

Appendix 9.1

Baseline Ecology Report

SSE Renewables

Proposed Wind Farm at Gremista, Shetland

Extended Phase 1 Habitat Survey and Protected Species Surveys Report

July 2011

AMEC Environment & Infrastructure UK Limited

Report for

Stuart Juggins, SSE Renewables

Main Contributors

Jenny Sneddon

Issued by

Jenny Sneddon

Approved by

Anita Hogan

**AMEC Environment & Infrastructure
UK Limited**

Doherty Innovation Centre, Pentlands Science Park, Bush Loan,
Penicuik, Midlothian EH26 0PZ, United Kingdom
Tel +44 (0) 131 448 1150
Fax +44 (0) 131 448 1183

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SSE Renewables

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1. Introduction

1.1 Purpose of this report

Entec UK Ltd. (Entec) was commissioned by SSE Renewables to undertake an ecological appraisal of the site at Gremista and surrounding land, on the Island of Shetland, approximately 3.5km north of Lerwick (OS Grid Reference HU463 457 denotes approximate centre of site). In completing this assessment, an Extended Phase 1 Habitat Survey has been undertaken (2010) in order to establish the biodiversity value of the site, identify the presence or potential presence of protected species and highlight any potential ecological issues that might be associated with the development of the site. Ornithological surveys have also been undertaken, the results of which are presented separately.

This report details the methods used for the assessment, the findings of the desk study and surveys and an evaluation of the ecological features identified within the study area. This report will be used to inform any subsequent Ecological Impact Assessment (EcIA) of the proposed development.

1.2 Site Context

The proposed site is positioned on the Gremista peninsula and is surrounded by coastline with cliff heights of approximate heights of 20m. The current site boundary is presented as the red line boundary on Figure 9.1 of the Environmental Statement. It should be noted that the site boundary covers a smaller area than was surveyed during the Extended Phase 1 Habitat Survey, presented as the purple line in Figure 9.1.

It is proposed that 3 turbines (with a potential height to blade tip of 121m) would be positioned on Luggie's Knowe on wet heath/ acid grassland mosaic habitats, along with associated infrastructure including internal access tracks, crane hard-standing and on-site control building.

The main access will be along an existing hard standing road which provides access to the existing Lerwick Port Authority Decommissioning Area.

The means by which the site will be connected to the transmission network has yet to be confirmed but may be by underground cable or overhead line. The grid connection will be subject to a separate consenting arrangement and is therefore excluded from this appraisal.



2. Methods

2.1 Desk Study

A desk study was undertaken in order to gather information regarding statutory and non-statutory designated sites of nature conservation interest and protected or notable species, including legally protected habitats and species as well as those listed on the UK Biodiversity Action Plan (UK BAP), Scottish Borders Local Biodiversity Action Plan (LBAP) and Scottish Biodiversity List (SBL). These desk study features of interest are summarized in **Box 2.1**.

Box 2.1: Statutory and Non-Statutory Sites of Nature Conservation Value, Protected & Notable Species

Statutory nature conservation sites

Scottish Natural Heritage (SNH) notifies sites that are of international or national importance for nature conservation as Sites of Special Scientific Interest (SSSIs), although some sites that are of national importance for certain species have not been so designated. Internationally important sites may also be designated as Special Areas for Conservation (SACs), Special Protection Area (SPAs) or Ramsar sites.

Protected species

Many species of animal and plant receive legal protection, which for the purposes of this study, refers to:

- Species included on Schedules 1, 5 and 8 of Wildlife and Countryside Act 1981 (WCA), excluding species that are only protected in relation to their sale (see Section 9[5] and 13[2]).
- Species included on Schedules 2 and 4 of The Habitats Regulations.
- Badgers, which are protected under the Protection of Badgers Act 1992, as amended by the Nature Conservation (Scotland) Act 2004.

