HEATHLAND WIND FARM

TECHNICAL APPENDIX A8.5

ECOLOGY CONSULTATION REPORT

JANUARY 2021

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1 INTRODUCTION

1.1 Background

Arcus Consultancy Services Limited (Arcus) has been commissioned by EDF Renewables (the client) to carry out non-avian ecology surveys at the consented Heathland Wind Farm ('the Development') in South Lanarkshire/West Lothian. The Development is located approximately 1.5 kilometres to the north-east of the village of Forth in South Lanarkshire and 2.5 km south of Breich in West Lothian. It is centred on National Grid Reference (NGR) 297000, 657000

A planning application for the Development (reference CL/16/0049) was submitted to South Lanarkshire Council in February 2016; and was consented on 26th October 2018. The consented application was for a 17-turbine layout. However, the client is now considering extending the Development into a small area of adjacent land to the east. The original boundary of the Development and the area of additional land are shown in Figure 1, Appendix 1. The following terminology is used for the different areas:

- The 'Heathland Site' refers to all land within the original boundary of the Development;
- The 'Woolfords Site' refers to the land within the additional area to the east of the original boundary of the Development; and
- The 'Combined Site' refers to the land within both the Heathland Site and the Woolfords Site.

Non-avian ecology surveys were undertaken for the Development between July and October 2013, and an update survey to search for signs of protected species was completed in August 2015. These surveys covered the Heathland Site (and appropriate buffer areas) only. The baseline survey dataset was used to inform the Environmental Impact Assessment (EIA)[1] for the Development.

As the layout of the Development is likely to change and may include the Woolford Site (which was not previously surveyed during baseline surveys), and since the recorded data are several years old, repeat ecology surveys will be completed in 2019. If a further planning application to optimise the Development is submitted, the results of these surveys will be used to inform an Ecological Impact Assessment (EcIA) of the potential impacts of the Development on important ecological features.

This document includes a summary of the completed (2013 and 2015) baseline ecology survey programme, as these results have informed the scope of the proposed repeat surveys. It also includes details of the proposed repeat surveys to be completed in 2019.

We would appreciate feedback from Scottish Natural Heritage (SNH) regarding the proposed survey programme and methods detailed in this Ecology Consultation Report.

1.2 Site Description

1.2.1 Heathland Site

The majority of the Heathland Site consists of plantation forest with large areas of clearfell. The plantation is largely comprised of commercially stocked mature Sitka spruce (*Picea sitchensis*). Active forestry operations (including felling and quarrying) are ongoing in parts of the Heathland Site.

[1] Partnerships for Renewables. (2016). *Heathland Wind Farm Environmental Statement*. Planning application reference CL/16/0049. Available on the South Lanarkshire Council planning application search page: https://publicaccess.southlanarkshire.gov.uk/online-applications/

Two watercourses and associated tributaries flow across the Heathland Site: Mouse Water in the west and Wormlaw Burn in the east. A relatively small, unnamed loch is also present in the north-west of the Heathland Site and there appears to be an underground reservoir (Lambcatch Reservoir) in the centre.

The elevation of the Heathland Site varies between approximately 260 m above sea level (asl) along Mouse Water and 362 m asl at Thirl Stane in the north-east of the Heathland Site. Slightly smaller peaks are also present at Worm Law in the south of the Heathland Site, and Tormywheel just outside the northern boundary (343 and 341 m asl respectively).

The A706 forms the western boundary of the Heathland Site and several forestry tracks are present within the plantation. There are no occupied dwellings within the Heathland Site.

1.2.2 Woolfords Site

The majority of the Woolfords Site consists of modified bog and marsh habitats, with several small, grassy areas and small, isolated plantation blocks. The presence of sheepfolds indicates that the area has been used for grazing, and the Woolfords Site is currently used for both cattle and sheep grazing. There are several minor watercourses within the Woolfords Site, but no waterbodies. A minor road forms the eastern boundary of the Woolfords Site, but there are no occupied dwellings within the Woolfords Site.

