

GRANT OF PLANNING PERMISSION  
**APPROVED**  
BY SHETLAND ISLANDS COUNCIL AS  
PLANNING AUTHORITY UNDER THE PROVISIONS  
OF THE TOWN AND COUNTRY PLANNING  
(SCOTLAND) ACT 1997 IN ACCORDANCE WITH  
THE ATTACHED DECISION NOTICE

  
TEAM LEADER DEVELOPMENT MANAGEMENT

**30 January 2020**



**Draft**

**Viking Energy Wind farm  
Bird Protection Plan**

**Viking Energy Wind Farm LLP**

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## Executive summary

The drawing up of a Bird Protection Plan (BPP) prior to the commencement of construction is a planning consent condition for the Viking Energy Wind Farm.

The BPP is necessary to assist with ensuring that construction activities are compliant with the Wildlife and Countryside Act 1981, as amended. This legislation affords basic legal protection to all wild bird species and enhanced protection to certain rare species listed on Schedule 1 and Schedule 1A.

The key purpose of the BPP is to provide clear guidance on the measures required to achieve compliance with the Wildlife and Countryside Act, in particular through preventing disturbance to and safeguarding the nests and eggs of breeding birds. It provides a set of undertakings for the Contractor(s) and the Ecological Clerk of Works to follow.

The BPP also provides a clear commitment to the planning authority (Shetland Islands Council) and Scottish Natural Heritage that Viking Energy Wind Farm will fully support the ECoW in the site implementation of the BPP and help to ensure that contractors comply with it.

Although disturbance to birds could potentially occur at any time of year in practise concerns are likely to be restricted to the bird breeding season.

Results of pre-construction survey work shows that construction activities are likely to occur within the territories of a range of breeding bird species. Therefore construction activity during the breeding season (approximately April to August) could potentially disturb these birds and be a hazard to their nests and dependent young.

Although the wind farm's design avoids areas where Schedule 1 species regularly breed, year-to-year changes in where birds choose to nest means that despite this there is a small potential for disturbance to Schedule 1 breeding species.

The approach to developing location-specific mitigation measures to avoid and reduce disturbance is described. It is proposed that stand-off zones would be established around active nests, from which construction work and personnel would be temporarily excluded. Default stand-off distances from nests/territory centres for the relevant breeding bird species are given and the proposed procedure for marking these areas described.

The part of the plan describing location-specific mitigation measures will be a dynamic document and regularly revised in light of changing circumstance and new survey information. The BPP will be reviewed annually, with a view to incorporating improvements based on new information and lessons learnt from experience.

The BPP concludes that construction work plans may have to be re-scheduled or changed in other ways to prevent disturbance to breeding birds and safeguard their nests and dependent young.

## 1. Introduction

This document sets out the Bird Protection Plan (BPP, the 'plan') for the Viking Energy Wind Farm (VEWF, the 'Project'). The production of a BPP is a condition of the Project's planning consent. The plan sets out the rationale and approach to preventing disturbance to birds and the safeguarding of their nests, eggs and dependent young during the construction phase of the Project.

The plan covers the following main areas:

- The purpose of the BPP;
- Legislative background;
- The responsibilities of the parties involved in the development and delivery of the plan;
- Existing survey data and how it will be used;
- The range of bird species potentially affected and their susceptibility to disturbance;
- The nature of potential construction disturbance and other potential hazards;
- The spatial and temporal aspects of disturbance sensitivity, including stand-off distances;
- Proposed new survey work and how new information will be used;
- Proposed mitigation methods and procedures;
- Reporting and review procedures.

Although disturbance to birds could potentially occur at any time of year in practise concerns are likely to be restricted to the bird breeding season.

The distribution of birds, and the status of breeding attempts in any given year, is inherently dynamic. Therefore location-specific mitigation measures will need to be subject to a process of continuous development and review informed by new survey information. For this reason, the part of the plan describing location-specific mitigation measures will need to be a dynamic and regularly revised in light of changing circumstance and new information. It is premature to produce the location-specific prescriptions well ahead for the commencement of construction work, and for this reason this detail is not included at the time of writing (October 2019). At this stage, therefore, the proposed mitigation is limited to setting out the approach that will be used to determine and manage the location-specific measures.

