 3D are provided in *Tables 2-9 - 2-12*. A summary figure of the hedgerow assessments is included in *Plate 2-8* below. The results of the relevé conducted at the Temporary Construction Compound South of Turbine 3 are summarised in *Table 2-13*.

Turbine 3 will be located on an area of tilled land (BC3) bordered by treeline (WL2) with hedgerows (WL1) to the west. The field had been recently tilled at the time of survey, so a relevé and species list could not be compiled.



Plate 2-6 Example of the receiving habitat at Turbine 3



Plate 2-7 Example of treeline with hedgerow habitat in the vicinity of Turbine 3

2.10

Hedgerow 3A

Table 2-9 Hedgerow Condition Assessment Results – Hedgerow 3A

Hedgerow ID:	Approximate Location:	Grid reference:
3A	NW of Turbine 3 (Adjacent to access road from T1)	S 41786 74563
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	David Mesarcik	Dense, overgrown hedgerow approx. 2.5-4m high, following a wall/bank 0.5-1m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
<i>Lonicera periclymenum</i>	honeysuckle	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Rumex obtusifolius</i>	broad-leaved dock	
<i>Cirsium vulgare</i>	bull thistle	
<i>Vicia sepium</i>	bush vetch	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Cirsium arvense</i>	creeping thistle	
<i>Rumex crispus</i> ssp. <i>Crispus</i>	curly dock	
<i>Viola riviniana</i>	dog violets	
<i>Epilobium ciliatum</i>	fringed willowherb	

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<i>Glechoma hederacea</i>	ground ivy
<i>Geranium robertianum</i>	herb Robert
<i>Heracleum sphondylium</i>	hogweed
<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
<i>Geum urbanum</i>	wood avens
<i>Brachypodium sylvaticum</i>	wood false-brome
<i>Scrophularia nodosa</i>	woodland figwort
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	3 - Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.11 Hedgerow 3B

Table 2-30 Hedgerow Condition Assessment Results – Hedgerow 3B

Hedgerow ID:	Approximate Location:	Grid reference:
3B	WNW of Turbine 3	S 41916 74422
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	Ciara Hackett David Mesarcik	Continuous, dense hedgerow, >4m high, following wall/bank 0.5-1m.
Hedgerow (Tree) Species Present:		

Species	Common Name
<i>Fraxinus excelsior</i>	ash
<i>Prunus spinosa</i>	blackthorn
<i>Rubus fruticosus</i> agg.	bramble
<i>Rosa canina</i>	dog rose
<i>Sambucus nigra</i>	elder
<i>Crataegus monogyna</i>	hawthorn
<i>Ilex aquifolium</i>	holly
<i>Lonicera periclymenum</i>	honeysuckle
<i>Hedera helix</i>	ivy
<i>Euonymus europaeus</i>	spindle-tree
Ground Flora Species Present:	
Species	Common Name
<i>Prunus spinosa</i>	Blackthorn (saplings)
<i>Hyacinthoides non-scripta</i>	bluebell
<i>Rubus fruticosus</i> agg.	brambles
<i>Galium aparine</i>	cleavers
<i>Anthriscus sylvestris</i>	cow parsley
<i>Ranunculus repens</i>	creeping buttercup
<i>Cirsium arvense</i>	creeping thistle
<i>Rumex crispus</i> ssp. <i>Crispus</i>	curly dock
<i>Veronica chamaedrys</i>	germander speedwell
<i>Glechoma hederacea</i>	ground ivy
<i>Phyllitis scolopendrium</i>	hart's tongue fern
<i>Geranium robertianum</i>	herb Robert
<i>Heracleum sphondylium</i>	hogweed
<i>Ilex aquifolium</i>	holly
<i>Hedera helix</i>	ivy

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<i>Arum maculatum</i>	lords-and-ladies
<i>Dryopteris filix-mas</i>	male fern
<i>Urtica dioica</i>	nettle
<i>Primula vulgaris</i>	primrose
<i>Juncus effusus</i>	soft rush
<i>Polystichum setiferum</i>	soft shield fern
<i>Geum urbanum</i>	wood avens
<i>Brachypodium sylvaticum</i>	wood false-brome
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	3 - Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow/ground flora species for any 30 m sample along the hedgerow.

Hedgerow 3C

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Table 2-41 Hedgerow Condition Assessment Results – Hedgerow 3C

Hedgerow ID:	Approximate Location:	Grid reference:
3C	E of Turbine 3 (Adjacent to T3 hardstand)	S 41945 74366
Date Surveyed:	Surveyor(s):	Notes:
22/05/2024 11:00	Ciara Hackett David Mesarcik	Overgrown, semi-opaque hedgerow, >4m high, following somewhat degraded wall/bank <0.5m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Prunus spinosa</i>	blackthorn	
<i>Ulex europaeus</i>	gorse	
<i>Rosa canina</i>	dog rose	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
Ground Flora Species Present:		
Species	Common Name	
<i>Bellis perennis</i>	common daisy	
<i>Potentilla reptans</i>	creeping cinquefoil	
<i>Cirsium arvense</i>	creeping thistle	
<i>Taraxacum officinale</i> agg.	dandelion	
<i>Rumex crispus</i> ssp. <i>Crispus</i>	curly dock	
<i>Veronica chamaedrys</i>	germander speedwell	
<i>Geranium robertianum</i>	herb Robert	
<i>Hedera helix</i>	ivy	
<i>Ranunculus acris</i>	meadow buttercup	
<i>Urtica dioica</i>	nettle	
<i>Vicia sativa</i>	vetch	

<i>Polystichum setiferum</i>	soft shield fern
<i>Brachypodium sylvaticum</i>	wood false-brome
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	0 - Low Significance
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	1 - Slightly Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.13

Hedgerow 3D

Table 2-52 Hedgerow Condition Assessment Results – Hedgerow 3D

Hedgerow ID:	Approximate Location:	Grid reference:
3D	WSW of Turbine 3 (Adjacent to compound)	S 42146 74218
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	David Mesarcik	Dense, overgrown hedgerow, >4m high following wall/bank 0.5-1m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Populus tremula</i>	aspen	
<i>Prunus spinosa</i>	blackthorn	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Rumex obtusifolius</i>	broad-leaved dock	
<i>Rubus fruticosus agg.</i>	brambles	
<i>Galium aparine</i>	cleavers	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Cirsium arvense</i>	creeping thistle	
<i>Viola riviniana</i>	dog violets	
<i>Rumex crispus ssp. Crispus</i>	curly dock	
<i>Glechoma hederacea</i>	ground ivy	
<i>Hedera helix</i>	ivy	

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<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	1 - Slightly Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

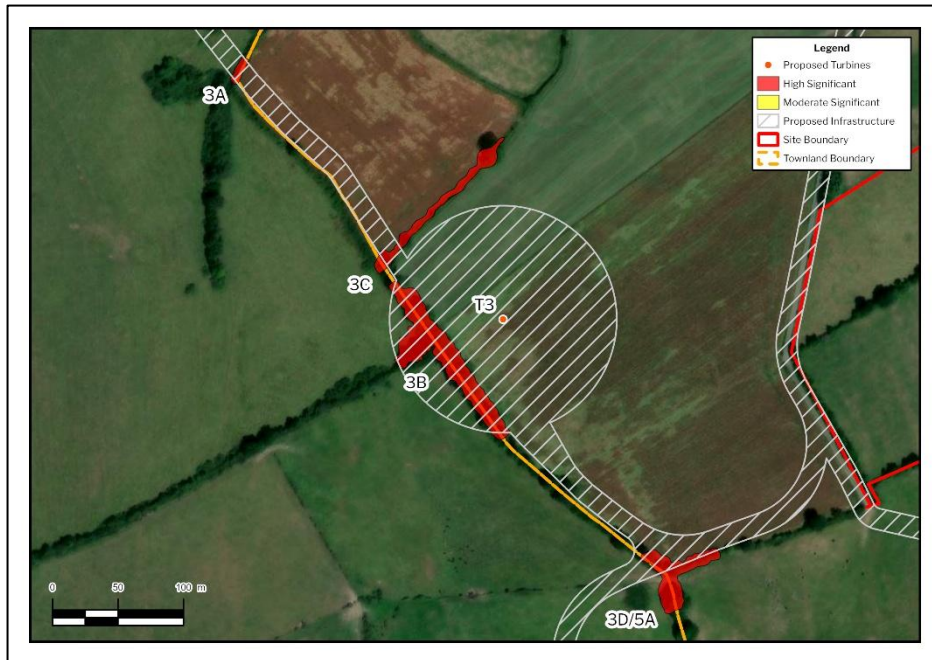


Plate 2-8 Map Section showing the Locations of Hedgerows 3A, 3B, 3C, 3D (and 5A), relative to Turbine 3

2.14

Temporary Construction Compound South of Turbine 3

The temporary construction compound will be located in an agricultural field classified as arable crop (BC1) habitat, surrounded by hedgerows (WL1) to the north, south and west.