Non-statutory nature conservation sites

This includes Sites of Importance for Nature Conservation (SINCs), Local Wildlife Sites (LWSs) and areas included under the Ancient Woodland Inventory (AWI) or Semi Natural AWI (SNAWI). These sites, which are designated due to the presence of notable species or important habitats, broadly constitute the most important wildlife and geological sites in the county that do not reach the criteria required for SSSI designation.

Notable Habitats and Species

These include habitats and species listed on Annex 1 and Annex 2 of the Habitats Directive, bird species listed on Annex 1 of the Birds Directive, together with habitats and species which are listed on UK and/or Local BAPs, the Scottish Biodiversity List and / or those which are of some other conservation interest based on their status nationally, regionally or locally.

Nature Conservation Designation

SNH's website Sitelink¹ was used to acquire information on the location and nature of statutory and non-statutory designated sites within a 2km radius from the site boundary (desk study area). Data relating to Scottish Wildlife Trust (SWT) Reserves and the location of woodland on the

¹http://gateway.snh.gov.uk/portal/page?_pageid=53,910284,53_920284&_dad=portal&_schema=PORTAL

AWI was obtained through searching the available GIS databases which Entec holds. The Shetland Biological Records Centre (SBRC) was consulted for details regarding local designations.

Protected and Notable Species

The following sources were used for records of protected and notable species within 2km of the site:

- Information regarding presence of protected species was gained through searches on the National Biodiversity Network (NBN) Gateway (December 2010);
- Shetland Biological Records Centre was consulted for protected and notable species records.

2.2 Phase 1 Habitat Survey

2.2.1 Flora and Habitats

The site was surveyed on 13-14 July 2010 by Entec Consultant Ecologist, Jenny Sneddon, BSc (Hons), MSc, MIEEM. The survey area is shown as the purple line in Figure 9.1 which incorporated watercourses and habitats within 500m of the site boundary, where access allowed, and the site area is shown as the red line in Figure 9.1.

The survey was based on the Phase 1 Habitat ecological survey methodology². Distinct habitats were identified and mapped, and any features of nature conservation interest were subject to a more detailed description in a target note (TN). As the standard Phase 1 Habitat Survey methodology is, in the main, concerned only with vegetation communities, the survey was “Extended” to allow for the provision of information on other important ecological features, particularly to identify the presence/potential presence of legally protected species, such as otter.

2.2.2 Fauna

The methodologies used to establish the presence/potential presence of protected species are summarised below. These relate to those species/biological taxa that the desk study and habitat types present indicated could occur on the site. Where the initial site visit identified the potential for certain protected species to be present, additional targeted survey was carried out during the July 2010 visit. The surveys were undertaken within the site boundary and within an additional 500m of the site boundary. This survey area was assessed in order to detect the presence of any protected species within the development impact area.

Otter

An otter survey was conducted by Jenny Sneddon during 13-14 July 2010 up to 500m from the site boundary on all watercourses that were deemed to be potentially suitable for otter. High coastal cliffs to the north of the site were excluded due to health and safety considerations,

² Joint Nature Conservation Committee (2010) Handbook for Phase 1 habitat survey - a technique for environment audit, ISBN 0 86139 636 7

although all areas within at least 200m from the nearest turbine were included in the survey³. This survey boundary was assessed as a suitable area in order to capture all potential otter activity surrounding the site boundary to allow adequate assessment of the otter activity on site. In Scotland, and particularly in areas adjacent to coastal habitat the majority of watercourses can be assumed to be accessible to otter, therefore this meant that all watercourses on site were subject to survey.

The site was assessed for its potential to provide habitats that would support otter. Such habitats would include the presence of any drainage ditches, streams, rivers, water bodies and foraging areas. In coastal areas, access to freshwater (for drinking/maintaining the coat) is of particular importance for otters, so these features were also searched for as part of the survey. In addition, any signs of activity were noted where suitable habitat did occur.

