APPENDIX 7-1

TURBINE BASE BOTANICAL STUDY

Appendix 7-1 – Turbine Base Botanical Study

Proposed Cahermurphy Two Wind Farm

DOCUMENT DETAILS

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1.1 Turbine 1

T1 is located within conifer plantation dominated by sitka spruce, approximately 8m tall. Species diversity was poor with a high percentage of bare ground covered in pine needles. The turbine location is situated close to the edge of the conifer plantation where birch and honeysuckle occasionally occur. An existing forestry track runs adjacent to the edge of the plantation area and is bordered by grassy verges classified as Dry meadows and grassy verges.

Table 1.1 Turbine Base Botanical Study – Turbine 1

Turbine 1	Grid reference: ITM X: 507404 Y:669345	Date: 19/07/2019
Species	Common Name	Cover abundance (DAFOR)
Vascular Plants		
Picea sitchensis	Sitka spruce	D
Betula pubescens	Downy birch	O
Pteridium aquilinum	Bracken	O
Lonicera periclymenum	Honeysuckle	R
Non-vascular Plants		
Kindbergia praelonga		O
Thuidium tamariscinum		R
Parmotrema perlatum		R
Usnea sp.		R
% Tree Cover		70% canopy
%Bare Ground		80% (pine needles)
% Exposed rock		0%
% Bryophyte/lichen cover		30%
% Heath		0%
% Graminoids		0%
Mean vegetation height		8m canopy, 20cm ground

Peat depth	<1 m
Habitat Classification	**Conifer Plantation (WD4)**

Plate 1.1 T1 is located within an area of mature conifer plantation

1.2 Turbine 2

Turbine 2 is located in an area of wind-blown conifer plantation which has become scrubby, The location of T2 is surrounded by mature plantation which includes small pockets of willow scrub and birch woodland to north of the turbine location. The turbine location is accessed by a grassy track through the existing plantation.

Table 1.2 Turbine Base Botanical Study - Turbine 2

Turbine 2	Grid reference: ITM X: 507923 Y: 669756	Date: 19/07/2019
Species	Common Name	Cover abundance (DAFOR)
Vascular Plants		
Picea sitchensis	Sitka spruce	A
Betula pubescens	Downy birch	F
Rubus fruticosus agg.	Bramble	F
Juncus effusus	Soft rush	R
Pteridium aquilinum	Bracken	R
Ulex europaeus	Gorse	R
Potentilla erecta	Tormentil	R
Chamerion angustifolium	Rosebay willowherb	R
Non-vascular Plants		None
-		-
% Tree cover		80%
% Bare ground		0
% Exposed rock		0
% Bryophyte/lichen cover		0 %
% Heath		0%
% Graminoids		2%
Mean vegetation height		3m
Peat depth		Not measured

Habitat Classification	**Conifer plantation (WD4) with Scrub (WS1)**

Plate 1.2 T2 is located in an area of wind blown conifer lantation which has become scrubby

1.3 Turbine 3

- Grid reference: ITM X: 508530, Y: 669910
- Altitude: Approx. 100 metres

Turbine 3 is located in an area of young conifer plantation dominated by sitka spruce forming an impenetrable thicket. Therefore no relevé was undertaken at the location of T3. The plantation has been planted on peatland and species present in a clearing close to the location of T3 included purple moor grass and ling heather.

1.4 Turbine 4

Turbine 4 is located in an area of previously felled conifer plantation which has been planted with young sitka spruce. Other species present include soft rush, Yorkshire fog and rosebay willowherb. Small pockets of willow scrub are present in wetter areas outside the turbine location and a small stream, the Knocknahila More, is located approximately 150m to the south of turbine location.

