sse Renewables

viking energy
Harnessing Shetland's natural resources

VIKING ENERGY WIND FARM
SEEKING TO PROTECT THE ENVIRONMENT

INTRODUCTION

Welcome to this newsletter focusing on the raft of measures SSE Renewables (SSER) is taking to help ensure that construction of Viking Energy Wind Farm has as little impact on the natural environment as possible.

In the following pages some of the experts responsible for advising SSER on protecting birds, habitats, peatland and the built environment explain a bit about what their work involves.

Heath-spotted Orchid (Dactylorhiza maculata) Photo: Andy Mackenzie

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Cover photo: Whooper swan taking off. By Andy Mackenzie on Instagram @andymacscotland

PROTECTING BIRDS IS **THE NAME OF THE GAME**

The Viking Wind Farm environmental and habitat management plans set out the requirements to preserve the natural habitat of native breeding birds. Legislative requirements set out in the Birds Directive & Wildlife & Countryside Act 1981 were established to protect all wild birds, their nests and their eggs. To knowingly disturb a nesting bird, destroy its nest or remove its eggs is a criminal offence.

To ensure compliance with this Act, years of data on breeding bird habitats within the development area has been collated by independent ornithologists. Now, in the construction phase, this information is supplemented by daily surveys of the breeding areas carried out by the Environmental Clerk of Works (ECoW) specialist team. This team is comprised of local ornithologists and visiting ecologists with a long-term understanding of the development area and Shetland wildlife. All workers on the project are encouraged to report any nesting behaviour so as to increase the number of "eyes on the job".

This year many species were a little late in returning to the islands, likely due to the cold snap we all experienced in early April. Now, in early August, we are seeing many species coming to the end of their breeding season. Species range from the humble "stirlin" to the intimidating "bonxie" and include some species which are given additional protected status. (e.g. Whooper swans, whimbrel and red-throated divers).

Irrespective of their importance, all species are given equal consideration by the VEWF project team under the legislative requirements. Locally, we are all aware of the problems caused by starlings nesting in vehicle engines. To deter this, the project erected nest boxes to provide a cosy alternative in and around compound areas where vehicles are parked.

The wind farm track design has taken breeding hotspots into consideration, especially for those birds with additional protected status, and the routes have been set out accordingly. Ahead of the construction work front, our specialist team carried out surveys for courtship behaviour and noted where a breeding pair had established an active nest.

This location is recorded on sensitive, confidential maps and compared with the track route. The team have data which allows an accurate prediction of the incubation and fledgling period for all breeds and, using this information, the construction team can assess the course of action to take regarding construction progress. Options include:

- Establishing disturbance buffer zones to minimise or exclude work.
- Deviating the proposed track route (micro-siting) to avoid the nest area.
- Constructing visual disturbance screens between the work site and the nesting birds.
- Halting of works in the nesting area and diverting operations elsewhere until the fledglings have left the nest.

While the nature of the wind farm project invariably brings about changes to the natural habitat for ground nesting birds, all efforts are made to minimise the impact of operations. Where a nest site poses a constraint to progress, it is the protection of the bird that is given precedence in all considerations.

A lapwing chick. Photo: Andy Mackenzie on Instagram @ andymacscotland

ENVIRONMENTAL MONITORING – THE ROLE OF THE ECOW

Before a project of the size and complexity of VEWF can be undertaken a wealth of information is gathered through Environmental Impact Assessments and, from that, the necessary mitigation measures and planning requirements are set out. The VEWF planning conditions require the appointment of an Environmental/Ecological Clerk of Works – ECoW for short.

The ECoW role is an independent appointment. In the case of VEWF, MBEC were appointed based on their staff's ecological expertise and extensive upland construction experience. The MBEC team is led by Dr Andy Mackenzie who has significant experience in wind farm environmental surveying and construction. The ECoW role has a wide remit which cannot be fully covered here. However, the following aspects and examples are given to try to illustrate what they do.

One key aspect of the ECoW role is to undertake pre-construction vegetation surveys across the VEWF site, and specifically within and surrounding the zones of all planned infrastructure. This allows for the early identification of sensitive habitats and for this information to be fed back to the design and construction team in order that micro-siting of infrastructure can be considered.

Lesser Twayblade on the VEWF Site. This very small orchid species has flowered profusely this year and is quite common on the site

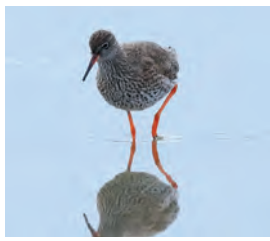
Infrastructure can be re-sited, where the planning permission allows, to best protect uncommon habitats. An example of this occurred in the pre-construction phase of the wind farm when MBEC, supplemented by existing information from the Shetland Biological Records Centre, identified less common habitat types and plants in three proposed construction locations. The lead ECoW made the design team aware of these and subsequently the infrastructure plan was adapted to avoid two areas while the third, in the location of a proposed borrow pit, was modified with the aim of protecting and conserving the most sensitive habitats.