Standard survey methodology for otter was followed and the appropriate survey extent was determined in consultation with relevant SNH guidance⁴. Evidence for otter presence includes: spraints (faeces) – which are often located in prominent features within a watercourse channel or on a bank (including weirs, bridges, rocks, tree roots, confluences of streams etc); and footprints – located in soft mud, silt or on sand banks.

³ SNH did not highlight any concerns with the extent of the otter survey (correspondence dated 14 December 2010).

⁴ Chanin, P. 2003. Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10. English Nature. Peterborough; and Otters and Development <http://www.snh.org.uk/publications/on-line/wildlife/otters/effects.asp>



3. Results

3.1 Desk Study

3.1.1 Statutory Sites for Nature Conservation

No statutory sites designated for their nature conservation value were identified within a 2km radius of the site boundary during the desk study exercise.

3.1.2 Non-statutory Sites for Nature Conservation

No non-statutory sites for nature conservation are present within the site boundary or within 2km of the site boundary.

3.1.3 Protected Species

NBN Gateway

A preliminary search of the NBN Gateway within the 10km grid square (HU44) returned records of one notable species, which was otter (the most recent record was from 1991). A record of pipistrelle bat from 1979 was listed as occurring in Lerwick. However, this record is regarded as unusual as there is no established bat population on the Shetland Islands as these species do not naturally occur this far north. Therefore bat surveys were not deemed necessary for this development.

Shetland Biological Records Centre

Records returned from the SBRC did not identify any protected species within the site boundary. However, they provided otter records from within the 10km grid square (HU44) as illustrated on Figure 9.2. They also provided records of notable plant species including the nationally scarce plant, reflexed saltmarsh grass located at The Houb, Tronafirth although this is located 2.2km from the proposed development. In addition a nationally notable moth, *Rhigognostis senilella*, has been recorded at Gott, situated 2.6km from the proposed development.

3.2 Extended Phase 1 Habitat Survey

Figure 9.3 shows the Phase 1 Habitat map of the site, incorporating the adjacent land use (where access or visual assessment was available). Target notes are set out in Appendix A with a full floral species list from the surveys provided in Appendix B. Latin names are provided within the Appendices, and only provided in the main text where there are no recognised English names.

The site is located on Luggie's Knowe which has an elevation of 100m on a peninsula surrounded by coastal habitat. The site itself is sheep-grazed, and is comprised mainly of wet heath/acid grassland mosaic habitats, acid grassland, semi-improved acid grassland and wet

modified bog with small areas of marshy grassland associated with running water. A detailed description of the habitats is provided below (Section 3.2.1).

The habitats immediately surrounding the site comprise similar habitats to those found on site, predominately including wet heath/acid grassland mosaic habitats which are subject to sheep grazing. There are industrial buildings ~700m to the south east of the site, which include a sewage works and a landfill site and there is also a Port Authority Decommissioning Area immediately west of the site.

3.2.1 Site Habitats and Flora

Within the survey area (purple boundary in Figure 9.1), the following habitat categories were recorded.

- Wet heath/acid grassland mosaic;
- Semi-improved acid grassland;
- Wet modified bog;
- Marshy grassland;
- Improved grassland; and
- Watercourse.

Wet Heath/ Acid Grassland Mosaic

Most areas of heathland grow in mosaics with acid grassland. Within these habitats there are locally frequent patches of heather and other ericoid shrubs, including occasional bilberry, bell heather. The presence of ericoids varies across the site.

Variations in the underlying soils and drainage are reflected in the vegetation mosaics across the site. In areas comprising more heath like associations, there comprise often hummocky areas of heather, with frequent bilberry, bell heather, tormentil and hare's-tail cotton grass

Elsewhere, grasses indicative of acid grassland predominate, comprised predominantly of wavy hair grass, common bent, with frequent sheep's fescue, viviparous fescue and Yorkshire fog. Within this grassland the ground flora include tormentil, sheep's sorrel. Rushes and mosses are present in the vegetation in wetter areas.