Table 2-13 Botanical Survey Results – Temporary Construction Compound

Relevé C1	Grid reference: S 42477 74501	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Rumex crispus</i>	curly dock	2
<i>Chenopodium album</i>	lamb's quarters	40
<i>Ranunculus repens</i>	creeping buttercup	10
<i>Stellaria media</i>	common chickweed	30
<i>Triticum aestivum</i>	common wheat	80
Fossitt (2000) Habitat Classification	Arable Crops (BC1)	
IVC (Irish Vegetation Community classification)	N - <i>None</i>	
Affinity to Annex I habitat	No	



Plate 2-9 Example of the receiving habitat at the proposed Construction Compound near Turbine 3

2.15

Turbine 4

The results of the relevé conducted at the proposed location of Turbine 4 are displayed in *Table 2-14* below, while the hedgerow assessments for surrounding hedgerows 4A, 4B and 4C are provided in *Tables 2-15 - 2-17* below. A summary figure of the hedgerow assessments is included in *Plate 2-12* below. The results of the relevé conducted at the Proposed Borrow Pit North of Turbine 4 are summarised in *Table 2-18*.

Turbine 4 will be located on improved agricultural grassland (GA1) habitat which borders a patch of wet grassland (GS4) to the north and by hedgerow (WL1) to the east.

Table 2-14 Botanical Survey Results – Turbine 4

Relevé T4	Grid reference: S 41451 74394	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	20
<i>Agrostis capillaris</i>	common bent grass	15
<i>Lolium perenne</i>	perennial ryegrass	60
<i>Anthoxanthum odoratum</i>	sweet vernal grass	10
<i>Ranunculus acris</i>	meadow buttercup	5
<i>Ranunculus repens</i>	creeping buttercup	20
<i>Bellis perennis</i>	common daisy	5
<i>Taraxacum officinale</i>	common dandelion	10
<i>Trifolium repens</i>	white clover	15
<i>Rumex crispus</i>	curly dock	10
<i>Cirsium arvense</i>	creeping thistle	10
Non-vascular Plants		
<i>Rhytidiadelphus squarrosus</i>	springy turf-moss	5
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	GL3B - <i>Lolium perenne</i> - <i>Trifolium repens</i> grassland	
Affinity to Annex I habitat	No	



Plate 2-10 Example of receiving habitat at Turbine 4



Plate 2-11 Example of receiving wet grassland (GS4) habitat in the vicinity of Turbine 4

2.16

Hedgerow 4A

Table 2-65 Hedgerow Condition Assessment Results – Hedgerow 4A

Hedgerow ID:	Approximate Location:	Grid reference:
4A	W of Turbine 4	S 41531 74367
Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	Ciara Hackett David Mesarcik	Gappy hedgerow <1.5m high, following wall/bank <0.5m, with <20% of the length of the hedge degraded
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
<i>Hedera helix</i>	ivy	
<i>Prunus avium</i>	wild cherry	
<i>Quercus robur</i>	pedunculate oak	
<i>Euonymus europaeus</i>	spindle-tree	
Ground Flora Species Present:		
Species	Common Name	
<i>Hyacinthoides non-scripta</i>	bluebell	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Rumex obtusifolius</i>	broad-leaved dock	
<i>Bellis perennis</i>	common daisy	
<i>Primula veris</i>	cowslip	
<i>Ranunculus repens</i>	creeping buttercup	

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<i>Cirsium arvense</i>	creeping thistle
<i>Rumex crispus ssp. Crispus</i>	curly dock
<i>Viola riviniana</i>	dog violets
<i>Glechoma hederacea</i>	ground ivy
<i>Phyllitis scolopendrium</i>	hart's tongue fern
<i>Geranium robertianum</i>	herb Robert
<i>Ilex aquifolium</i>	holly
<i>Hedera hibernica</i>	irish ivy
<i>Hedera helix</i>	ivy
<i>Arum maculatum</i>	lords-and-ladies
<i>Cirsium palustre</i>	marsh thistle
<i>Ranunculus acris</i>	meadow buttercup
<i>Filipendula ulmaria</i>	meadowsweet
<i>Cerastium fontanum</i>	mouse-ear chickweed
<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
<i>Vicia sativa</i>	vetch
<i>Oxalis acetosella</i>	wood-sorrel
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	4 - Highly Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	1 - Slightly Significant
Structure, Construction & Associated Features:	1 - Slightly Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant

Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.17

Hedgerow 4B

Table 2-76 Hedgerow Condition Assessment Results – Hedgerow 4B

Hedgerow ID:	Approximate Location:	Grid reference:
4B	NNW of Turbine 4	S 41378 74431
Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	Ciara Hackett David Mesarcik	Dense, A-shaped hedgerow approx. 1.5 - 2.5m high
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Salix caprea</i>	goat willow	
<i>Rosa canina</i>	dog rose	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
<i>Lonicera periclymenum</i>	honeysuckle	
Ground Flora Species Present:		
Species	Common Name	
<i>Hyacinthoides non-scripta</i>	bluebell	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Veronica beccabunga</i>	brooklime (speedwell)	
<i>Galium aparine</i>	cleavers	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Cardamine pratensis</i>	cuckooflower	

<i>Viola riviniana</i>	dog violets
<i>Phyllitis scolopendrium</i>	hart's tongue fern
<i>Geranium robertianum</i>	herb Robert
<i>Ranunculus flammula</i>	lesser spearwort
<i>Dryopteris filix-mas</i>	male fern
<i>Ranunculus acris</i>	meadow buttercup
<i>Filipendula ulmaria</i>	meadowsweet
<i>Cerastium fontanum</i>	mouse-ear chickweed
<i>Rumex stenophyllus</i>	narrow-leaved dock
<i>Urtica dioica</i>	nettle
<i>Juncus effusus</i>	soft rush
<i>Polystichum setiferum</i>	soft shield fern
<i>Potentilla erecta</i>	tormentil
<i>Vicia sativa</i>	vetch
<i>Mentha aquatica</i>	water mint
<i>Nasturtium officinale</i>	watercress
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	3 - Significant
Landscape Significance:	0 - Low Significance
Habitat Connectivity Significance:	3 - Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.18

Hedgerow 4C

Table 2-87 Hedgerow Condition Assessment Results – Hedgerow 4C

Hedgerow ID:	Approximate Location:	Grid reference:
4C	NNE of Turbine 4 (Adjacent to T4 Hardstand)	S 41470 74399
Date Surveyed:	Surveyor(s):	Notes:
28/05/2024 11:00	Ciara Hackett David Mesarcik	Overgrown, gappy, hedgerow >4m high with noticeably degraded margin of ground flora and ploughing /poaching up to base of hedge on both sides of hedgerow
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus agg.</i>	bramble	
<i>Ulex europaeus</i>	gorse	
<i>Salix cinerea</i>	grey willow	
<i>Crataegus monogyna</i>	hawthorn	
Ground Flora Species Present:		
Species	Common Name	
<i>Rubus fruticosus agg.</i>	brambles	
<i>Cirsium vulgare</i>	bull thistle	
<i>Bellis perennis</i>	common daisy	
<i>Cirsium arvense</i>	creeping thistle	
<i>Rumex crispus ssp. Crispus</i>	curly dock	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Ranunculus acris</i>	meadow buttercup	
<i>Urtica dioica</i>	nettle	

<i>Juncus effusus</i>	soft rush
<i>Potentilla erecta</i>	tormentil
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	1 - Slightly Significant
Structure, Construction & Associated Features:	0 - Low Significance
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.