As explained in the plan, the delivery of the BPP requires clear identification of responsibilities and close cooperation between those involved in its development, execution and supervision. The key players are the developer (VEWF), the contractor (yet to be appointed) and any sub-contractors, the ECoW team, the ornithology team, Shetland Islands Council (SIC) and Scottish Natural Heritage (SNH).

The plan presented here is closely aligned with the BPPs for the associated smaller scale developments that are part of the VEWF development, including the B9075 Sandwater Road and Kergord Access Track projects. The execution of BPPs associated with all aspects of VEWF development will be integrated and the plans managed together.

The plan has been prepared by Dr Digger Jackson of Atlantic Ecology. Digger has led the VEWF ornithology studies since 2005 and the plan draws on his extensive knowledge and experience of the site's birdlife gained over the past 15 years.

## 2. Purpose of the BPP

The VEWf planning consent condition No. 24 requires that prior to construction commencement a bird protection plan is drawn up that details the measures that will be undertaken to manage disturbance to breeding birds.

The primary purpose of this BPP is to provide guidance to VEWf and their construction contractor(s) on the measures required to safeguard breeding birds during construction of the wind farm. It also provides a set of undertakings for the construction contractor(s) and the Ecological and Environmental Clerk of Works (ECoW) to follow.

A secondary purpose of the BPP is to provide a clear commitment to the planning authority (SIC) and SNH that VEWf will fully support the ECoW in the site implementation of the BPP and help to ensure that the contractor(s) fully comply with it.

This BPP is necessary to assist with construction compliance in relation to the Wildlife and Countryside Act 1981, as amended (WCA) (see below). In particular, compliance with regard to the legal obligation not to disturb species listed on WCA Schedule 1 birds when they are breeding. Compliance with WCA may mean that planned construction activities have to be modified or rescheduled to avoid or reduce the impact on protected bird species.

## 3. Site Location and Project Description

The VEWf s36 site covers a large area (approximately 70.4 km<sup>2</sup>) of Central Mainland Shetland approximately from Weisdale in the south and north to Voe, and from East Burrafirth in the west to Nesting in the east. The site largely comprises rough sheep pasture, blanket bog and moorland habitats interspersed with numerous small lochs and lochans. There are also smaller areas of improved grassland and plantation woodland.

The construction phase is anticipated to last approximately four years and start in spring 2020. It is anticipated that construction will proceed in multiple areas simultaneously.

### Bird protection legislation

SNH guidance states that *“Developers should be aware that a valid planning consent does not over-ride the need to comply with the law in relation to species protection. Sufficient safeguards and mitigation must be put in place to ensure that construction does not result in an offence being committed under the Wildlife and Countryside Act.”* (SNH, 2016).

The main features of the legal protection afforded to wild birds by the WCA are summarised below; the source legislation should be consulted for full and definitive details.

The WCA states that it is an offence to intentionally or recklessly:

- kill, injure or take a bird
- take, damage, destroy or interfere with a nest of any bird while it is in use or being built
- obstruct or prevent any bird from using its nest
- take or destroy an egg of any bird

The WCA also provides enhanced statutory protection to rare breeding birds listed on Schedule 1. For these Schedule 1 species, the WCA states that it is an offence to:

- disturb any bird while it is building a nest
- disturb any bird while it is in, on, or near a nest containing eggs or young
- disturb the dependent young.

Schedule 1 species that regularly breed in the vicinity of the Viking Wind Farm are:

- whimbrel
- red-throated diver
- merlin
- whooper swan

The WCA also provides enhanced statutory special protection at all times to species listed on Schedule 1A. For these Schedule 1A species, the WCA states that it is an offence to:

- harass any wild bird listed on Schedule 1A.

The only species on Schedule 1A relevant to the Project is hen harrier, a species that has previously (most recently in 2005/06) had winter roosts in Central Mainland Shetland.

