

Appendix 19-3: Terrestrial Habitat Balance Sheet





ORIEL WIND FARM PROJECT

**Environmental Impact Assessment Report
Appendix 19-3: Terrestrial Habitat Balance Sheet**

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ORIEL WIND FARM PROJECT – TERRESTRIAL HABITAT BALANCE SHEET

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1 TERRESTRIAL HABITAT BALANCE SHEET

1.1 Introduction

This report provides the results of a terrestrial habitat calculation, which was completed to demonstrate if the Oriel Wind Farm Project (hereafter referred to as the 'Project') will result in a net loss of biodiversity.

Currently, no industry-wide or industry-specific standards for the assessment of biodiversity values have been established in Ireland. Therefore, this report uses a 'like-for-like' habitat principle, with no derived biodiversity metrics applied and subsequently a loss/ gain of habitat has been used as a proxy for loss/ gain of biodiversity. Habitat classifications use the Heritage Council's habitat classification system (Fossitt, 2000) for onshore habitats.

In order to complete the calculation, a quantitative and qualitative assessment of the terrestrial habitats impacted by the onshore infrastructure of the Project (i.e. above the HWM) has been undertaken.

It is necessary to support the quantitative assessment with a qualitative assessment. Qualitatively, there is a need to acknowledge that the quality of the habitat being reinstated is not always "like-for-like", but can take several years or more to re-establish to baseline quality depending on the habitat type.

The quantitative and qualitative assessments for terrestrial habitats are presented in sections 1.2 and 1.3.

1.2 Quantitative assessment

A quantitative assessment was completed which focuses on the terrestrial components of the Project. The following was considered to calculate the pre- and post-development habitat values:

- Baseline habitat: all the habitats present within the planning application boundary mapped in line with Fossitt (2000);
- Habitat loss: the quantity of habitat to be removed calculated in line with the Project onshore infrastructure proposals (see volume 2A, chapter 5: Project Description);
- Habitat restored: the habitat quantified to be reinstated as part of the Project (e.g. proposed planting and habitat reinstatement); and
- The Balance: the habitat restored minus the habitat loss.

The terrestrial habitats impacted by the Project are described and illustrated in appendix 19-1: Onshore Biodiversity – Supporting Information. The results for the quantitative assessment of habitat is shown in Table 1-1 below.

Table 1-1: Quantitative assessment of habitats.

Fossitt Code ¹	Habitat Classification	Baseline		Loss		Restored		Balance		Period of restoration ²
		Total Area (m ²)	Length (m)	Total Area (m ²)	Length (m)	Total Area (m ²)	Length (m)	Total Area (m ²)	Length (m)	
BC1	Arable crops	676,998	n/a	72,217	0	23,581	0	-48,636	0	Short-term
CB1	Shingle and gravel banks	1,232	n/a	758	0	758	0	0	0	Short-term
CS3	Sedimentary sea cliffs	472	n/a	135	0	135	0	0	0	Short-term
GA1	Improved agricultural grassland	247,976	n/a	9,909	0	9,909	0	0	0	Short-term
GA2	Amenity grassland (improved)	271	n/a	39	0	39	0	0	0	Short-term
GS1	Dry calcareous grassland	784	n/a	342	0	342	0	0	0	Medium-term
GS1_WS1 (mosaic)	Dry calcareous grassland & Scrub	14,287	n/a	1,943	0	1,943	0	0	0	Medium-term
GS2	Dry meadows and grassy verges	10,282	n/a	911	0	911	0	0	0	Short-term
GS1_GS2 (mosaic)	Dry calcareous grassland & Dry meadows and grassy verges	8,597	n/a	1,046	0	1,046	0	0	0	Medium-term
WD1	(Mixed) broadleaved woodland	1,758	n/a	0	0	0	0	0	0	Long-term
WD2	Mixed broadleaved/ conifer woodland	9,148	n/a	980	0	980	0	0	0	Long-term
WL1	Hedgerows	n/a	24,638	0	2,446	0	2,434	-12	0	Long-term
WL2	Treelines	5,355	588	704	63	704	63	0	0	Long-term
WS1	Scrub	3,898	n/a	1,740	0	1,740	0	0	0	Medium-term
WS2	Immature woodland	n/a	11740	0	536	0	536	0	0	Medium-term

2 (based on professional judgement): Short-term = a couple of months to five years; Medium-term = five to fifteen years; Long-term = fifteen to thirty years.