Plate 2-12 Map Section showing the Locations of Hedgerows 4A, 4B and 4C relative to Turbine 4

2.19

Proposed Borrow Pit North of Turbine 4

A Borrow Pit is proposed within an area of improved agricultural grassland (GA1) in the field adjacent to Turbine. There is a patch of Scrub (WS1) with scattered trees to the east of the field.

Table 2-189 Botanical Survey Results – Proposed Borrow Pit 2

Relevé B2	Grid reference: S 41650 74553	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	60
<i>Festuca rubra</i>	red fescue grass	25
<i>Lolium perenne</i>	perennial ryegrass	10
<i>Poa annua</i>	annual meadow grass	15
<i>Poa pratensis</i>	smooth meadow-grass	5
<i>Agrostis capillaris</i>	common bent grass	15
<i>Anthoxanthum odoratum</i>	sweet vernal grass	10
<i>Cynosurus cristatus</i>	crested dog's-tail grass	10
<i>Trifolium repens</i>	white clover	35
<i>Ranunculus acris</i>	meadow buttercup	25
<i>Ranunculus repens</i>	creeping buttercup	20
<i>Trifolium pratense</i>	red clover	5
<i>Plantago lanceolata</i>	ribwort plantain	5
<i>Leontodon hispidus</i>	rough hawkbit	3
<i>Scorzoneroidea autumnalis</i>	autumn hawkbit	2
<i>Cirsium vulgare</i>	bull thistle	2
<i>Rumex acetosella</i>	sheep's sorrel	2
<i>Centaurea nigra</i>	lesser knapweed	1
<i>Cerastium fontanum</i>	mouse-ear chickweed	1
Fossitt (2000) Habitat Classification		Improved agricultural grassland (GA1)

IVC (Irish Vegetation Community classification)	GL3B - <i>Lolium perenne</i> - <i>Trifolium repens</i> grassland
Affinity to Annex I habitat	No



Plate 2-13 Example of receiving habitat in the footprint of the proposed Borrow Pit 2

2.20

Turbine 5

The results of the relevé conducted at the proposed location of Turbine 5 are displayed in *Table 2-19* below, while the hedgerow assessments for surrounding hedgerows 5A, 5B, 5C, 5D, 5F, 5G, 5H and 5I are provided in *Tables 2-20 - 2-27* below. To note, there was no hedgerow assessment conducted at Hedgerow 5E as the fields adjacent to this hedgerow could not be accessed at the time of survey. A summary figure of the hedgerow assessments is included in *Plate 2-16* below.

Turbine 5 will be located on improved agricultural grassland (GA1) habitat which is bordered by hedgerows (WL1) to the south and west and treelines (WL2) to the north and east.

Table 2-19 Botanical Survey Results – Turbine 5

Relevé T5	Grid reference: S 42124 73869	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	80

<i>Alopecurus pratensis</i>	meadow foxtail grass	60
<i>Ranunculus acris</i>	meadow buttercup	40
<i>Ranunculus repens</i>	creeping buttercup	30
<i>Rumex acetosa</i>	common sorrel	50
<i>Taraxacum officinale</i>	common dandelion	10
<i>Anthoxanthum odoratum</i>	sweet vernal grass	5
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	GL2C- <i>Holcus lanatus</i> – <i>Lolium perenne</i> grassland	
Affinity to Annex I habitat	No	



Plate 2-14 Example of receiving habitat at Turbine 5



Plate 2-15 Example of receiving habitat in the vicinity of Turbine 5

2.21

Hedgerow 5A

Table 2-20 Hedgerow Condition Assessment Results – Hedgerow 5A

Hedgerow ID:	Approximate Location:	Grid reference:
5A	NNW of Turbine 5 (Adjacent to Borrow Pit)	S 42113 74196
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	David Mesarcik	Continuous, Overgrown hedgerow >4m high, following wall/bank 0.5-1m, with poaching up to base of hedge
Hedgerow (Tree) Species Present:		
Species		Common Name
<i>Populus tremula</i>		aspen
<i>Fagus sylvatica</i>		beech
<i>Rubus fruticosus</i> agg.		bramble
<i>Sambucus nigra</i>		elder
<i>Crataegus monogyna</i>		hawthorn
Ground Flora Species Present:		
Species		Common Name
<i>Rubus fruticosus</i> agg.		brambles

<i>Vicia sepium</i>	bush vetch
<i>Cirsium arvense</i>	creeping thistle
<i>Rumex crispus ssp. Crispus</i>	curly dock
<i>Glechoma hederacea</i>	ground ivy
<i>Viola riviniana</i>	dog violets
<i>Hedera helix</i>	ivy
<i>Arum maculatum</i>	lords-and-ladies
<i>Geranium robertianum</i>	herb Robert
<i>Geum urbanum</i>	wood avens
<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.22

Hedgerow 5B

Table 2-21 Hedgerow Condition Assessment Results – Hedgerow 5B

Hedgerow ID:	Approximate Location:	Grid reference:
5B	N of Turbine 5 (Adjacent to access road)	S 42139 74078
Date Surveyed:	Surveyor(s):	Notes:
11/06/2024 11:00	Ciara Hackett, Katy Beckett & May McGrath	Semi-opaque, overgrown hedgerow >4m high, following wall/bank 0.5-1m with <20% of the length of the hedge degraded
Hedgerow (Tree) Species Present:		
Species		Common Name
Fraxinus excelsior		ash
Rosa canina		dog rose
Sambucus nigra		elder
Crataegus monogyna		hawthorn
Ilex aquifolium		holly
Hedera helix		ivy
Acer pseduplatanus		sycamore
Ground Flora Species Present:		
Species		Common Name
Glechoma hederacea		ground ivy
Phyllitis scolopendrium		hart’s tongue fern
Geranium robertianum		herb Robert
Geum urbanum		wood avens
Polystichum setiferum		soft shield fern
Species Diversity Significance*		
Hedgerow (Woody) Species Diversity:		1 - Slightly Significant
Ground Flora Species Diversity:		3 - Significant
Historical, Ecological and Landscape Significance:		

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Historical Significance:	2 - Moderately Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.23

Hedgerow 5C

Table 2-22 Hedgerow Condition Assessment Results – Hedgerow 5C

Hedgerow ID:	Approximate Location:	Grid reference:
5C	E of Turbine 5 (adjacent to T5 Hardstand)	S 42137 73804
Date Surveyed:	Surveyor(s):	Notes:
11/06/2024 11:00	Ciara Hackett, Katy Beckett & May McGrath	Dense, overgrown hedgerow >4m high, following wall/bank 0.5-1m.
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
<i>Hedera helix</i>	ivy	
<i>Acer pseudoplatanus</i>	sycamore	
<i>Rosa spp.</i>	wild rose	
Ground Flora Species Present:		
Species	Common Name	
<i>Glechoma hederacea</i>	ground ivy	
<i>Geranium robertianum</i>	herb Robert	

<i>Polystichum setiferum</i>	soft shield fern
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	1 - Slightly Significant
Ground Flora Species Diversity:	1 - Slightly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	4 - Highly Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	Yes

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.24

Hedgerow 5D

Table 2-23 Hedgerow Condition Assessment Results – Hedgerow 5D

Hedgerow ID:	Approximate Location:	Grid reference:
5D	ESE of Turbine 5	S 42167 73797
Date Surveyed:	Surveyor(s):	Notes:
11/06/2024 11:00	Ciara Hackett, Katy Beckett & May McGrath	Dense, overgrown hedgerow approx. 1.5-2.5m high with ploughing/poaching up to base of hedge.
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		

Species	Common Name
<i>Rubus fruticosus</i> agg.	brambles
<i>Galium aparine</i>	cleavers
<i>Ranunculus repens</i>	creeping buttercup
<i>Cirsium arvense</i>	creeping thistle
<i>Urtica dioica</i>	nettle
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	1 - Slightly Significant
Ground Flora Species Diversity:	0 - Low Significance
Historical, Ecological and Landscape Significance:	
Historical Significance:	2 - Moderately Significant
Structure, Construction & Associated Features:	0 - Low Significance
Landscape Significance:	0 - Low Significance
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow /ground flora species for any 30 m sample along the hedgerow.