Although not prohibited by law, disturbance of other high conservation value breeding species and their nests should be avoided if reasonably practical. These species include those listed on Annex 1 of the EU Birds Directive, and/or Birds of Conservation Concern Red List (BoCC red list) and/or classified by IUCN as globally threatened or near threatened. On the basis of existing survey data, the other high conservation value species breeding in the vicinity of the Project are:

- golden plover (Annex 1)
- dunlin (Annex 1)
- arctic tern (Annex 1)
- curlew (BOCC Red List, IUCN near threatened)
- arctic skua (BOCC Red List)

The bird species potential affected are considered in greater detail in Section 6.

The WCA legislation allows for disturbance of a Schedule 1 breeding species by a person holding a license issued by SNH for the purpose of survey and monitoring, provided this is done with due care and professionalism. Indeed, it is best practice that survey data are collected by a licensed ornithologist in the lead up to and during wind farm construction activities on the whereabouts of active breeding territories and nest sites of Schedule 1 bird species, and that these data are used to inform the bird protection advice provided to a developer and their contractors regarding how to prevent disturbance. It is thus implicit in the best practice process for managing bird disturbance at wind farm construction sites that occasional, short-term disturbance events of Schedule 1 breeding birds (and their eggs and young) by a licensed ornithologist are permissible for the purpose of collecting the information required to advise on how disturbance by construction activity is to be prevented. It is recognised also that any disturbance of Schedule 1 breeding birds is undesirable, and that therefore licensed disturbance should be kept to the minimum required to collect essential

information and always undertaken with due regard to the welfare and best interests of the birds under investigation.

## **4. Communications and on-the-ground compliance**

### **4.1 Communications**

Regular appraisals will be undertaken by the construction team and VEFW to identify where and when construction activities are planned that could affect breeding birds, and the need (if any) for additional survey work and mitigation measures. Through regular dialogue, this appraisal information will be shared with Ecological and Environmental Clerk of Works (ECoWs) and the ornithology team responsible for bird surveys, and the requirement for new survey work planned accordingly (see below).

The results from new bird survey work (if required) will be regularly and timeously made available to and discussed with VEFW and ECoW. ECoW will then inform the construction team of any constraints and mitigation required using various methods including staff notice boards, toolbox talks and meetings. The site working methods and detailed mitigation plans and documentation (i.e. the location-specific detailed prescriptions for the BPP) will be regularly updated to take into account new information, with changes communicated to appropriate construction staff.

The Viking Energy Wind Farm Construction Environmental Management Plan (CEMP) describes the procedure that will be followed in the event that departures from planned mitigation measures are necessary. This requires the Contractor to justify to VEFW the reasons for any departure and provide details of the proposed alternative approach that does not compromise environmental protection. In the case of departure from planned BPP and other bird mitigation measures, the alternative approach shall only be adopted following consideration and acceptance of the VEFW, ECoW and the ornithology team leader. The CEMP also obliges the Contractor to maintain an Environmental Departures Register that details the rationale for the change, the agreed alternative approach and demonstrates approval from relevant parties and notes that material changes will require consultation with the Planning Authority and relevant consultees.

### **4.2 On-the-ground delivery**

In all areas where construction activities could impact on breeding birds, the following will be undertaken:

- ECoW will be present on site throughout the construction period to ensure all mitigation relevant to birds (and other species) is delivered, and to advise construction staff on compliance with the mitigation and legislation. This advice will be provided in various ways including staff notice boards, toolbox talks and meetings.
- Specific BPP mitigation measures will be planned ahead by ECoW and fine-tuned and revised in light of new information; in particular the new information from bird surveys undertaken by experienced ornithologists.

- The ECoW will be responsible for setting-up the mitigation measures deemed appropriate to manage disturbance to breeding birds. For example marking out stand-off zones with coloured canes and erecting signage.
- All construction staff will be briefed on procedures to be implemented if an active nest or dependent young are found unexpectedly within the construction areas (i.e., outside a stand-off zone set-up to protect a particular nesting attempt). In such a case, all work at that locality must cease immediately until the ECoW attends and gives advice on what action is required.
- Relevant construction staff must regularly update the ECoW on construction progress and timetabling, as construction proceeds and in light of changes to plans and timescales.

