



RWE Renewables UK Onshore Wind Limited

EREDINE WIND FARM FURTHER ENVIRONMENTAL INFORMATION

Technical Appendix 6C: Habitat Loss Calculations





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WSP

7 Lochside View
Edinburgh Park
Edinburgh, Midlothian
EH12 9DH

+44 131 344 2300

WSP.com



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CONTENTS

1	INTRODUCTION	1
2	METHODOLOGY	2
2.1	ESTIMATING HABITAT LOSS/POTENTIAL CHANGE	2
2.2	FOOTPRINT CALCULATIONS	2
2.3	ZONE OF INFLUENCE FOR TEMPORARY AND INDIRECT HABITAT LOSS	3
	TEMPORARY HABITAT LOSS - CONSTRUCTION DISTURBANCE	3
	HYDROLOGICAL CHANGE - INDIRECT EFFECTS	3
3	RESULTS	5
3.1	HABITAT LOSS - DIRECT, TEMPORARY AND INDIRECT	5

TABLES

Table 2.1	Dimensions and Extents of the Revised Development	2
Table 3.1	Predicted effects to habitats from the Revised Development	6
Table 3.2	Predicted Effects to Peatland Condition Criteria Areas as a result of Revised Development	7

1 INTRODUCTION

This technical appendix details the approach, assumptions and results of the process adopted to quantify habitat loss and disturbance/degradation as a result of the construction of the Revised Development. The Ecological Impact Assessment presented in the Eredine Wind Farm Further Environmental Information (FEI) Report **Chapter 6: Ecology**, discusses the results and overall conclusions related to habitat loss.

Habitat loss, disturbance and potential degradation have been estimated using the Phase 1 habitat and National Vegetation Classification (NVC) survey results and the layout of the Revised Development. Where there is uncertainty in design layout (dimensions, extent etc.) various assumptions have been made regarding the construction methodology to arrive at realistic 'worst case' estimates.

Direct habitat loss has been calculated by overlaying the GIS footprint of the Revised Development on the NVC/Phase I Habitat map.

2 METHODOLOGY

2.1 ESTIMATING HABITAT LOSS/POTENTIAL CHANGE

There are three main ways by which habitat features may be affected during the construction and operational phase of the Revised Development:

- **Direct habitat loss:** to accommodate the Revised Development infrastructure, such as the wind turbine bases, internal wind farm tracks, crane hardstandings and grid connection infrastructure including substation. These losses are considered permanent in the context of this assessment.
- **Disturbance/temporary habitat loss:** the effects are variable in their extent, depending on the nature of the disturbance and sensitivity of the habitat feature. Some disturbance types (for example, temporary habitat loss for the creation of construction areas) result in medium to long-term disturbance which require extended recovery periods. In other cases (for example, installation of cables at the sides of access tracks, presence of a temporary construction compound and traversing of machinery) disturbance is short-term, and certain habitat types are able to recover quickly.
- **Indirect effects:** these primarily relate to changes in hydrology of peatland and wetland habitats in the context of the Revised Development, including dewatering of habitats, disruption to flow paths and changes to drainage regime.

2.2 FOOTPRINT CALCULATIONS

The dimensions and extents of the various infrastructure elements are detailed in **FEI Report Chapter 2: Project Design** and are summarised in **Table 2.1** below.

Table 2.1 Dimensions and Extents of the Revised Development

Wind Farm Component	Nature of infrastructure	Number or Length (km)	Maximum Dimensions assumed (m)
Wind Turbines	Permanent	17	Circular Turbine base – 25 m diameter
Turbine Crane Hardstanding	Permanent	17	Crane pad shapes are irregular – simplified ~25m x 50m.
Auxiliary Turbine Crane Hardstanding	Permanent	34	Crane pad shapes are irregular – simplified ~20m x 12m..
Anemometer Mast and Crane pad	Permanent	1	20m x 20m
Battery Energy Storage Compound	Permanent	1	Compound size 50m x 50m

New Access Tracks	Permanent	~17km	Up to 6m running width, wider on bends.
Existing Access Tracks	Permanent	~19km	Up to 6m running width, wider on bends.
Passing Places	Permanent	71	30m x 5m
Blade Laydown Areas	Temporary	17	~83m x 15m
Temporary Construction Compound 1	Temporary	1	100 m x 50 m
Temporary Construction Compound 2	Temporary	1	50 m x 50 m
Borrow Pit Search Areas	Temporary	9	All irregular shapes. Borrow pits will not necessarily take up the whole search area. BP1 – 192m x 95m BP2 – 205m x 228m BP3 – 165m x 75m BP4 – 164m x 107m BP5 – 106m x 133m BP6 – 185m x 118m BP7 – 152m x 60x BP8 – 244m x 101m BP9 – 150m x 123m

2.3 ZONE OF INFLUENCE FOR TEMPORARY AND INDIRECT HABITAT LOSS

TEMPORARY HABITAT LOSS - CONSTRUCTION DISTURBANCE

As well as direct habitat losses there will be areas within the Development Site subject to temporary physical disturbance (for example temporary laydown areas and temporary construction compounds). Temporary habitat losses will be defined as the following areas including a precautionary 4m buffer to allow machinery to work outwith these areas:

- Blade laydown areas;
- Temporary construction compound; and
- Borrow pits.