2.25 Hedgerow 5F

Table 2-24 Hedgerow Condition Assessment Results – Hedgerow 5F

Hedgerow ID:	Approximate Location:	Grid reference:
5F	NNE of Turbine 5 (NW of Proposed Substation)	S 42376 74153
Date Surveyed:	Surveyor(s):	Notes:
11/06/2024 11:00	Ciara Hackett, Katy Beckett & May McGrath	Dense, overgrown hedgerow approx. 2.5-4m high, following a wall/bank <0.5m, with ploughing/poaching up to base of hedge.
Hedgerow (Tree) Species Present:		
Species	Common Name	

<i>Prunus spinosa</i>	blackthorn
<i>Sambucus nigra</i>	elder
<i>Crataegus monogyna</i>	hawthorn
<i>Hedera helix</i>	ivy
<i>Rosa spp.</i>	wild rose
Ground Flora Species Present:	
Species	Common Name
<i>Arum maculatum</i>	lords-and-ladies
<i>Geranium robertianum</i>	herb Robert
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	1 - Slightly Significant
Ground Flora Species Diversity:	1 - Slightly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	2 - Moderately Significant
Structure, Construction & Associated Features:	1 - Slightly Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.26

Hedgerow 5G

Table 2-25 Hedgerow Condition Assessment Results – Hedgerow 5G

Hedgerow ID:	Approximate Location:	Grid reference:
5G	NE of Proposed Substation	S 41731 74950
Date Surveyed:	Surveyor(s):	Notes:
11/06/2024 11:00	Katy Beckett	Semi-Translucent, overgrown hedgerow approx. 1.5-2.5m high.
Hedgerow (Tree) Species Present:		
Species		Common Name
Sambucus nigra		elder
Crataegus monogyna		hawthorn
Hedera helix		ivy
Ground Flora Species Present:		
Species		Common Name
Glechoma hederacea		ground ivy
Species Diversity Significance*		
Hedgerow (Woody) Species Diversity:		0 - Low Significance
Ground Flora Species Diversity:		0 - Low Significance
Historical, Ecological and Landscape Significance:		
Historical Significance:		2 - Moderately Significant
Structure, Construction & Associated Features:		0 - Low Significance
Landscape Significance:		0 - Low Significance
Habitat Connectivity Significance:		2 - Moderately Significant
Other Factors of Significance:		
Hedgerow follows Townland Boundary?		No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.27

Hedgerow 5H

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Table 2-26 Hedgerow Condition Assessment Results – Hedgerow 5H

Hedgerow ID:	Approximate Location:	Grid reference:
5H	N of Proposed Substation	S 42466 74067
Date Surveyed:	Surveyor(s):	Notes:
11/06/2024 11:00	Ciara Hackett, Katy Beckett & May McGrath	Semi-opaque, overgrown hedgerow approx. 2.5-4m high, following wall/bank <0.5m
Hedgerow (Tree) Species Present:		
Species		Common Name
<i>Prunus spinosa</i>		blackthorn
<i>Sambucus nigra</i>		elder
<i>Crataegus monogyna</i>		hawthorn
<i>Hedera helix</i>		ivy
<i>Rosa spp.</i>		wild rose
Ground Flora Species Present:		
Species		Common Name
<i>Glechoma hederacea</i>		ground ivy
<i>Arum maculatum</i>		lords-and-ladies
<i>Geranium robertianum</i>		herb Robert
<i>Geum urbanum</i>		wood avens
Species Diversity Significance*		
Hedgerow (Woody) Species Diversity:		1 - Slightly Significant
Ground Flora Species Diversity:		1 - Slightly Significant
Historical, Ecological and Landscape Significance:		
Historical Significance:		2 - Moderately Significant
Structure, Construction & Associated Features:		1 - Slightly Significant
Landscape Significance:		2 - Moderately Significant
Habitat Connectivity Significance:		2 - Moderately Significant

Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30m sample along the hedgerow.

2.28

Hedgerow 5I

Table 2-27 Hedgerow Condition Assessment Results – Hedgerow 5I

Hedgerow ID:	Approximate Location:	Grid reference:
5I	Directly adjacent to Proposed Substation	S 42506 74033
Date Surveyed:	Surveyor(s):	Notes:
11/06/2024 11:00	Ciara Hackett, Katy Beckett & May McGrath	Dense, overgrown hedgerow approx. 2.5-4m high, following a wall/bank <0.5m, with ploughing/poaching up to base of hedge.
Hedgerow (Tree) Species Present:		
Species		Common Name
<i>Prunus spinosa</i>		blackthorn
<i>Sambucus nigra</i>		elder
<i>Crataegus monogyna</i>		hawthorn
<i>Hedera helix</i>		ivy
<i>Rosa spp.</i>		wild rose
Ground Flora Species Present:		
Species		Common Name
<i>Rubus fruticosus agg.</i>		brambles
<i>Cirsium arvense</i>		creeping thistle
<i>Urtica dioica</i>		nettle
Species Diversity Significance*		
Hedgerow (Woody) Species Diversity:		1 - Slightly Significant
Ground Flora Species Diversity:		0 - Low Significance
Historical, Ecological and Landscape Significance:		
Historical Significance:		2 - Moderately Significant

Structure, Construction & Associated Features:	1 - Slightly Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

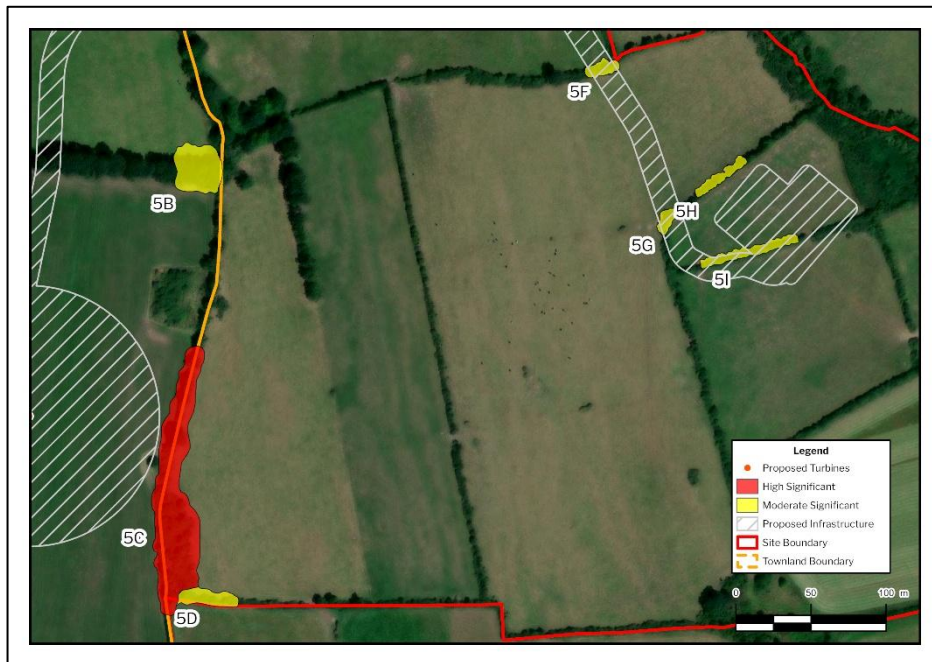


Plate 2-16 Map Section showing the Locations of Hedgerows 5B, 5C, 5D, 5F, 5G, 5H and 5I relative to Turbine 5

2.29

Turbine 6

The results of the relevé conducted at the proposed location of Turbine 6 are displayed in *Table 2-28* below, while the hedgerow assessments for surrounding hedgerows 6A, 6B and 6C are provided in *Tables 2-29 - 2-31* below. A summary figure of the hedgerow assessments is included in *Plate 2-19* below. The results of the relevé conducted at the Temporary Construction Compound North of Turbine 6 are summarised in *Table 2-32*.