## **5. Baseline and Pre-construction Bird Surveys**

### **5.1 Scope of existing survey data**

A large amount of bird survey work was conducted between 2005 and 2018 across Central Mainland aimed at informing the VEFW design and ornithology impact assessments. All areas potentially affected by construction activity have multiple years of generic moorland bird survey data that maps the distribution and abundance of ground-nesting bird species such as waders, skuas and gulls. In addition, since 2005 there have been almost annual monitoring of all breeding attempts by red-throated diver and merlin across the areas of interest.

The whole of the s36 area and a surrounding species-appropriate buffer was covered by pre-construction bird surveys in 2018 and/or 2019 (VEFW, 2019).

The existing bird survey data sets show that most species are highly predictable in their choice of breeding locations. Indeed this predictability underpins the basis behind layout changes made at the wind farm design stage to reduce impacts on birds in general and Schedule 1 species in particular.

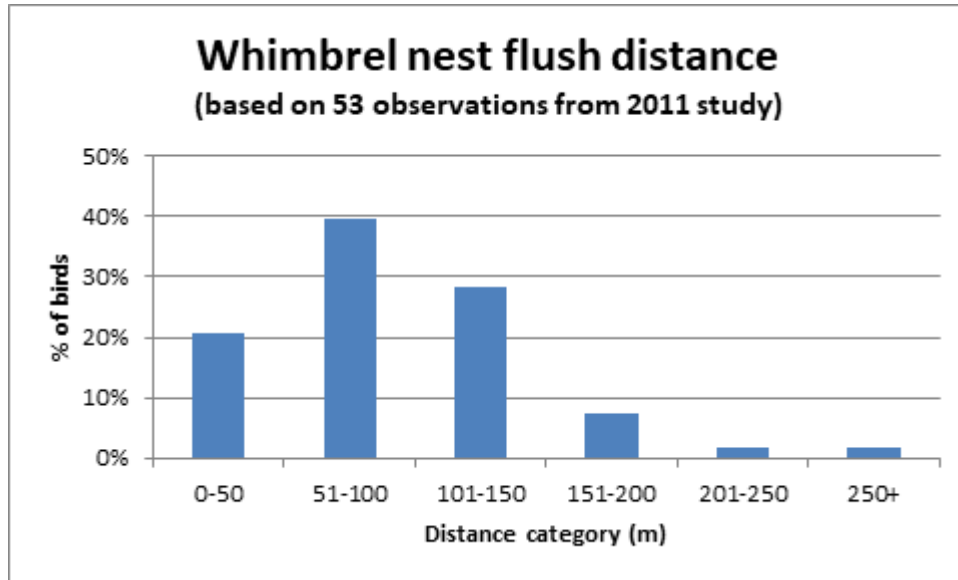
The existing survey data provides a wealth of information on where bird species of high conservation importance, especially Schedule 1 species, are likely to breed, and also where they do not regularly breed or do so only at very low density. The existing survey data will be used to undertake sensitivity mapping before construction work starts to identify locations and time periods where there is greatest likelihood of disturbance issues occurring. In this way the construction work will be planned in advanced to minimise the likelihood of causing disturbance to Schedule 1 breeding species and other species of considered to have high sensitivity to disturbance.

### **5.2 Whimbrel nest flush distance data**

During the breeding success study of whimbrel commission by Viking Energy in 2011, the distance at which incubating birds left their nest in response an ornithologist approaching on foot to monitor the nest was routinely measured, a measurement normally referred to as the 'nest flush distance'. A total of 53 nest flush distances were obtained.



The nest-flush-distance information gives an insight into the tolerance of whimbrel during the egg-stage of the breeding cycle to human activity. The median nest flush distance was 90m, and only very rarely was the flush-distance more than 250m (see histogram below). On this basis a default stand-off distance of 350m is likely to be adequately precautionous (see Section 7.3 and Table 2).



## 6. Relevant species

Although disturbance to birds could potentially occur at any time of year in practise concerns are likely to be restricted to the bird breeding season.

### 6.1 Breeding birds

The species of highest priority to the BPP are those listed on WCA Schedule 1 because there is a legal imperative not to disturb these species when they are breeding. Based on the results of the pre-construction surveys (VEWF, 2019), a full list of breeding bird species likely to occur in the vicinity of construction sites is presented in Table 1.