A Meadow Pipit nest on the VEWF site. These small nests are only found and protected after very careful and thorough surveying

Evidence of an Otter on the VEWF Site. This photo is extracted from trail camera video footage

Included in this newsletter is an article on the management of nesting birds. Another aspect of the ECoW's role is to carry out detailed bird surveying and advise the construction team on the protection of nesting birds. To supplement the MBEC ecologists and importantly, provide local expertise, MBEC has employed two well-respected Shetland-based ornithologists. The provision of daily site surveying allows them to report promptly to the construction team the presence of nesting birds in order that appropriate management can be undertaken.

Environmental surveying and monitoring continues throughout the construction phase and MBEC continues to identify sensitive wildlife and habitats and advise on particular peatland and construction issues throughout. These are alerted to the construction team in order that appropriate mitigation measures can be implemented to best safeguard and protect the surrounding area.



A redshank enjoying its own reflection. Photo: Andy Mackenzie on Instagram @andymacscotland

Recently, MBEC found a plant species which had not previously been recorded in Shetland and, on another occasion, a new colony of a rare orchid was found. Both these locations are being completely avoided by the wind farm works. All relevant records (of common and rare species) are subsequently passed on to the Shetland Biological Records Centre.

"The wind farm project has been strengthened by the local naturalists and ecologists MBEC are fortunate enough to have gained as colleagues. Their local knowledge and skills have added considerably to the ongoing environmental safeguarding work. I have enjoyed working on the Viking Wind Farm project since 2019; I rapidly discovered that Shetland is a special place."
Dr Andy Mackenzie, Lead ECoW.

Red-throated diver

UPDATE ON ORNITHOLOGY **BY DIGGER JACKSON**

The main programme of bird surveys for the wind farm is carried out by Atlantic Ecology Limited, providing information to MBEC's Ecological Clerk of Works team to help implement the VEWF Bird Protection Plan (BPP) from day to day.

The BPP is a series of mitigation measures aimed at ensuring that construction work complies with bird protection legislation and best-practice and aims to prevent disturbance and harm to birds and their nests.

The 2021 survey work has dual aims: to inform the wind farm construction contractor of the locations of breeding birds and to monitor bird numbers and distribution, both within the VEWF site and in control areas in other parts of the Mainland.

This year's generic moorland breeding bird surveys have targeted the VEWF site, buffered to at least 500 m (an area of approximately 70 km2), and two control sites in West Mainland (covering approximately 11 km2). Surveys of certain priority species (red-throated diver, Arctic skua, whooper swan, merlin and whimbrel) have covered larger areas and have been done in collaboration with other organisations (RSPB, JNCC and Zetland Raptor Study Group) that this year have their own Shetland-wide survey programmes for these species.

This year, for the first time since 2009, a national survey of breeding whimbrel is taking place coordinated by RSPB. VEWF is making a major in-kind contribution to this survey by providing the data for much of Central and West Mainland Shetland; areas that hold about a quarter of the Scottish population.

At the time of writing this year's bird survey data has yet to be analysed. A provisional examination of the raw data indicates that for all species the breeding numbers and distribution in the VEWF survey area are broadly similar to that found during the Preconstruction Survey undertaken in 2018/19. There is no indication of large-scale displacement occurring in response to construction work.

With the exception of red-throated divers, July marks the end of the breeding season and therefore a dramatic reduction in bird activity and ornithological sensitivity across the VEWF site. The red-throated diver breeding season continues until chicks fledge in August and until then there will continue to be high sensitivity in the vicinity of occupied breeding lochs.

CHANCE FOR SHETLAND **TO BECOME A LEADER IN PEAT RESTORATION TECHNIQUES**

The importance of blanket bog in our changing climate is well known and the management of peat – including handling, storage, reuse, reinstatement and restoration – throughout construction of the Viking Energy Wind Farm (VEWF) is, therefore, a key priority for the project.

An active bog is one that supports peat-forming species such as sphagnum mosses and cotton-grass. It captures and stores significant amounts of carbon, as well as providing a home for a variety of upland bird species and specialist plants. An unhealthy bog, which is actively eroding, releases carbon back into the atmosphere and, left unchecked, this erosion has the potential to spread across very large areas. Grazing by sheep, coupled with Shetland's extreme climate, has left large parts of the wind farm site in poor condition. At its worst, large areas of peat are entirely lacking a vegetation cover, while others have no peat left at all.