Turbine 6 will be located on an improved agricultural grassland (GA1) habitat closely bordered by hedgerows (WL1) to the south.

Table 2-28 Botanical Survey Results – Turbine 6

Relevé T6	Grid reference: S 41854 73269	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	90
<i>Poa annua</i>	annual meadow grass	50
<i>Ranunculus repens</i>	creeping buttercup	50
<i>Taraxacum officinale</i>	common dandelion	40
<i>Trifolium repens</i>	white clover	50
<i>Bellis perennis</i>	common daisy	2
<i>Cerastium fontanum</i>	mouse-ear chickweed	2
<i>Rumex acetosa</i>	common sorrel	5
<i>Cardamine pratensis</i>	cuckoo flower	2
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	GL2C- <i>Holcus lanatus</i> – <i>Lolium perenne</i> grassland	
Affinity to Annex I habitat	No	



Plate 2-17 Example of receiving habitat at Turbine 6



Plate 2-18 Example of receiving habitat in the vicinity of Turbine 6

2.30

Hedgerow 6A

Table 2-29 Hedgerow Condition Assessment Results – Hedgerow 6A

Hedgerow ID:	Approximate Location:	Grid reference:
6A	WNW of Turbine 6 (S of T5)	S 41954 73639
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	Ciara Hackett David Mesarcik	Continuous, semi-opaque, A-shaped hedgerow approx. 1.5 - 2.5m high, following wall/bank 0.5-1m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Cirsium arvense</i>	creeping thistle	
<i>Rumex crispus</i> ssp. <i>Crispus</i>	curly dock	
<i>Taraxacum officinale</i> agg.	dandelion	
<i>Viola riviniana</i>	dog violets	
<i>Veronica chamaedrys</i>	germander speedwell	
<i>Glechoma hederacea</i>	ground ivy	
<i>Phyllitis scolopendrium</i>	hart's tongue fern	
<i>Stachys sylvatica</i>	hedge woundwort	
<i>Geranium robertianum</i>	herb Robert	

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<i>Heracleum sphondylium</i>	hogweed
<i>Hedera helix</i>	ivy
<i>Athyrium filix-femina</i>	lady fern
<i>Arum maculatum</i>	lords-and-ladies
<i>Urtica dioica</i>	nettle
<i>Primula vulgaris</i>	primrose
<i>Polystichum setiferum</i>	soft shield fern
<i>Geum urbanum</i>	wood avens
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	1 - Slightly Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	2 - Moderately Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	0 - Low Significance
Habitat Connectivity Significance:	1 - Slightly Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow/ground flora species for any 30 m sample along the hedgerow.

2.31

Hedgerow 6B

Table 2-30 Hedgerow Condition Assessment Results – Hedgerow 6B

Hedgerow ID:	Approximate Location:	Grid reference:
6B	S of / Adjacent to Turbine 6	S 41732 73268
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	Ciara Hackett David Mesarcik	Dense, overgrown hedgerow >4m high, following wall/bank 0.5-1m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Rubus fruticosus agg.</i>	bramble	
<i>Ulex europaeus</i>	gorse	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Corylus avellana</i>	hazel	
<i>Ilex aquifolium</i>	holly	
<i>Lonicera periclymenum</i>	honeysuckle	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Potentilla sterilis</i>	barren strawberry	
<i>Hyacinthoides non-scripta</i>	bluebell	
<i>Rubus fruticosus agg.</i>	brambles	
<i>Rumex obtusifolius</i>	broad-leaved dock	
<i>Cirsium vulgare</i>	bull thistle	
<i>Galium aparine</i>	cleavers	
<i>Bellis perennis</i>	common daisy	

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<i>Jacobaea vulgaris</i>	common ragwort
<i>Anthriscus sylvestris</i>	cow parsley
<i>Ranunculus repens</i>	creeping buttercup
<i>Cirsium arvense</i>	creeping thistle
<i>Rumex crispus ssp. Crispus</i>	curly dock
<i>Viola riviniana</i>	dog violets
<i>Veronica chamaedrys</i>	germander speedwell
<i>Stellaria holostea</i>	greater stitchwort
<i>Glechoma hederacea</i>	ground ivy
<i>Phyllitis scolopendrium</i>	hart's tongue fern
<i>Sisymbrium officinale</i>	hedge mustard
<i>Stachys sylvatica</i>	hedge woundwort
<i>Geranium robertianum</i>	herb Robert
<i>Hedera helix</i>	ivy
<i>Arum maculatum</i>	lords-and-ladies
<i>Ranunculus acris</i>	meadow buttercup
<i>Cerastium fontanum</i>	mouse-ear chickweed
<i>Urtica dioica</i>	nettle
<i>Juncus effusus</i>	soft rush
<i>Polystichum setiferum</i>	soft shield fern
<i>Vicia sativa</i>	vetch
<i>Trifolium repens</i>	white clover
<i>Geum urbanum</i>	wood avens
<i>Cardamine flexuosa</i>	woodland bittercress
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	4 - Highly Significant
Ground Flora Species Diversity:	4 - Highly Significant

Historical, Ecological and Landscape Significance:	
Historical Significance:	1 - Slightly Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.

2.32

Hedgerow 6C

Table 2-310 Hedgerow Condition Assessment Results – Hedgerow 6C

Hedgerow ID:	Approximate Location:	Grid reference:
6C	SSE of Turbine 6 (Adjacent to Access Road)	S 41951 73237
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	Ciara Hackett David Mesarcik	Continuous, overgrown hedgerow >4m high, following wall/bank 0.5-1m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Ilex aquifolium</i>	holly	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Hyacinthoides non-scripta</i>	bluebell	

<i>Rubus fruticosus agg.</i>	brambles
<i>Galium aparine</i>	cleavers
<i>Ranunculus repens</i>	creeping buttercup
<i>Cirsium arvense</i>	creeping thistle
<i>Rumex crispus ssp. Crispus</i>	curly dock
<i>Glechoma hederacea</i>	ground ivy
<i>Geranium robertianum</i>	herb Robert
<i>Hedera helix</i>	ivy
<i>Ranunculus acris</i>	meadow buttercup
<i>Cerastium fontanum</i>	mouse-ear chickweed
<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
<i>Vicia sativa</i>	vetch
<i>Nasturtium officinale</i>	watercress
<i>Trifolium repens</i>	white clover
<i>Chamaenerion angustifolium</i>	willowherb
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	2 - Moderately Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	1 - Slightly Significant
Structure, Construction & Associated Features:	2 - Moderately Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow / ground flora species for any 30 m sample along the hedgerow.



Plate 2-19 Map Section showing the Locations of Hedgerows 6A, 6B and 6C relative to Turbine 6

2.33

Temporary Construction Compound North of Turbine 6

The temporary construction compound will be located in an improved agricultural grassland (GA1) habitat delineated by hedgerows (WL1) to the north, west and east. The compound will be located in the filed northeast of Turbine 6.