1.2.3 Surrounding Area

The area beyond the boundary of the Combined Site is characterised by large blocks of conifer plantation, some of which are contiguous with the Heathland Site, and areas of open moorland and rough grazing farmland. The closest waterbody is Cobbinshaw Reservoir approximately 0.8 km to the east of the Woolfords Site, and several smaller waterbodies are present in the wider area, particularly to the north of the Heathland Site. It is noted that a small sub-section of the main Cobbinshaw Reservoir is designated as a Site of Special Scientific Interest (SSSI) due to the open water transition fen habitat present in this area.

Three operational wind farms are located in the immediate surroundings of the Combined Site: the 54-turbine Black Law Wind Farm to the west, the 15-turbine Tormywheel Wind Farm to the north-west, and the seven-turbine Pates Hill Wind Farm to the north of the Woolfords Site. Several quarries and mines are also present to the north and south-west of the Combined Site. There are several towns, villages and farms scattered across the surrounding area, connected by a network of minor roads and 'A' roads. Railway lines are also present to the north and south of the Combined Site.

2 COMPLETED ECOLOGY SURVEYS – 2013 & 2015

2.1 Survey Programme

2.1.1 Initial Surveys (2013)

Baseline non-avian ecology surveys were completed in 2013. The survey programme comprised the following:

- **Extended Phase 1 Habitat Survey** of the Heathland Site and a surrounding 250 m buffer, completed in July 2013; this included searching for signs of the following protected species: otter (*Lutra lutra*), water vole (*Arvicola amphibious*), badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine martin (*Martes martes*) and reptile species.

- **National Vegetation Classification (NVC) Survey** of the Heathland Site and a surrounding 250 m buffer, completed in July 2013 (in conjunction with the Extended Phase 1 Habitat Survey).
- **Otter Survey** of all waterbodies, watercourses and minor ditches within the Heathland Site and a surrounding 250 m buffer, completed in August 2013;
- **Water Vole Survey** of all waterbodies, watercourses and minor ditches within the Heathland Site and a surrounding 100 m buffer, completed in August 2013in conjunction with the Otter Survey.
- **Badger Survey** of areas of suitable habitat (e.g. areas of woodland, copses and scrub, particularly those surrounding cultivated areas) within the Heathland Site and a surrounding 100 m buffer, completed in September and October 2013.
- **Bat Surveys** were completed between April and November 2013, comprising a walkover survey in spring to assess the potential value of habitats, features and structures within the Heathland Site and a surrounding 200 m buffer for roosting, foraging and commuting bats, and dedicated bat surveys as follows:
  - Activity surveys at potential roosts;
  - Dusk commuting watch surveys to determine the level of commuting activity to or across the site;
  - Walked and driven transect surveys;
  - Point count surveys; and
  - Automated Anabat surveys.
- **Great Crested Newt (*Triturus cristatus*) Surveys** were completed between April and May 2013, comprising the following:
  - A Habitat Suitability Assessment of all ponds within 500 m of the Heathland Site, using the great crested newt Habitat Suitability Index (HSI) in early April; and
  - Four presence/absence survey visits between mid-March and mid-June (with at least two visits undertaken between mid-April and mid-May) to search for great crested newts in all ponds with an average or higher HSI score, using three survey methods during each visit (torching, bottle trapping and egg searching).
- **Fish Surveys** were completed in September 2013 and comprised the following:
  - A Fish Habitat Suitability Assessment; and
  - An Electrofishing Survey on four sites on the Mouse Water and a single site on Wormlaw Burn.

Full details of the survey methods are presented in the Ecology Chapter of the Environmental Statement (ES)[1] and associated appendices.

2.1.2 Update Survey (2015)

A protected species survey within 250 m of all proposed infrastructure at the Heathland Site was undertaken in early August 2015 to update the results of the initial surveys. The update survey focussed on searching for field signs of badger, otter, water vole, red squirrel and bat species.

2.2 Survey Results

Key survey results are presented below; further details are presented in the Ecology Chapter of the ES[1] and associated appendices.

2.2.1 Habitats

Relatively small areas[2] of NVC communities corresponding with the following Annex I habitats were recorded:

- European dry heaths (NVC communities H10 and H12);
- Northern Atlantic wet heaths with *Erica tetralix* / Blanket bogs (NVC community M15);
- Blanket bog (NVC communities M15 and M25); and
- Degraded raised bog (NVC community M25).