¹ Fossitt (2000) A Guide to Habitats in Ireland. The Heritage Council.

The outcome of the calculations shown in Table 1-1 indicate that, quantitatively, the Project will result in habitat losses for the following habitat types:

- BC1 - Arable crop; and
- WL1 – Hedgerow.

BC1 – Arable crop habitat is considered species poor and of low ecological value. Loss associated with this habitat is 47, 509 m². Habitat loss associated with WL1 is small in scale at 12 m.

Habitat *restored* in the form of re-planting and habitat re-instatement as part of the measures included in the project (see volume 2A, appendix 5-1: Construction Environmental Management Plan (CEMP); and chapter 19: Onshore Biodiversity), will ensure a no net quantitative loss for the following habitat types (excluding those areas outlined above):

- BC1 – Arable crop;
- CB1 - Shingle and gravel banks;
- CS3 - Sedimentary sea cliffs;
- GA1 - Improved agricultural grassland;
- GA2 - Amenity grassland (improved);
- GS1 - Dry calcareous grassland;
- GS1/ WS1 (mosaic) - Dry calcareous grassland & Scrub;
- GS2 - Dry meadows and grassy verges;
- GS1/ GS2 (mosaic) - Dry calcareous grassland & Dry meadows and grassy verges;
- WD2 - Mixed broadleaved/ conifer woodland;
- WL1 - Hedgerows;
- WL2 - Treelines;
- WS1 – Scrub; and
- WS2 - Immature woodland.

There will be no habitat loss for one habitat type, WD1 - (Mixed) broadleaved woodland.

1.3 Qualitative Assessment

As part of the measures included the Project (see volume 2A, appendix 5-1: CEMP; and chapter 19: Onshore Biodiversity), the following qualitative habitat measures outlined in Table 1-2 will be delivered. These measures will ensure a no net qualitative loss of biodiversity. As outlined above in Table 1-1, the period of restoration must also be considered when implementing measures outlined in Table 1-2.

A suitably qualified and experienced ecologist will be utilised in the implementation of these qualitative measures. The ecologist will be a full member of a relevant institution, such as the Chartered Institute of Ecology and Environmental Management (CIEEM), and will have relevant experience in habitat restoration and the management of mitigation measures.

Table 1-2: Measures included in the project - habitats.

Qualitative habitat measures	Relevant habitat type(s)
<ul style="list-style-type: none"> • Existing vegetation removed to facilitate construction activities will be retained for later reinstatement; • The profile of the sedimentary sea cliff will be reinstated and vegetation will be allowed to naturally regenerate after construction; 	<ul style="list-style-type: none"> • CS3 - Sedimentary sea cliffs