Semi-improved Acid Grassland

The eastern side of Luggie's Knowe is predominantly semi-improved (SI) acid grassland. This large area of semi-improved acid grassland (see Figure 9.3, TN7) is classed as semi-improved due to sheep grazing. Similarly, another significant area of SI acid grassland is located at the west side of Luggie's Knowe (Figure 9.3, TN11). In these areas, cross leaved heather becomes rare and there is abundant sheep's sorrel and the area is dominated by grass species such as common bent and sweet vernal grass. There is also frequent heath bedstraw and tormentil but all species are cropped as a result of sheep grazing.

Wet Modified Bog

This habitat was classified due to the dominance of hare's-tail cotton grass, deer grass, *Sphagnum* spp. and exposed peat. These areas of wet modified bog were present in mainly to

the south of the site boundary adjacent to Loch of Kebister. However, the species composition is generally similar throughout and the dominant species were harestail cotton grass and deer grass.

Marshy Grassland

This habitat generally occurs alongside flushes and burns and other watercourses where the conditions are wetter compared to elsewhere within the survey area. These areas are dominated by soft rush.

Watercourse

One main watercourse lies within the survey area. The Burn of Kebister is narrow, approximately 0.25m wide and fast flowing in places. The burn runs underground in places and the bank vegetation is low growing and is approximately 0.5m high with yellow iris, soft rush and bell heather.

3.3 Protected Species

Protected species surveys were undertaken during 13 and 14 July 2010 and are described in the section below. Only otter were surveyed for during the site visit as no other protected species normally included in protected surveys occur on the Shetland Islands (e.g. bats, great crested newt, red squirrel or water vole).

3.3.1 Otter

No signs of otter were recorded within the survey area (Figure 9.1) during the otter survey undertaken on 13-14 July 2010.

All watercourses and waterbodies that were assessed as suitable to support otter were surveyed. These included the Burn of Kebister and the unnamed watercourses within the survey boundary.

The absence of evidence of otter within the survey boundary does not, however, mean that this species does not occur on this site. It is possible that otters utilise the coastal habitat immediately surrounding the site and it cannot be ruled out that otters pass through the site and forage within survey area.

The Burn of Kebister and the Loch of Kebister provide a freshwater resource for otter and the Loch of Kebister provides potential foraging habitat for otter. Areas of shelter for otter, however, are considered limited within the survey area with only potential shelter habitat along the Burn of Kebister where there is dense yellow iris which was assessed as providing adequate cover as otter shelter habitat.



4. Conclusions and Recommendations

4.1 Habitats

The main habitats present on site (i.e. wet heath and acid grassland mosaic, semi-improved acid grassland, wet modified bog and marshy grassland) are widespread in Shetland and are not considered to support species of particular interest. This was confirmed by SNH in the consultation response (Glen Tyler, 14 December 2010) where it is stated:

“The habitats present within the vicinity of this development are widespread within Shetland, and are not known to harbour any species of particular interest, although SBRC will be able to help further with this information”.

Wet Modified Bog

Areas mapped as wet modified bog may form ecological constraints to development of a wind farm, with a need to avoid better quality areas of active peat forming plant communities. Under the UK BAP it is noted that the Blanket Bog Habitat Action Plan “seeks to introduce management regimes to restore 75% of blanket bog which is currently degraded, such that it is in or approaching favourable condition by 2015”.

The site is subject to grazing and therefore the areas of bog have been classified as wet modified bog, however, this Phase 1 habitat classification does not mean that this habitat is of no ecological value. Areas of saturated peat deposits should be avoided as these areas represent biologically important habitats.