In addition, relatively small areas[3] of wetland habitats (NVC communities M6, M15, M23, M25, MG9 and MG10) with medium or high potential to be groundwater-dependent were recorded.

2.2.2 Protected Species

- **Otter**: suitable habitat for otters is present throughout the Heathland Site and a small number of signs were recorded, including two potential holts (on separate watercourses), one recorded in 2013, and the other in 2015.
- **Water vole**: some habitat suitable for water vole was identified along the Wormlaw Burn but no evidence of water vole activity was found.
- **Badger:** badger activity was recorded within the survey area in both 2013 and 2015; full details are provided in a Confidential Appendix to the ES.
- **Bat species** three structures/features with the potential to house roosting bats were identified within 200 m of the Heathland Site in 2013, one of which was confirmed to support two roosting pipistrelle bats[4]. Relatively low levels of bat passes were recorded during the 2013 bat surveys:
  - No bats during the dusk commuting watch surveys;
  - A total of 62 pipistrelle (*Pipistrellus*) bat passes during the walked and driven transect surveys;
  - Commuting and feeding common pipistrelle and soprano pipistrelle (*Pipistrellus pygmaeus*) were recorded during the point count surveys with a mean of 0.05 bat passes per minute within the Site[5]; and
  - 935 files with bat passes recorded over a total of 208 survey nights during the automated Anabat surveys. The following species were recorded during these surveys: common pipistrelle, soprano pipistrelle, brown long-eared bat (*Plectus auritus*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*M. nattereri*), and an unidentified *Myotis* species.
- **Great crested newt**: no great crested newts were recorded at any of the four ponds assessed as having an average or higher HSI score.
- **Fish species**: suitable spawning habitat for brown trout (*Salmo trutta*) was identified during the Mouse Water, with a typical population density of the species recorded at the electrofishing sampling sites along this watercourse.
- **Other protected species:**
  - Squirrel feeding signs were identified in both 2013 and 2015. However, a grey squirrel (*Sciurus carolinensis*) was observed during the 2012-13 winter ornithology surveys and it was considered highly likely that the feeding signs were from this species rather than red squirrel.
  - No signs of pine marten were seen during any of the 2013 or 2015 surveys and the Heathland Site was considered to be sub-optimal for pine marten dens.

[2] 53.78 hectares in total, which represented 5.19% of the NVC communities mapped.

[3] 108.13 hectares in total, which represented 10.44% of the NVC communities mapped.

[4] One common pipistrelle (*Pipistrellus pipistrellus*) and a second pipistrelle that was not identified to species level.

[5] This was lower than the mean recorded outside the Heathland Site, which was 0.24 bat passes per minute.

- A single incidental record of a common lizard in 2013 (*Zootoca vivipara*) was the only reptile observed during the 2013 and 2015 surveys, although suitable reptile habitat (including refugia) was present.

3 PROPOSED ECOLOGY SURVEYS – 2019

3.1 Proposed Survey Methods

Based on the results of the 2013 and 2015 baseline ecology surveys, current SNH guidance[6] (which has changed since the baseline surveys were completed) and professional experience (including knowledge of the habitats present of the Combined Site gained through ongoing ornithology surveys), it is proposed that update ecology surveys are completed in 2019, as described below.

3.1.1 Extended Phase 1 Habitat Survey (May-Sep 2019)

An Extended Phase 1 habitat survey will be undertaken to classify and map semi-natural habitats within the Combined Site, and record the higher plant species present. In addition, a series of 'Target Notes' will be recorded to provide detail about features of particular interest as well as any evidence of, or potentially suitable habitats for, protected species. The survey will follow standard methods described in the Joint Nature Conservation Committee (JNCC) survey handbook (JNCC, 2010[7]) and will be completed in spring/summer 2019. The survey area will comprise the Combined Site and a 250 m buffer (where access permits).