Table 1.3 Turbine Base Botanical Study – Turbine 4

Turbine 4	Grid reference: ITM X: 507883, Y: 668931	Date: 19/07/2019
Species	**Common Name**	**Cover abundance (DAFOR)**
Vascular Plants		
Juncus effusus	Soft rush	F
Picea sitchensis	Sitka spruce	O
Holcus lanatus	Yorkshire fog	O
Chamaenerion angustifolium	Rosebay willowherb	O
Erica tetralix	Cross-leaved heath	R
Rubus fruticosus agg.	Bramble	R
Juncus articulatus/J. acutiflorus	Jointed rush/sharp flowered rush	R
Digitalis purpurea	Foxglove	R
Rumex acetosa	Common sorrel	R
Non-vascular Plants		
Hypnum jutlandicum		O
Racomitrium lanuginosum		R
% Tree cover		20%
% Bare ground		0
% Exposed rock		0
% Bryophyte/lichen cover		15 %
% Heath		3%
% Graminoids		52%

Mean vegetation height	1.5m (sitka spruce), 70cm (ground flora)
Peat depth	>1.5m
Habitat Classification	**Conifer plantation (WD4)**

Plate 1.3 T4 is located in previously felled conifer plantation which has been replanted with young sitka spruce.

1.5 Turbine 5

Turbine 5 is located in an area of young conifer plantation, planted with sitka spruce approximately 1.5 - 2m in height. Other species include willow and heath species including ling heather, purple moor grass and bilberry.

Table 1.4 Turbine Base Botanical Study - Turbine 5

Turbine 5	Grid reference: ITM X: 508313, Y: 669387	Date: 19/07/2019
Species	Common Name	Cover abundance (DAFOR)
Vascular Plants		
Picea sitchensis	Sitka spruce	A
Calluna vulgaris	Ling heather	O
Rubus fruticosus agg.	Bramble	O
Salix sp.	Willow sp.	O
Potentilla erecta	Tormentil	O
Agrostis capillaris	Common bent	O
Juncus effusus	Soft rush	O
Anthoxanthum odoratum	Sweet vernal grass	R
Holcus lanatus	Yorkshire fog	R
Pteridium aquilinum	Bracken	R
Molinia caerulea	Purple moor grass	R
Non-vascular Plants		
Sphagnum subnitens		O
Polytrichum sp.		R
% Tree cover		55%
% Bare ground		0
% Exposed rock		0
% Bryophyte/lichen cover		15 %
% Heath		26%

% Graminoids	32%
Mean vegetation height	2m (sitka spruce), 30cm (ground flora)
Peat depth	>1m
Habitat Classification	**Conifer plantation (WD4)**

Plate 1.4 T5 is located in young conifer plantation

1.6 Turbine 6

Turbine 6 is located in an area of wet heath which forms a mosaic with degraded cutover bog containing very small pockets of wetter lowland blanket bog. The heath is grazed and interspersed with areas of rush-dominated wet grassland.

Table 1.5 Turbine Base Botanical Study - Turbine 6

Turbine 6	Grid reference: ITM X: 508949, Y: 669555	Date: 27/08/2019
Species	Common Name	Cover abundance (DAFOR)
Vascular Plants		
Eriophorum vaginaum	Hare's tail cotton grass	F
Calluna vulgaris	Ling heather	F
Erica tetralix	Cross-leaved heath	R
Molinia caerulea	Purple moor grass	R
Anthoxanthum odoratum	Sweet vernal grass	O
Potentilla erecta	Tormentil	R
Juncus squarrosus	Heath rush	R
Non-vascular Plants		
Sphagnum capillifolium		R
Sphagnum subnitens		R
Sphagnum papillosum		R
Cladonia sp.		R
% Tree cover		0%
% Bare ground		0
% Exposed rock		0
% Bryophyte/lichen cover		11%
% Heath		38%
% Graminoids		56%
Mean vegetation height		25cm

Peat depth	0.6m
Habitat Classification	**Wet heath (HH3)**

Plate 1.5 T6 is located in an area of wet heath which forms a mosaic with cutover bog containing small pockets of lowland blanket bog.

1.7 Turbine 7

Turbine 7 is located in an area of recently felled conifer plantation and is characterised by large areas of bare peat being colonised by hare's tail cotton grass and soft rush.