Qualitative habitat measures	Relevant habitat type(s)
<ul style="list-style-type: none"> Vegetation regeneration will be maintained for two years post-construction, with seasonal checks completed by a suitably qualified ecologist and yearly checks for the subsequent six years; Depending on the progression of re-establishment yearly checks may extend beyond this six year period. This will be determined by a suitably qualified ecologist. 	
<p>Replacement at all hedgerow removal locations will be undertaken and the following measures will be employed:</p> <ul style="list-style-type: none"> All replacement planting will be of native tree/shrub species of Irish providence (i.e. from within the island of Ireland); Replacement planting at each location will be dominated by native species identified for those locations within the baseline. Where ash was the dominant hedgerow species removed, hawthorn or blackthorn will be planted as dominant instead; The dominant tree species in the planting will be feathered whips, while sub-dominant species will be greater than 40 cm in height; All replacement hedgerow planting will contain, at a minimum, four native tree/shrub species; Planting will follow a double-row format of zig-zag pattern, with row spacing at 50 cm and tree spacing at 40-45 cm; All replacement hedgerows will be maintained for eight years post-construction, with seasonal checks by a suitably qualified arboriculturalist/ecologist for the first two years and yearly checks for the subsequent six years. A rate of 90% living individuals after four years and 80% living individuals at eight years will be retained, with replacement planting as required. Any gaps greater than 1 m will be replanted with native tree/shrub species of similar size to those adjacent; Depending on the progression of hedgerow replanting and restoration, yearly checks may extend beyond a six year period. This will be determined by a suitably qualified ecologist. 	<ul style="list-style-type: none"> WL1 – Hedgerows
<p>Replacement at all WL2, WD2 and WS2 removal locations will be undertaken and the following measures will be employed:</p> <ul style="list-style-type: none"> All replacement planting will be of native tree species of Irish providence (i.e. from within the island of Ireland); The dominant tree species will be feathered whips; All replacement planting will contain, at a minimum, four native tree species; Planting will follow a double-row format of zig-zag pattern, with row spacing at 50 cm and tree spacing at 40-45 cm; All replacement planting will be maintained for eight years post-construction, with seasonal checks by a suitably qualified arboriculturalist/ecologist for the first two years and yearly checks for the subsequent six years. A rate of 90% living individuals after four years and 80% living individuals at eight years will be retained, with replacement planting as required. Any gaps greater than 1 m will be replanted with native tree species of similar size to those adjacent; Depending on the progression of treeline and woodland replanting and restoration, yearly checks may extend beyond a six year period. This will be determined by a suitably qualified ecologist. 	<ul style="list-style-type: none"> WL2 – Treelines WD2 - Mixed broadleaved/conifer woodland WS2 - Immature woodland
<ul style="list-style-type: none"> Habitats associated with temporary works will be fully reinstated to their original condition (i.e. backfilling, natural regeneration, replanting etc.); CB1 - Shingle and gravel banks will be backfilled immediately (at low tide) with the existing material removed; GA1 - Improved agricultural grassland, GA2 - Amenity grassland (improved) and GS2 - Dry meadows and grassy verges will be re-instated allowed to naturally regenerate through re-seeding with a suitable grassland mix, depending on the habitat type. The seed mix will be proposed by the ecologist; GS1 - Dry calcareous grassland will be reinstated using nutrient poor subsoils (i.e. base rich) and allowed to naturally regenerate. A nurse crop will be used (if required) to stabilise the ground conditions and support regeneration; 	<ul style="list-style-type: none"> CB1 - Shingle and gravel banks GA1 - Improved agricultural grassland GA2 - Amenity grassland (improved) GS1/ WS1 (mosaic) - Dry calcareous grassland & Scrub GS2 - Dry meadows and grassy verges GS1/ GS2 (mosaic) - Dry calcareous grassland & Dry meadows and grassy verges

Qualitative habitat measures	Relevant habitat type(s)
<ul style="list-style-type: none"> • WS1 – Scrub habitat where it occurs as a standalone and/or mosaic habitat (i.e. alongside GS1), will be reinstated as GS1 - Dry calcareous and neutral grassland, and allowed to naturally regenerate; • Fencing will be implemented where the integrity of habitat restoration may be effected by livestock; • Vegetation regeneration will be maintained for two years post-construction, with seasonal checks completed by a suitably qualified ecologist; • Depending on the progression of natural regeneration and habitat restoration, maintenance of vegetation may extend beyond this two year period. This will be determined by a suitably qualified ecologist. 	<ul style="list-style-type: none"> • WS1 – Scrub

As described in section 1.1, qualitatively there is a need to acknowledge that the quality of the habitat being replaced and reinstated and is not always ‘like-for-like’, and depending on the habitat type will re-establish over the short, medium and long-term (see Table 1-1). For example (and as described in Table 1-2), surface vegetation may take up to two years to naturally regenerate, and hedgerows may take eight years or more to re-establish to baseline quality.

Additionally, in relation to WS1 – Scrub this habitat will be reinstated as GS1 - Dry calcareous and neutral grassland, and allowed to regenerate. Although this is not ‘like-for-like’ habitat (i.e. scrub can provide important ecological services such as shelter, food and habitat connectivity), reinstatement as GS1 habitat is considered an ecologically suitable alternative to create and restore species-rich grassland.

1.4 Conclusion

The assessment has included both a quantitative and qualitative analysis. Quantitatively, the Project will result in a loss of WL1 - Hedgerow (12 m) and BC1 - Arable crop habitats (48,636 m²). BC1 is considered to be of low ecological value. Qualitatively, and subject to the measures outlined in section 1.3, the Project will restore biodiversity with respect to both area and linear habitats lost as part of the Project.

While the qualitative habitat measures will not result in ‘like-for-like’ habitat, they will result in habitat restoration, as applied. In light of this, it is considered that the Project will be generally neutral in terms of loss/ gain of habitat, as a proxy for loss/ gain of biodiversity.