4.2 Protected Species

4.2.1 Otter

Otters are protected by the EC Habitats Directive, which is transposed into domestic law through the Conservation (Natural Habitats, &c) Regulations 1994, “the Habitats Regulations”. Under the Habitats Regulations, otters are classed as “European Protected Species” and therefore given the highest level of species protection. The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007 enhanced this protection such that, in summary it is illegal to:

- Deliberately or recklessly kill, injure or take (capture) an otter;
- Deliberately or recklessly disturb or harass an otter;
- Damage, destroy or obstruct access to a breeding site or resting place of an otter (i.e. an otter shelter).

No signs of otter activity were recorded within the survey area which covered a 500m boundary surrounding the site boundary. However, it is likely that otters inhabit the coastal habitat surrounding the site and it cannot be ruled out that they use the site for foraging and commuting

to other neighbouring sites. It is therefore recommended that a repeat otter survey is carried out as close as possible to the time of construction and should include areas of access (including tracks), working corridors and locations of materials and equipment storage.

In order to decide upon the level of pre-construction otter survey required, SNH advice is as follows⁵: *“For large, extensive developments such as wind farms.....complete coverage of the whole site is unlikely to be practical, so for large wind farms, a radius of 250m around each proposed turbine location and associated infrastructure should be surveyed in detail, with the intention that, should an otter shelter be discovered in close proximity to any part of the development, the proposals can be amended to avoid damage to the shelter. Similarly, a detailed survey of at least 100m either side of any indicative proposed routes for access tracks is required to ensure that the final route for the track does not impact on otter shelters”.*

Therefore to comply with SNH’s guidance pre-construction otter surveys should be undertaken within 250m of site infrastructure, apart from access tracks, where a 100m radius survey should be undertaken.

It should be noted that if a substantial amount of time (for example more than 6 months from the otter survey date - July 2010) elapses between the otter survey reported in this report, and the ES being produced, it can often be necessary to undertake update otter surveys. However since no otter signs were recorded on site in this instance, it should be possible to rely upon the July 2010 results to inform the assessment.

⁵ Based on SNHs on-line guidance “Otters and Development” <http://www.snh.org.uk/publications/on-line/wildlife/otters/effects.asp>.

Appendix A

Phase 1 Target Notes

TN No.	Description
	(D= Dominant A = Abundant F = Frequent O = Occasional R = Rare L = Locally)
1	Wet heath/acid grassland mosaic. This habitat dominates the study area. The species which dominates this habitat is low growing cross-leaved heather (<i>Erica tetralix</i>). Other species present include common bent (<i>Agrostis capillaris</i>) (A), mat grass (<i>Nardus stricta</i>) (A), heath bedstraw (<i>Galium saxatile</i>) (F), sheep's sorrel (<i>Rumex acetosella</i>) (O), glaucous sedge (<i>Carex flacca</i>) (LA), star sedge (<i>Carex echinata</i>) (LA), tormentil (<i>Potentilla erecta</i>). In wetter areas e.g. along flushes, becomes dominated by soft rush (<i>Juncus effusus</i>).
2	This area of acid grassland within the wet heath acid grassland mosaic is dominated by common bent, with frequent heath rush (<i>Juncus squarrosus</i>) and jointed rush (<i>Juncus articulatus</i>). There is also frequent sweet vernal grass (<i>Anthoxanthum odoratum</i>) and heath bedstraw (F)
3	In this area the gradient of the hill becomes less steep and becomes wetter with <i>Sphagnum</i> spp, soft rush, deer grass (<i>Scripus cespitosus</i>) and occasional cross-leaved heather.
4	Small area of acid grassland with heath rush, common bent and heath bedstraw.
5	Haretail cotton grass (<i>Eriophorum vaginatum</i>) becomes A-D with abundant ling (<i>Calluna vulgaris</i>) and locally frequent soft rush. Deer grass is also frequent.
6	Vegetated spring like water course with dominant haretail cotton grass.
7	This is similar habitat as described in TN2. It is sheep grazed so vegetation is stunted. Species present include common bent, mat grass, ling and haretail cotton grass.
8	Acid grassland with species present including common bent and mat grass.
9	This is an open grass area with low growing cross-leaved heather, occasional lousewort (<i>Pedicularis sylvatica</i>), occasional heath spotted orchid (<i>Dactylorhiza maculata</i>), frequent tormentil, abundant common bent, and frequent jointed rush and viviparous fescue (<i>Festuca vivipara</i>).
10	Along the Burn of Kebister there is an area dominated by yellow flag iris (<i>Iris pseudacorus</i>) with abundant soft rush and common bent and ragged robin (<i>Lychnis flos-cuculi</i>) is rare.
11	This area of acid grassland with species present including common bent and mat grass. Soft rush is dominant in areas around the watercourse.
12	Area of acid grassland on top of hillock with common bent and mat grass.
13	Watershed with haretail cotton grass (<i>Eriophorum vaginatum</i>) (A), cross-leaved heather (A) and <i>Sphagnum</i> spp. (F).
14	Continuation of wet heath/acid grassland mosaic between fence and road with sheep's bit (<i>Jasione montana</i>) growing on exposed rocks.
15	Drainage from Luggie's Knowe continues under road into sheep grazed field. Marshy grassland surrounding drainage with abundant soft rush and rosebay willow herb (<i>Chamerion angustifolium</i>).