The wind farm layout was designed to avoid the areas regularly used by Schedule 1 breeding birds. For this reason construction activities have a relatively small potential to affect Schedule 1 species. Nevertheless, based on the results of the pre-construction surveys, it is anticipated that low numbers of Schedule 1 species could breed sufficiently close to construction sites to be at risk of disturbance from construction activities. For example, if the distribution of Schedule 1 breeding pairs was the same during the construction period as during the Pre-construction surveys (VEWF, 2019), and assuming the safe stand-off distances shown in Table 2, one pair of red-throated diver, 1 pair of merlin and up to three pairs of whimbrel could be affected by construction disturbance.

Several species that have moderate conservation importance but are not listed on Schedule 1 commonly nest within the wind farm site and therefore could be affected by construction activities. In particular, golden plover (Annex 1 species), dunlin (Annex 1 species); curlew

(BOCC red-listed), great skua (small global population size) and arctic skua (BOCC red-listed) (Table 1).

Several other species that have lower conservation importance also commonly nest within the wind farm site and these too could be affected by construction activities (Table 1). These include farmland and moorland species such as oystercatcher, redshank, red grouse, great black-backed gull, meadow pipit and skylark.

**Table 1. Abundance of breeding bird species recorded within Viking Energy Wind Farm during pre-construction bird surveys.**

Species	Legal protection <sup>1</sup>	Conservation status	Disturbance sensitivity	Approx. no of pairs within 200m of windfarm infrastructure	Approx. no of pairs within 400m windfarm infrastructure
Red-throated diver	S1, A1	favourable	High	1	4
Whooper swan	S1, A1	BoCC Red List	Moderate	0	1
Whimbrel	S1, A1	BoCC Red List	Moderate	3	13
Merlin	S1, A1	BoCC Red List	High	0	2
Golden plover	A1	favourable	Moderate	38	68
Dunlin	A1	favourable	Moderate	17	25
Lapwing	basic	BoCC Red List	Moderate	7	20
Curlew	basic	BoCC Red List, IUCN Near Threatened	Moderate	38	89
Snipe	basic	favourable	Low	ca. 40	ca. 80
Redshank	basic	favourable	Moderate	4	16
Common sandpiper	basic	favourable	Moderate	1	5
Oystercatcher	basic	favourable	Moderate	10	40
Arctic skua	basic	BoCC Red List	Moderate	3	7
Great skua	basic	Favourable, small global population	Moderate	17	26
Great black-b. gull	basic	favourable	Moderate	8	12
Common gull	basic	favourable	Moderate	0	6
Greylag goose	basic	favourable	Moderate	32	55
Teal	basic	favourable	Moderate	0	2
Red grouse	basic	favourable	Low	28	40
Raven	basic	favourable	Low	1	3
Skylark	basic	BoCC Red List	Low	ca. 200	ca. 400
Meadow pipit	basic	favourable	Low	common	common
Wheatear	basic	favourable	Low	2	5
Wren	basic	favourable	Low	13	27

<sup>1</sup> The legal frameworks relating to the protection of birds are abbreviated as follows; Wildlife and Countryside Act, general protection (basic), Schedule 1 (S1) and Birds Directive, Annex 1 (A1).

## **6.2 Non-breeding birds**

In the non-breeding autumn and winter months the wind farm site has low importance for birds. The majority of species that are present in the breeding season are not present at this time of year (they migrate to overwintering sites elsewhere), and the few resident species that remain (red grouse, raven, hooded crow and wren) have low sensitivity to disturbance outside the breeding season.

Historically, low numbers of hen harrier and whooper swan, have sometimes overwintered in Central Mainland, and if they these species chose to overwinter close to construction activities there could be potential for disturbance, particularly at roost sites. The known locations of historic winter roost sites for these species are all in areas that would not be affected by construction activities, thus the potential for disturbance is considered to be very low.

ECoW will be vigilant for the presence of hen harrier and whooper swan during the non-breeding months, and take appropriate measures to manage disturbance if they occur.