Table 2-32 Botanical Survey Results – Temporary Construction Compound

Relevé T6	Grid reference: S 41693 73562	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	10
<i>Poa annua</i>	annual meadow grass	40
<i>Ranunculus repens</i>	creeping buttercup	20
<i>Taraxacum officinale</i>	common dandelion	10
<i>Trifolium repens</i>	white clover	40
<i>Bellis perennis</i>	common daisy	20
<i>Cardamine pratensis</i>	cuckoo flower	5

Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)
IVC (Irish Vegetation Community classification)	WE1E - <i>Poa annua</i> - <i>Plantago major</i> Weed communities
Affinity to Annex I habitat	No



Plate 2-20 Example of receiving habitat at Temporary Construction Compound

2.34

Turbine 7

The results of the relevé conducted at the proposed location of Turbine 7 are displayed in *Table 2-33* below, while the hedgerow assessment for hedgerow 7A is provided in *Table 2-34* below. A summary figure of the hedgerow assessment is included in *Plate 2-23* below.

Turbine 7 will be located on improved agricultural grassland (GA1) habitat which is closely bordered by treelines (WL2) to the east, south and west.

Table 2.33 Botanical Survey Results – Turbine 7

Relevé T7	Grid reference: S 42559 73042	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	10
<i>Lolium perenne</i>	perennial ryegrass	70
<i>Agrostis capillaris</i>	common bent grass	15
<i>Cerastium fontanum</i>	mouse-ear chickweed	5
<i>Taraxacum officinale</i>	common dandelion	5
<i>Trifolium repens</i>	white clover	15
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	GL3B - <i>Lolium perenne</i> - <i>Trifolium repens</i> grassland	
Affinity to Annex I habitat	No	



Plate 2-21 Example of receiving habitat at Turbine 7



Plate 2-22 Habitat in the vicinity of Turbine 7

2.35

Hedgerow 7A

Table 2-34 Hedgerow Condition Assessment Results – Hedgerow 7A

Hedgerow ID:	Approximate Location:	Grid reference:
7A	W of / adjacent to Turbine 7	S 42577 72960
Date Surveyed:	Surveyor(s):	Notes:
29/05/2024 11:00	Ciara Hackett David Mesarcik	Dense, overgrown hedgerow >4m high, following wall/bank 0.5-1m with no large gaps
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Fraxinus excelsior</i>	ash	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn (saplings)	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Rumex obtusifolius</i>	broad-leaved dock	
<i>Cirsium vulgare</i>	bull thistle	
<i>Galium aparine</i>	cleavers	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Cirsium arvense</i>	creeping thistle	
<i>Rumex crispus</i> ssp. <i>Crispus</i>	curly dock	
<i>Rubus caesius</i>	dewberry	
<i>Glechoma hederacea</i>	ground ivy	

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Heracleum sphondylium	hogweed
Hedera helix	ivy
Urtica dioica	nettle
Plantago lanceolata	ribwort plantain
Polystichum setiferum	soft shield fern
Sonchus asper	spiny sowthistle
Vicia sativa	vetch

Species Diversity Significance*

Hedgerow (Woody) Species Diversity: 2 - Moderately Significant

Ground Flora Species Diversity: 4 - Highly Significant

Historical, Ecological and Landscape Significance:

Historical Significance: 1 - Slightly Significant

Structure, Construction & Associated Features: 2 - Moderately Significant

Landscape Significance: 2 - Moderately Significant

Habitat Connectivity Significance: 2 - Moderately Significant

Other Factors of Significance:

Hedgerow follows Townland Boundary? No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow/ground flora species for any 30 m sample along the hedgerow.



Plate 2-23 Map Section showing the Location of Hedgerow 7A relative to Turbine 7

2.36

Turbine 8

The results of the relevé conducted at the proposed location of Turbine 8 are displayed in *Table 2-35* below, while the hedgerow assessment for hedgerow 7A is provided in *Table 2-36* below. A summary figure of the hedgerow assessments is included in *Plate 2-25* below. The results of the relevé conducted at the Proposed Onsite Substation and the Met Mast are summarised in *Tables 2-37* and *2-38*, respectively.

Turbine 8 will be located on improved agricultural grassland (GA1) habitat which is bordered by a patch of mixed broadleaved woodland (WD1) to the west, and surrounded by treelines (WL2) to the south.

Table 2-35 Botanical Survey Results – Turbine 8

Relevé T8	Grid reference: S 41925 72859	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	perennial ryegrass	70
<i>Holcus lanatus</i>	Yorkshire-fog	10
<i>Agrostis capillaris</i>	common bent grass	10
<i>Cerastium fontanum</i>	mouse-ear chickweed	5
<i>Urtica dioica</i>	common nettle	20
<i>Rumex crispus</i>	curly dock	20

Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)
IVC (Irish Vegetation Community classification)	GL2C- <i>Holcus lanatus</i> – <i>Lolium perenne</i> grassland
Affinity to Annex I habitat	No



Plate 2-24 Example of receiving habitat at Turbine 8

Hedgerow 8A

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Table 2-36 Hedgerow Condition Assessment Results – Hedgerow 8A

Hedgerow ID:	Approximate Location:	Grid reference:
8A	W of / Directly adjacent to Turbine 8	S 41939 72952
Date Surveyed:	Surveyor(s):	Notes:
05/0/2024 11:00	Ciara Hackett David Mesarcik	Continuous, semi-translucent, overgrown hedgerow >4m high following a wall/bank <0.5m
Hedgerow (Tree) Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn	
<i>Rubus fruticosus</i> agg.	bramble	
<i>Rosa canina</i>	dog rose	
<i>Sambucus nigra</i>	elder	
<i>Crataegus monogyna</i>	hawthorn	
<i>Hedera helix</i>	ivy	
Ground Flora Species Present:		
Species	Common Name	
<i>Prunus spinosa</i>	blackthorn (saplings)	
<i>Hyacinthoides non-scripta</i>	bluebell	
<i>Rubus fruticosus</i> agg.	brambles	
<i>Rumex obtusifolius</i>	broad-leaved dock	
<i>Cirsium vulgare</i>	bull thistle	
<i>Galium aparine</i>	cleavers	
<i>Bellis perennis</i>	common daisy	
<i>Anthriscus sylvestris</i>	cow parsley	
<i>Ranunculus repens</i>	creeping buttercup	
<i>Cirsium arvense</i>	creeping thistle	
<i>Rumex crispus</i> ssp. <i>Crispus</i>	curly dock	

<i>Taraxacum officinale</i> agg.	dandelion
<i>Rubus caesius</i>	dewberry
<i>Viola riviniana</i>	dog violets
<i>Veronica chamaedrys</i>	germander speedwell
<i>Glechoma hederacea</i>	ground ivy
<i>Geranium robertianum</i>	herb Robert
<i>Heracleum sphondylium</i>	hogweed
<i>Hedera helix</i>	ivy
<i>Arum maculatum</i>	lords-and-ladies
<i>Urtica dioica</i>	nettle
<i>Polystichum setiferum</i>	soft shield fern
<i>Sonchus asper</i>	spiny sowthistle
<i>Vicia sativa</i>	vetch
<i>Geum urbanum</i>	wood avens
<i>Brachypodium sylvaticum</i>	wood false-brome
Species Diversity Significance*	
Hedgerow (Woody) Species Diversity:	3 - Significant
Ground Flora Species Diversity:	4 - Highly Significant
Historical, Ecological and Landscape Significance:	
Historical Significance:	1 - Slightly Significant
Structure, Construction & Associated Features:	1 - Slightly Significant
Landscape Significance:	2 - Moderately Significant
Habitat Connectivity Significance:	2 - Moderately Significant
Other Factors of Significance:	
Hedgerow follows Townland Boundary?	No

Species in **Bold** are those included in the species list within Appendix D of the HAS guidelines (Foulkes et al., 2013).

* Species Diversity Significance is calculated as the highest significance value for hedgerow/ground flora species for any 30 m sample along the hedgerow.