Severe peat erosion on the wind farm site in Nesting

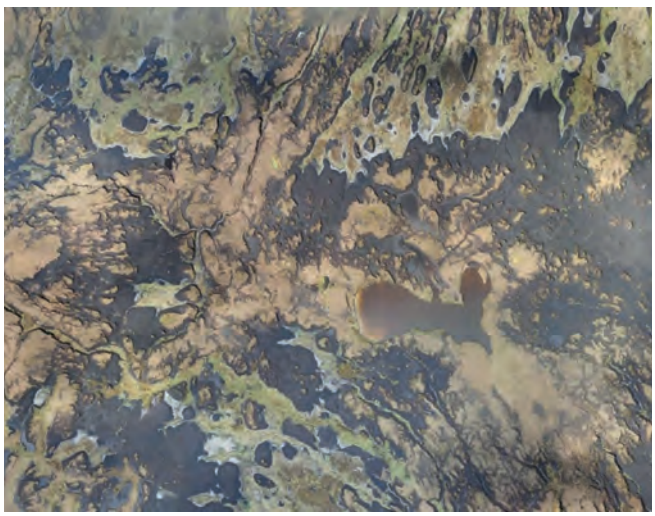
Viking Energy's Habitat Management Plan (HMP) has been approved by SEPA, NatureScot and Shetland Islands Council, and we remain committed to working in accordance with this, supported by the Shetland Windfarm Environmental Advisory Group (SWEAG). SWEAG was established to support the project through the sharing of knowledge and the promotion of learning, and acts as an independent expert advisory group to oversee a comprehensive programme of conservation and environmental measures.

At present, the peat generated by the excavation of tracks and turbine bases is being used to fill in bare, actively eroding areas, with the intention of halting the erosion process and the associated release of carbon. Where possible, these areas are being turfed using vegetation from the site, though some areas will be seeded with species native to Shetland's blanket bog. This will stabilise the peat surface and allow species such as sphagnum and cotton-grass to colonise naturally.

On the Dud of Flamister, Nesting, the rate of peat erosion (above) is so severe there is little left in many parts.

Once construction is complete, the process of peatland restoration will continue, using more 'traditional' techniques, for example reprofiling peat hags (bare edges) and damming the gullies that guide water away from the blanket bog. These methods have been tried and tested in Shetland over recent years, through the Scottish Government-funded Peatland Action Project, implemented by Shetland Amenity Trust. In addition, other novel and experimental techniques may be considered and tried pending further consultation.

In total, VEWF's extensive peat restoration programme will restore at least 260 hectares of significantly degraded peatland habitat. The extent of the planned VEWF restoration work provides an opportunity for Shetland to become a leader in peat restoration and habitat management techniques.



Drone image of the severely eroded Hoo Kame area near the Lang Kames

Digging down into the wartime hut near Voe

ARCHAEOLOGISTS PROBE **SITE'S HIDDEN HISTORY**

Archaeological investigations by Headland Archaeology, in advance of the wind farm works, are unearthing some interesting sites, providing information to help our understanding of Shetland's vibrant heritage.

Excavations of a WW2-era Nissen Hut at South Filla Runnie, near Voe, have suggested that it once housed equipment for training exercises. The local Home Guard volunteers were joined by over 20,000 servicemen in Shetland in 1939 when it became an important Army, Navy and RAF base, due to its strategic position. Although small, this Nissen Hut can help us to understand how the arrival of the servicemen changed the landscape as well as the lives of people in Shetland.

A cairn was also excavated as part of the works, located at Mid Kame Ridge. As no artefacts were recovered it was interpreted as a marker cairn, or 'hagmark' and likely dates to the Medieval or Post-Medieval periods. Marker cairns were used to mark boundaries between areas of common grazing or pasture. 'Hagmark' is an amalgamation of the two words 'hagi' – meaning pasture in Old Norse, and 'mark' – to describe the boundary marker itself.

As well as excavations, Headland Archaeology have also been undertaking non-intrusive investigations, such as survey and recording work on several sites across the landscape including, among others: a number of sheepfolds, a croft and a small cairn. The small cairn only consisted of five stones but sits in an area of known prehistoric activity, picturesquely overlooking the Loch of Skellister.


A small cairn overlooking the Loch of Skellister in Nesting

Shetland has a successful history of using its heritage and history to promote tourism and inspire the next generation of archaeologists. As part of our further work in Shetland, Headland Archaeology is developing a Heritage Strategy that will aim to make the information we have gathered during our work for the Viking Wind Farm project accessible to members of the local community, visitors and the wider public.

The Heritage Strategy will involve engagement with the local community to develop our research as well as opportunities for people to get involved in hands-on activities. Through the Heritage Strategy we hope to contribute to Shetland's legacy of valuing, interpreting and sharing its outstanding history and heritage.