## **7. Disturbance sensitivity**

### **7.1 Construction activities with potential to cause disturbance**

Activities considered likely to lead to disturbance of breeding birds include, but are not limited to, the following:

- Personnel active in the construction site, e.g. walking or driving;
- The presence of large machinery such as excavators, cranes, dumper trucks and vibrating rollers;
- Noise generating activities including machinery noise, shouting, vehicle horns, reversing warning alarms, hammering, drilling and use of explosives. Sudden loud noises have greater potential to cause disturbance, in particular explosions;
- Use of lights, flashing lights, beacons, especially during the hours of darkness.

Activities with potential to lead to the loss of nests, eggs and dependent young birds include, but are not limited to, the following:

- Walking or driving across areas of moorland, blanket bog, loch shores and stream banks (etc), leading to risk of trampling or squashing nests, eggs or chicks.
- The removal of moorland, blanket bog and stream bank vegetation (etc), and the demolition of buildings and other built structures, leading to direct habitat loss.

### **7.2 Disturbance sensitive period**

The period when there is potential for construction activities to disturb breeding birds or destroy their nests, eggs and dependent young, is limited to the breeding season. For all species likely to be affected except raven, the breeding season falls within the period April to August. Raven may commence nesting in March. This means that between September and

March construction activities are not likely to result in disturbance to breeding birds, or pose a hazard to their nests, eggs or dependent young.

For the majority of species, including all wader, skua and gull species, active nests (i.e., nests containing eggs or chicks) are only likely to be present between mid-April and late June, though breeding pairs may have dependent non-flying young that have left the nest well into July (wader chicks leave the nest a few hours after hatching). This means that construction activities before mid-April or after June are not likely to destroy nests or eggs. The only species of high conservation importance that is likely to have active nests in July is red-throated diver, though most nesting attempts by this species end (because they either hatch or fail) by mid-July. In any cases, this species exclusively nests on the shores of lochs and lochans and so its nest sites would not be directly affected by construction work.

With the exception of red-throated diver and whooper swan, the young of all bird species that breed in the vicinity of the VEFW are likely to have fledged and achieved independence by the end of July; most do so well before this. Indeed, individuals of most species breeding on the wind farm site leave their breeding area as soon as the young can fly or their breeding attempt fails. Young red-throated diver and whooper swan may-not fledge until well into August and occasionally into September, however the young of both these species are restricted to standing freshwaters all of which are some distance from construction areas. This means that from August onwards construction activities are not likely to cause disturbance except in the vicinity of water bodies occupied by divers and whooper swan.

Due to the size of the Project, it is anticipated that there will be construction activity during the breeding season over large parts of the wind farm site. At locations where construction activities overlap the breeding bird season mitigation measures may be required to avoid disturbance and damage to nests, eggs and dependent young.

### **7.3 Disturbance stand-off distance**

The results of bird studies on the Viking wind farm site indicate that there is wide variation between individual breeding pairs of a species (including merlin, red-throated diver and whimbrel) in their proximity tolerance to human activity that could potentially lead to disturbance. The published literature (e.g., Whitfield *et al.*, 2007) and SNH guidance (Ruddock and Whitfield, 2007) on proximity tolerance by wild birds to human activity indicates that high variability between individuals of the same species is common place. This variability in tolerance can be caused by natural variation between individual's perception of risk, habituation to human activity through previous exposure, and characteristics of the topography and habitat. For example, a pair of birds that has a nest site that is not in line of sight of a potential disturbance source is likely to show greater proximity tolerance to that source than a pair with a nest site that is in line of sight. Variation may also occur in an individual's tolerance to human activity through the breeding season stages (e.g., pre-laying, incubation, early chick and late chick stages).

The variability between breeding bird pairs in their proximity tolerance of potential disturbance means that a 'one-size-fits-all' approach (e.g. a standard sized stand-off zone) to managing disturbance is not likely to be effective unless based on very cautious assumptions regarding safe proximities, but this is likely to lead to impractical measures. Therefore, information on proximity tolerance will need to be factored in on a case-by-case basis

In considering the design and application of mitigation measures to manage disturbance, default species-appropriate stand-off distances are required. The stand-off distance is the minimum separation distance between a disturbance source and a bird nest/territory centre that is expected to result in no adverse disturbance response. The species-specific default stand-off distances that will be used to guide mitigation measures are detailed in Table 2. These stand-off distances are based on local experience and published information on disturbance sensitivity (Whitfield *et al.*, 2008; Goodship and Furness, 2019) and factor in an appropriate degree of caution to reflect the within-species variation in disturbance tolerance shown between different pairs.