These areas would be reinstated following completion of works.

Additional areas of potential temporary disturbance may occur around permanent infrastructure including access track and crane pad hardstandings etc. and these areas are captured within the 10m indirect effects buffer as described in the following hydrological change section.

HYDROLOGICAL CHANGE - INDIRECT EFFECTS

Potential impacts on the hydrology of surface waters are addressed in **FEI Report Chapter 3: Geology, Hydrology and Hydrogeology**.

This assessment focuses on wetland and peatland habitats that are considered to be particularly sensitive to changes to surface water or groundwater hydrology resulting from construction activities associated with the Revised Development. Although there may be some construction disturbance experienced by the surrounding drier habitats, such habitats are expected to recover in the short term. As such, no indirect effects are expected with respect to the quality of composition of dry habitats.

However, some habitats adjacent to the zone of physical construction disturbance, particularly those sensitive to changes in surface hydrology such as blanket mire, wet heath and flush communities, may be indirectly affected due to hydrological changes associated with the permanent footprint. Hydrological changes can occur through the excavation of soil and bedrock during construction, where localised disruption to groundwater flow can occur. This can impact on associated groundwater abstractions (especially shallow sources, i.e. springs and wells) or on groundwater dependent terrestrial ecosystems (GWDTEs). An example of this is when blanket bog has new drainage ditches created adjacent to it, resulting in a lowering in the water level and losses of bog specialist plant species being replaced by species that are more adapted to drier conditions. This change over time is regarded as an indirect loss or degradation of habitat.

For the purposes of this assessment, a 10m hydrological disturbance zone has been assumed around all other hard infrastructure comprising access tracks, construction compounds, storage and laydown areas.

Effects would be further minimised through the implementation of good practice environmental measures (**Section 10.8 and Table 10.9, EIA Report Chapter 10: Ecology**), including proposals for full habitat re-instatement or restoration of temporarily disturbed habitat.

3 RESULTS

3.1 HABITAT LOSS - DIRECT, TEMPORARY AND INDIRECT

Table 3.1 provides the total estimated direct, temporary and indirect habitat loss from the construction of the Revised Development based on NVC classification.

Table 3.2 provides the total estimated direct, temporary and indirect habitat loss from the construction of the Revised Development based on peatland condition criteria.

Table 3.1 Predicted effects to habitats from the Revised Development

Phase 1 habitat type	NVC communities	Total areas of habitat within Study Area (ha)	Direct Habitat Loss (ha)	Temporary habitat loss /disturbance (ha)	Indirect habitat modification (ha)	Total area of habitat affected (ha)	% of total habitat in footprint affected by construction
Wet heath	M15b	12.2	-	-	-	-	-
	M15c	177	-	-	-	-	-
	M15d	542	0.18	1.11	0.53	1.82	0.34
Blanket bog/Wet modified bog/Bog pool	M17a	126.8	-	-	-	-	-
	M19a	104.9	0.12	0.14	0.37	0.63	0.60
	M25a/b	150.2	-	-	-	-	-
	M20	1.94	-	-	-	-	-
Acid flush	M6b	4.79	-	-	-	-	-
	M29	0.36	-	-	-	-	-
Base-rich flush	M10	0.08	-	-	-	-	-
Acid grassland	U4a/e	10.96	-	-	0.06	0.06	0.55
Recently felled coniferous plantation	-	243	3.40	4.48	n/a	7.88	3.24
Coniferous plantation	-	1,632	12.27	13.01	n/a	25.28	1.55
Bare ground	-	27.9	0.60	0.26	n/a	0.86	3.08

Table 3.2 Predicted Effects to Peatland Condition Criteria Areas as a result of Revised Development

Peatland Condition	Total areas of habitat within Study Area (Ha)	Direct Habitat Loss (Ha)	Temporary habitat loss /disturbance (Ha)	Indirect habitat modification (Ha)	Total area of habitat affected (Ha)	% affected by construction
Near Natural	0	0	0	0	0	0
Modified/ Near Natural	0.56	0	0	0	0	0
Modified	1,334	0.24	1.12	0.79	2.15	0.16
Drained	0	0	0	0	0	0
Eroding	59	0.10	0.14	0.29	0.53	0.90



7 Lochside View
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EH12 9DH

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