3.1.2 National Vegetation Classification Survey (May-Sep 2019)

A National Vegetation Classification (NVC) survey will be carried out to classify and map NVC communities. The survey will be completed with reference to Rodwell (2006)[8] and published descriptions of NVC communities (Rodwell, 1991a[9]; 1991b[10]; 1992[11]; 1995[12]). In addition, any Ground Water Dependent Terrestrial Ecosystems (GWDTE) present will be identified in accordance with current Scottish Environmental Protection Agency (SEPA) guidance[13,14]. The survey will be completed in spring/summer 2019, at the same time as the Extended Phase 1 Survey, and the survey area will comprise the Combined Site and a 250 m buffer (where access permits).

3.1.3 Bat Surveys (May-Sep 2019)

Bat surveys will be carried out between May and September 2019 in accordance with the latest multi-stakeholder guidance[15]. A preliminary desk study of the Combined Site (based

[6] SNH (2018). *SNH general pre-application/scoping advice to developers of onshore wind farms*.

[7] JNCC, (2010), *Handbook for Phase 1 habitat survey - a technique for environmental audit*, ISBN 0 86139 636 7.

[8] Rodwell, J.S. (2006). *National Vegetation Classification: Users' Handbook*. JNCC, Peterborough.

[9] Rodwell, J.S. (Ed.). (1991a). *British Plant Communities Volume 1: Woodlands and scrub*. Cambridge University Press, Cambridge.

[10] Rodwell, J.S. (Ed.). (1991b). *British Plant Communities Volume 2: Mires and heaths*. Cambridge University Press, Cambridge.

[11] Rodwell, J.S. (Ed.). (1992). *British Plant Communities Volume 3: Grasslands and montane communities*. Cambridge University Press, Cambridge.

[12] Rodwell, J.S. (Ed.). (1995). *British Plant Communities Volume 4: Aquatic communities, swamps and tall-herb fens*. Cambridge University Press, Cambridge.

[13] Scottish Environmental Protection Agency. (2014). *Land Use Planning System SEPA Guidance Note 4: Planning guidance on on-shore windfarm developments.* Available online from: https://www.sepa.org.uk/media/136117/planning-guidance-on-on-shore-windfarms-developments.pdf

[14] Scottish Environmental Protection Agency. (2017). *Land Use Planning System SEPA Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems*. Available online from: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf

[15] SNH, (2019). *Bats and onshore wind turbines: survey, assessment and mitigation*.

on the landscape, location and previous Development proposals) indicates that it is likely to be of low suitability for bats. Accordingly, and in line with the guidance, a low-risk survey strategy is proposed, comprising remote monitoring. This would involve the use of static detectors to automatically record bat activity on three occasions between May and September 2019 inclusive. During each survey visit, 11 static detectors (based on a 14 turbine array; to be confirmed) will be deployed for a minimum of ten nights over the Combined Site. The static detectors will be located within the potential turbine layout.

It is considered unlikely that potentially suitable bat roost sites are present within 200 m of the proposed turbine locations[16]. However, the Extended Phase 1 Habitat Survey will include checks for any trees, buildings or other features/structures with the potential to support roosting bats.

3.1.4 Protected Mammal Walkover Surveys (May–Oct 2019)

Based on available habitats and the results of the 2013 and 2015 baseline surveys, the Combined Site and surrounding area has the potential to support several protected species including, but not limited to: otter, water vole, pine marten, badger and red squirrel. The surveys listed below will therefore be conducted to establish the status and distribution of these species. All signs of protected species observed will be mapped and recorded as descriptive Target Notes, with photographs taken to document representative and notable records as appropriate.

3.1.4.1 Otter Survey

A survey of all watercourses and waterbodies within the Combined Site and a 200 m buffer (where access permits) will be searched for signs of otter. The survey will be carried out by an experienced ecologist following standard survey methods, and in accordance with SNH guidance[17].

Although otter surveys can be completed at any time of year, it is proposed that the survey is completed in June, to coincide with the optimal period for surveying water voles (see below). The survey will be completed in summer 2019, and scheduled to avoiding preceding periods of heavy rainfall which could wash away signs. Any signs of otter or water vole will be mapped and recorded as descriptive Target Notes, with photographs taken where appropriate.