Table 1.6 Turbine Base Botanical Study - Turbine 7

Turbine 7	Grid reference: ITM X: 508238, Y:668666	Date: 19/07/2019
Species	Common Name	Cover abundance (DAFOR)
Vascular Plants		
Eriophorum vaginatum	Hare's tail cotton grass	F
Juncus effusus	Soft rush	O
Juncus bulbosus	Bulbous rush	R
Calluna vulgaris	Ling heather	R
Chamaenerion angustifolium	Rosebay willowherb	R
Picea sitchensis	Sitka spruce	R
Salix cinerea	Grey willow	R
Carex radiata	Star sedge	R
Rubus fruticosus agg.	Bramble	R
Non-vascular Plants		
Hypnum jutlandicum		O
% Tree cover		3%
% Bare ground		25%
% Exposed rock		0
% Bryophyte/lichen cover		15%
% Heath		4%
% Graminoids		66%
Mean vegetation height		50cm
Peat depth		>1.5m
Habitat Classification		**Conifer plantation (WD4)**

Plate 1.6 T7 is located in recently felled conifer plantation

1.8 Turbine 8

- Grid reference: ITM X: 508997, Y: 668990
- Altitude: Approx. 118 metres

Turbine 8 is located in an area of mature conifer plantation (WD4) dominated by sitka spruce. A small stream runs along the northern boundary of the plantation. Bare ground cover was 100% with no ground flora and only bryophytes present. As no natural habitats other than conifer plantation were present, no relevé was taken at this location.

1.9 Turbine 9

Turbine 9 is located at the edge of an area of mature conifer plantation planted on heath/bog. The area is dominated by sitka spruce with large areas of bare peat. Other species present include purple moor grass and bog myrtle. A small stream is present to the north of T9 running through the conifer plantation.

Table 1.7 Turbine Base Botanical Study - Turbine 9

Turbine 9	Grid reference: ITM X: 508347, Y: 668142	Date: 27/08/2019
Species	Common Name	Cover abundance (DAFOR)
Vascular Plants		
Picea sitchensis	Sitka spruce	D
Molinia caerulea	Purple moor grass	O
Myrica gale	Bog myrtle	R
Rubus fruticosus agg.	Bramble	R
Juncus articulatus/J. acutiflorus	Jointed rush/sharp flowered rush	R
Non-vascular Plants		
Hypnum jutlandicum		O
% Tree cover		90%
% Bare ground		40%
% Exposed rock		0
% Bryophyte/lichen cover		15%
% Heath		10%
% Graminoids		25%
Mean vegetation height		8m (sitka spruce),
Peat depth		>1.5m
Habitat Classification		**Conifer plantation (WD4)**

Plate 1.7 T9 is located close to the edge of conifer plantation

1.10 Turbine 10

Turbine 10 is located in an area of wet grassland. The area to the north of T10 is characterised by rush dominated grassland while the area to the south of T10 is characterised by wet heath and cutover bog. T10 is accessed via an existing grassy track.

Table 1.8 Turbine Base Botanical Study - Turbine 10

Turbine 10	Grid reference: ITM X: 509011, Y: 668538	Date: 27/08/2019
Species	Common Name	Cover abundance (DAFOR)
Vascular Plants		
Holcus lanatus	Yorkshire fog	A
Agrostis capillaris	Common bent	F
Juncus effusus	Soft rush	O
Poa trivialis	Rough meadow grass	R
Rumex acetosa	Common sorrel	R
Festuca rubra	Red fescue	R
Anthoxanthum odoratum	Sweet vernal grass	R
Potentilla erecta	Tormentil	R
Non-vascular Plants		
Rhytideadelphus squarrosus		O
% Tree cover		0%
% Bare ground		2%
% Exposed rock		0%
% Bryophyte/lichen cover		<1%
% Heath		0%
% Graminoids		95%
Mean vegetation height		20cm
Peat depth		Not taken
Habitat Classification		**Wet grassland (GS4)**

Plate 1.8 Wet grassland at the location of T10

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