Plate 2-25 Map Section showing the Location of Hedgerow 8A relative to Turbine 8

2.38

Proposed Onsite Substation

The proposed onsite substation and battery energy storage system (BESS) compound is within an area of improved agricultural grassland (GA1). The field is delineated by treelines (WL2) to the west, hedgerows (WL1) to the southeast and Scrub (WS1) to the northeast.

Table 2-37 Botanical Survey Results – Proposed Onsite Substation, BESS

Relevé S1	Grid reference: S 42489 74046	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Lolium perenne</i>	perennial ryegrass	50
<i>Holcus lanatus</i>	Yorkshire-fog	60
<i>Agrostis capillaris</i>	common bent grass	30
<i>Trifolium repens</i>	white clover	20
<i>Alopecurus pratensis</i>	meadow foxtail grass	10
<i>Cerastium fontanum</i>	mouse-ear chickweed	5
<i>Urtica dioica</i>	common nettle	30
Fossitt (2000) Habitat Classification		Improved agricultural grassland (GA1)

IVC (Irish Vegetation Community classification)	GL2C- <i>Holcus lanatus</i> – <i>Lolium perenne</i> grassland
Affinity to Annex I habitat	No



Plate 2-26 Example of receiving habitat in the footprint of the proposed onsite substation, BESS

2.39

Met Mast

The proposed met mast will be located within a field comprising improved agricultural grassland (GA1) habitat bordered by treeline (WL2) with hedgerows (WL1) to the north.

Table 2-38 Botanical Survey Results – Met Mast

Relevé M1	Grid reference: S 41591 73604	Date 30/04/2024
Species	Common Name	% Cover
Vascular Plants		
<i>Holcus lanatus</i>	Yorkshire-fog	15
<i>Poa annua</i>	annual meadow grass	40
<i>Lolium perenne</i>	perennial ryegrass	60
<i>Ranunculus repens</i>	creeping buttercup	20
<i>Bellis perennis</i>	common daisy	10
<i>Taraxacum officinale</i>	common dandelion	5
Fossitt (2000) Habitat Classification	Improved agricultural grassland (GA1)	
IVC (Irish Vegetation Community classification)	WE1E - <i>Poa annua</i> - <i>Plantago major</i> Weed communities	
Affinity to Annex I habitat	No	



Plate 2-27 Example of receiving habitat at the proposed Met Mast

2.40

Hedgerow Summary

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Plate 2-28 Representative example of a Moderately Significant Hedgerow sampled near Turbine 5 at the south of the Proposed Windfarm Site



Plate 2-29 Representative example of a Highly Significant Hedgerow sampled near Turbine 6 at the south of the Proposed Windfarm Site



Plate 2-30 Representative example of a Highly Significant Hedgerow sampled along an existing access track at the south of the Proposed Windfarm Site



Plate 2-31 Representative example of a Highly Significant Hedgerow sampled near Turbine 2 at the north of the Proposed Windfarm Site



Plate 2-32 Representative example of a Highly Significant Hedgerow sampled near Turbine 4 at the north of the Proposed Windfarm Site



Plate 2-33 Representative example of a Highly Significant Hedgerow sampled near Turbine 3 at the north of the Proposed Windfarm Site. Note the mature ash tree with veteran features.



Map Legend

- Proposed Turbines
- ▨ Proposed Infrastructure
- ▭ EIAR Site Boundary
- - - Townland Boundary
- Hedgerow Significance**
- ▭ High Significant
- ▭ Moderate Significant

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



SITE LOCATION - NOT TO SCALE

Drawing Title
Map of Hedgerows Surveyed within North of Site

Project Title		
AIP Seskin Wind Farm		
Project No.	Drawing No.	Scale
231103	2.1	1:5,500
Drawn By:	Checked By:	Date
BOC	CC	19/06/2025



Email: info@mkofireland.ie / Website: www.mkofireland.ie



Map Legend

- Proposed Turbines
- Proposed Infrastructure
- EIAR Site Boundary
- Townland Boundary
- Hedgerow Significance**
 - High Significant
 - Moderate Significant

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



SITE LOCATION - NOT TO SCALE

Map of Hedgerows Surveyed within South of Site

Project Title		
AIP Seskin Wind Farm		
Project No.	Drawing No.	Scale
231103	2.2	1:5,500
Drawn By:	Checked By:	Date
BOC	CC	19/06/2025



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3.

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APPENDIX A

Hedgerow Assessment Species List

Hedgerow Assessment Species List:

**Adapted from: Foulkes, N., Fuller J., Little, D., McCourt, S., Murphy, P. (2013) Hedgerow Appraisal System Best Practise Guidance on Hedgerow Surveying, Data Collation and Appraisal. The Heritage Council, Dublin.*

Hedgerow Tree Species Present:

Native Species:

Alnus glutinosa (Alder)
Betula pendula (Silver birch)
Betula pubescens (Downy birch)
Cornus sanguinea (Dogwood)
Corylus avellana (Hazel)
Crataegus monogyna (Hawthorn)
Cytisus scoparius (Broom)
Euonymus europaeus (Spindle-tree)
Fraxinus excelsior (Ash)
Hedera helix (Ivy)
Ilex aquifolium (Holly)
Lonicera periclymenum (Honeysuckle)
Malus sylvestris (Crab Apple)
Myrica gale (Bog Myrtle)
Pinus sylvestris (Scots pine)
Populus nigra (Black poplar)
Populus tremula (Aspen)
Prunus avium (Wild cherry)
Prunus padus (Bird Cherry)
Prunus spinosa (Blackthorn)
Quercus petraea (Sessile oak)
Quercus robur (Pedunculate oak)
Rhamnus cathartica (Purging Buckthorn)
Rosa spp. (Wild Rose)
Rubus idaeus (Raspberry)
Salix aurita (Eared willow)
Salix caprea (Goat willow)
Salix cinerea (Grey willow)
Salix pentandra (Bay Willow)
Sambucus nigra (Elder)
Solanum dulcamara (Bittersweet)
Sorbus aucuparia (Rowan)
Sorbus hibernica (Whitebeam)
Taxus baccata (Yew)
Ulex europaeus (Gorse)
Ulmus glabra (Wych Elm)
Viburnum opulus (Guelder rose)

Naturalised Species:

Acer pseduplatanus (Sycamore)
Aesculus hippocastanum (Horse Chestnut)
Carpinus betulus (Hornbeam)
Clematis alba (Clematis)
Fagus sylvatica (Beech)
Ligustrum vulgare (Wild Privet)
Lonicera nitida (Dwarf Box)
Malus domestica (Wild Apple)
Prunus cerasus (Sour Cherry)
Prunus domestica (Wild Plum)
Prunus laurocerasus (Cherry laurel)
Rhododendron Ponticum (Rhododendron)
Salix alba (White willow)
Salix fragilis (Crack willow)
Salix triandra (Osier)
Symphoricarpos albus (Snowberry)
Ulmus procera (English Elm)
Viburnum lantana (Wayfaring tree)

Non-native Species:

Acer campestre (Field Maple)
Castanea sativa (Spanish Chestnut)
Fuchsia magellanica (Fuchsia)
Juglans regia (English Walnut)
Laburnum anagyroides (Laburnum)
Ligustrum ovalifolium (Japanese Privet)
Populus alba (White Poplar)
Pyrus communis (Wild Pear)
Syringa vulgaris (Lilac)
Tilia spp. (Lime)

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Ground Flora Species Present:

Ajuga reptans (Bugle)
 Alliaria petiolata (Garlic Mustard)
 Allium ursinum (Ramsons)
 Anemone nemorosa (Wood Anemone)
 Anthriscus sylvestris (Cow Parsley)
 Arum maculatum (Lords-and-Ladies)
 Chrysosplenium oppositifolium (Opposite Leaved Golden Saxifrage)
 Conopodium majus (Pignut)
 Digitalis purpurea (Foxglove)
 Epipactis helleborine (Broad-leaved Helleborine)
 Fragaria vesca (Wild Strawberry)
 Galium odoratum (Sweet Woodruff)
 Geranium robertianum (Herb Robert)
 Geum urbanum (Wood Avenas)
 Glechoma hederacea (Ground Ivy)
 Hyacinthoides non-scripta (Bluebell)
 Hypericum androsaemum (Tutsan)
 Lapsana communis (Nipplewort)
 Lathraea squamaria (Toothwort)
 Luzula sylvatica (Great Woodrush)
 Lysimachia nemorum (Yellow Pimpernel)
 Neottia nidus-avis (Birds-nest Orchid)
 Oxalis acetosella (Wood Sorrel)
 Potentilla sterilis (Barren Strawberry)
 Primula vulgaris (Primrose)
 Ranunculus ficaria (Lesser Celandine)
 Sanicula europaea (Wood Sanicle)
 Stachys sylvatica (Hedge Woundwort)
 Stellaria holostea (Greater Stitchwort)
 Veronica Montana (Wood Speedwell)
 Viola spp. (Dog Violets)
 Athyrium filix-femina (Lady Fern)
 Blechnum spicant (Hard Fern)
 Dryopteris filix-mas (Male Fern)
 Dryopteris dilatata (Broad Buckler Fern)
 Dryopteris affinis (Scaly Male Fern)
 Dryopteris aemula (Hay-scented Buckler Fern)
 Dryopteris carthusiana (Narrow Buckler Fern)
 Phyllitis scolopendrium (Hart's Tongue Fern)
 Polystichum setiferum (Soft Shield Fern)
 Polypodium spp. (Polypody Fern)
 Equisetum telmateia (Great Horsetail)
 Equisetum sylvaticum (Wood horsetail)

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APPENDIX B

Hedgerow Appraisal Methods Table

Table 1.2: Criteria for assessing Hedgerow Significance (historical, ecological and landscape)

Foulkes, N., Fuller J., Little, D., McCourt, S., Murphy, P. (2013) Hedgerow Appraisal System - Best Practise Guidance on Hedgerow Surveying, Data Collation and Appraisal. The Heritage Council, Dublin.

	0	1	2	3	4
Historical Significance	Low Significance	Slightly Significant	Moderately Significant	Significant	Highly Significant
Period of Establishment (B,B1,B2,B3,B4,F,W)	Recently Established (0-25 years)	Internal Field Boundary	Roadside / Rail / Canal Boundary: Farm Boundary, March ditch*, Mearing* *old terms for farm boundaries	Boundary appears on 1 st Edition O.S.	Townland Parish / County Boundary: Area shown as, or connected to, woodland on 1 st Edition O.S. map: Connects to feature recorded on Sites and Monuments Record
				Non-linear (excluding roadside)	
		Past evidence of laying or coppicing			

	0	1	2	3	4
Species Diversity Significance	Low Significance	Slightly Significant	Moderately Significant	Significant	Highly Significant
Tree / Shrub / Climber Species Count (Floristic) (All species)	(1-3 species / 30m strip)	(4/5 species / 30m strip)	(6/7 species / 30m strip)	(8/9 species / 30m strip)	(10+ species / 30m strip)

Table 1 [continued]

	0	1	2	3	4
Ground Flora Significance	Low Significance	Slightly Significant	Moderately Significant	Significant	Highly Significant
Species type (Y)	Dominated by ruderal species* - nettles / docks / thistles / cleavers				
Species Count (from list) (Floristic)	(<2 species / 30m strip)	(2-3 species / 30m strip)	(4-5 species / 30m strip)	(6-7 species / 30m strip)	(>7 species / 30m strip)
Pteridophytes (Ferns) (from list) (Floristic)				3-5 species	>5 species

*Ruderal species - Weedy vegetation that shows a preference for growing on compacted, ploughed, or otherwise disturbed ground.

	0	1	2	3	4
Structure, Construction & Associated Features	Low Significance	Slightly Significant	Moderately Significant	Significant	Highly Significant
Wall / Bank (G1,G2,G3,H)	None	Wall / Bank < 0.5m (height / depth)	Wall / Bank 0.5 - 1m	Wall / Bank > 1m	Double Ditch
Drain / Ditch (B,I,I1)			Dry Ditch	Wet Ditch / Drain	Stream / River
Other (Target Notes)			Badger Set		
Other (G3)			Green Lane		

Table 1 [continued]

	0	1	2	3	4
Habitat Connectivity Significance	Low Significance	Slightly Significant	Moderately Significant	Significant	Highly Significant
(C1,C2,D1,D2,D3)	No connection with other semi-natural habitat	Single link with semi-natural habitat including hedgerow	Multiple links with semi-natural habitats, including other hedgerows	Link with woodland / forest habitat	Link with designated area, particularly woodland
	0	1	2	3	4
Landscape Significance	Low Significance	Slightly Significant	Moderately Significant	Significant	Highly Significant
(J, P,Q, Desk study)		Wind shaped	Mature Hedgerow Trees		Area covered by Landscape designation (Landscape Conservation Order, TPO, Amenity Area Order)
Other Factor/s of Significance	Record any other factors of significance which are not included above, e.g. upland hedgerow with landscape significance.				

Table 2: Criteria for assessing condition assessment of hedgerows.

Structural Variables	0	1	2	3
	Unfavourable	Adequate	Favourable	Highly favourable
Dimensions				
Height (K)	<1.5m	1.5 – 2.5m	2.5 – 4m	>4m
Width (L)	<1m	1 – 2m	2- 3m	>3m
Profile (J,J1)	Remnant; Derelict;	Wind shaped; Losing Base Structure	Boxed / A-shaped; Straight sided	Overgrown; Top heavy/ undercut; Outgrowths at base
Basal density / porosity to light of woody shrubs? (N)	Open	Semi-translucent	Semi-opaque	Opaque / Dense

Continuity	0	1	2	3
	Unfavourable	Adequate	Favourable	Highly favourable
% gaps (M)	>10%	5-10%	<5%	Continuous
Specific gaps (M1)	Individual Gap > 5m	Individual gap <5m	No gaps	No gaps

Table 2 [continued]

Negative Indicators/ Degradation / Issues affecting long-term viability	0	1	2	3
	Unfavourable	Adequate	Favourable	Highly favourable
Bank / Wall (O,O1)	>20% of the length of the hedge degraded	<20% of the length of the hedge degraded	Minor degradation	No degradation
% of canopy dominated by Ivy (Floristic)	>25%			
Unfavourable species composition (from list) (Floristic)	>10% of woody growth volume comprised of unfavourable species			
Ground Flora / Hedge Base (Y)	> 20% of ground layer showing evidence of Herbicide Use			
Ground Flora / Hedge Base (Y)	Contain Noxious weeds [*] / > 20% Dominated by Nutrient Rich Species			
Ground Flora / Hedge Base (Y)	Presence of alien invasive species ^B			
Degraded Margin (R2,R4)	Ploughing up to base of hedge shrubs or Poaching/erosion		(grassy) margin (2 m or greater on one side of the hedge)	(grassy) margins (2 m or greater on both sides of the hedge)

^{*} Noxious Weeds - Native plants of disturbed ground that impact adversely on agriculture. They may compete for space with tillage or forage crops, harbour pests or diseases, or be injurious to livestock or human beings. These are: Common ragwort (*Senecio jacobea*), Spear thistle (*Cirsium vulgare*), Creeping or field thistle (*C. arvense*) and two species of dock, i.e. the curled dock (*Rumex crispus*) and the broad-leaved dock (*Rumex obtusifolius*).

^B Alien invasive species – see Table 1: ‘[Problematic Plant Species: Top 39](http://invasives.biodiversityireland.ie/)’ at <http://invasives.biodiversityireland.ie/> Those listed as occurring in woodland, hedgerows, demenses and on roadsides often occur in hedgerows. Cherry laurel (*Prunus laurocerasus*) can be added to this list.