3.1.4.2 Water Vole Survey

As suitable habitat for water vole is has previously been recorded within the Heathland Site (see Section 2.2.2) watercourses will also be searched for signs of water vole. The survey will be carried out by an experienced ecologist, following standard survey methods[18], and in accordance with SNH guidance[19]. The SNH guidance advises that the appropriate survey buffer for water vole will vary from 50 m to 500 m, depending on the size and nature of the development, and therefore requires an element of professional judgement. As the Development is not expected to affect large extents of riparian habitat or lead to significant fluctuations in water levels, it is proposed that the survey buffer for water vole extends to 200 m upstream and downstream of the Combined Site.

In most cases, two survey visits are required to check for signs of water voles, at least two months apart. In upland Scotland, water vole surveys can be completed between

[16] Although a bat roost was confirmed to be present in 2013, this is not within 200 m of proposed turbine locations.

[17] SNH. (undated). *Protected Species Advice For Developers: Otter*. Available at: https://www.nature.scot/sites/default/files/2019-01/Species%20Planning%20Advice%20Project%20-%20otter.pdf

[18] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *Water Vole Mitigation Handbook* (The Mammal Society Mitigation Guidance Series). Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London.

[19] SNH. (undated). Protected Species Advice For Developers: Water Vole. Available at: https://www.nature.scot/sites/default/files/2019-01/Species%20Planning%20Advice%20Project%20-%20water%20vole_0.pdf

mid-May and mid-September, but the optimal period for surveying is between June and August[18]. It is therefore proposed that an initial survey is completed in June in conjunction with the Otter Survey, with a second survey visit targeting areas of suitable water vole habitat completed in August.

3.1.4.3 Pine Marten, Badger and Red Squirrel Survey

A walkover survey will be carried out in all areas of potentially suitable habitat within the Combined Site and a 250 m buffer (where access permits) to assess suitability for pine marten, badger and red squirrel, and to search for signs of these species. The survey will be carried out by an experienced ecologist following standard survey methods, and in accordance with SNH guidance[20,21,22] and relevant good practice guidelines[23].

3.1.5 Great Crested Newt Surveys

A Habitat Suitability Assessment of all ponds within the Combined Site will be completed in May, using the great crested newt HSI developed by Oldham *et al*. (2000)[24] and described in Amphibian and Reptile Groups of the UK (ARG UK) guidance[25]. If any ponds are found to be suitable for breeding great crested newts, further surveys may be required.

3.1.6 Fish Habitat and Electrofishing Surveys

A Fish Habitat Survey of all representative/suitable survey locations will be carried out in accordance with Scottish Fisheries Co-ordination Centre (SFCC) survey methods[26]. A detailed assessment of fish habitat quality and utilisation potential will be undertaken for each suitable survey location using baseline information collected following literature review, consultation and field survey. The Fish Habitat Survey will identify sensitive areas, such as Atlantic salmon spawning habitat, freshwater pearl mussel habitat or lamprey nursery habitat. This survey will inform the need for further surveys (e.g. electrofishing or freshwater pearl mussel surveys) which are excluded from the current scope.

3.1.7 Reptile Habitat Suitability Assessment

An assessment of habitat suitability for reptiles will be completed during the Extended Phase 1 Habitat Survey. In addition, any reptiles observed during ecology and ongoing ornithology surveys will be recorded.

[20] SNH. (undated). *Protected Species Advice For Developers: Badger*. Available at: https://www.nature.scot/sites/default/files/2019-01/Species%20Planning%20Advice%20Project%20-%20badger.pdf
[21] SNH. (undated). *Protected Species Advice For Developers: Pine Marten*. Available at: https://www.nature.scot/sites/default/files/2019-01/Species%20Planning%20Advice%20Project%20-%20pine%20marten.pdf
[22] SNH. (undated). *Protected Species Advice For Developers: Red Squirrel*. Available at: https://www.nature.scot/sites/default/files/2019-01/Species%20Planning%20Advice%20Project%20-%20red%20squirrel.pdf
[23] Scottish Badgers. (2018). *Surveying for Badgers: Good Practice Guidelines*, Version 1.
[24] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10, 143-155.
[25] Amphibian and Reptile Groups of the UK (2010). *Great Crested Newt Habitat Suitability Index*. ARG UK Advice Note 5.
[26] SFCC. (2007). *Habitat Surveys Training Course Manual*.