TN No.	Description (D= Dominant A = Abundant F = Frequent O = Occasional R = Rare L = Locally)
16	Neutral grassland verge with abundant cock's foot (<i>Dactylis glomerata</i>), red fescue (<i>Festuca rubra</i>), sweet vernal grass, creeping bent (<i>Agrostis stolonifera</i>) and frequent Yorkshire fog (<i>Holcus lanatus</i>), locally frequent horsetail (<i>Equisetum</i> sp.).
17	Semi-improved grassland, more species rich than neighbouring improved field. Mat grass, common bent, Yorkshire fog are abundant with heath bedstraw, marsh thistle (<i>Cirsium palustre</i>), tormentil, heath rush and soft rush.
18	Area of acid grassland on the summit of Luggie's Knowe. This area is grazed and there is a very short sward. Species present are similar to those present in other acid grassland habitats throughout the survey area and they include mat grass, heath rush, common bent, heath bedstraw, tormentil and Yorkshire fog.

Appendix B

Phase 1 Habitat Survey Flora List

Common Name	Scientific Name
Bilberry	<i>Vaccinium myrtillus</i>
Bog moss	<i>Sphagna spp.</i>
Cock's foot	<i>Dactylis glomerata</i>
Common bent	<i>Agrostis capillaris</i>
Cowberry	<i>Empetrum nigrum</i>
Glaucous sedge	<i>Carex flacca</i>
Hare's-tail cotton-grass	<i>Eriophorum vaginatum</i>
Heath Bedstraw	<i>Galium saxatile</i>
Heather	<i>Callunua vulgaris</i>
Heath rush	<i>Juncus squarossus</i>
Heath Spotted Orchid	<i>Dactylorhiza maculata</i>
Marsh thistle	<i>Cirsium palustre</i>
Ragged Robin	<i>Lychnis flos-cuculi</i>
Red Fescue	<i>Festuca rubra</i>
Rosebay willowherb	<i>Chaemerion angustifolium</i>
Sharp-flowered rush	<i>Juncus acutiflora</i>
Sheep's bit	<i>Jasione montana</i>
Sheep fescue	<i>Festuca ovina</i>
Sheep's sorrel	<i>Rumex acetosella</i>
Soft rush	<i>Juncus effusus</i>
Star sedge	<i>Carex echinata</i>
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
Tormentil	<i>Potentilla erecta</i>
Viviparous fescue	<i>Festuca vivipara</i>
Wavy-hair grass	<i>Deschampsia flexuosa</i>
Yellow Iris	<i>Iris pseudacorus</i>
Yorkshire fog	<i>Holcus lanatus</i>