The default stand-off distances will be used as the starting point by ECoW for designing and applying mitigation measure to manage disturbance. The distances in Table 2 are a starting point and would be varied as appropriate by ECoW to take account of individual circumstances, for example lines-of-sight and stage of breeding.

**Table 2. Default stand-off distances to prevent disturbance of breeding birds and harm to nests and dependent young**

Species	Legal protection <sup>2</sup>	Stand-off distance	Measured from	Disturbance sensitivity
Red-throated diver	S1, A1	400m	Shore of breeding lochan (water bodies <100m across)	High
		300m	Shores of breeding loch (water bodies >100m across)	
Whooper swan	S1, A1	400m	Shores of breeding loch	High
Merlin	S1, A1	500m	Nest/terr. centre	High
Whimbrel	S1, A1	350m	Nest/terr. centre	Moderate
Golden plover	A1	150m	Nest/terr. centre	Moderate
Curlew	basic	150m	Nest/terr. centre	Moderate
Dunlin	A1	100m	Nest/terr. centre	Moderate
Lapwing	basic	100m	Nest/terr. centre	Moderate
Snipe	basic	50m	Nest/terr. centre	Low
Redshank	basic	100m	Nest/terr. centre	Moderate
Oystercatcher	basic	100m	Nest/terr. centre	Moderate
Common sandpiper	basic	100m	Nest/terr. centre	Moderate
Arctic skua	basic	200m	Nest/terr. centre	Moderate
Great skua	basic	200m	Nest/terr. centre	Moderate
Great black-b. gull	basic	200m	Nest/terr. centre	Moderate
Common gull	basic	150m	Nest/terr. centre	Moderate
Greylag goose	basic	150m	Nest/terr. centre	Moderate
Teal	basic	100m	Nest/terr. centre	Moderate
Red grouse	basic	100m	Nest/terr. centre	Moderate
Raven	basic	100m	Nest/terr. centre	Moderate
Skylark	basic	20m	Nest/terr. centre	Low
Meadow pipit	basic	20m	Nest/terr. centre	Low
Wheatear	basic	20m	Nest/terr. centre	Low
Wren	basic	20m	Nest/terr. centre	Low

## 8. Surveys to inform mitigation

The requirement for further survey work for a particular part of the construction site will depend on whether planned construction activities there overlap the breeding season. For those parts of the development site where construction activity will be outside the breeding season no bird survey work to inform mitigation is required.

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<sup>2</sup> The legal frameworks relating to the protection of birds are abbreviated as follows; Wildlife and Countryside Act, general protection (basic), Schedule 1 (S1) and Birds Directive, Annex 1 (A1).

For those parts of the development site where construction activity is anticipated to overlap the breeding season, bird survey work to inform mitigation actions will be required. This survey work must be undertaken by suitably experienced ornithologists holding a relevant Schedule 1 licence. All new survey information relevant to BPP will be regularly collated by the ECoW team.

Surveys will consist of regular visits through the breeding season to locate the territories of disturbance-sensitive species, and should be started before construction activities in that area start/recommence. For practical purposes the surveys should cover those parts of the development site where breeding season construction activities are anticipated plus a buffer of 500m. Survey methodology will follow SNH guidance (SNH, 2014).

The parts of the development site that could be subject to trampling, vehicle/machinery movements or direct habitat loss during the breeding season will receive additional survey effort as appropriate aimed at finding the active nests of sensitive species, or at least narrowing down where these nests are located to a relatively small area which can then be effectively safeguarded.

## **9. Mitigation measures**

### **9.1 Schedule 1 species**

The occurrence of a Schedule 1 species breeding territory sufficiently close to a construction site such that the birds could be disturbed would immediately result in the setting up of a stand-off zone (see below) large enough to avoid disturbance of the breeding pair occurring, and thus achieving compliance with the WCA.

### **9.2 Non-Schedule 1 species**

Where survey work locates a non-schedule 1 breeding bird pair within or immediately adjacent to the construction area that is at risk of disturbance or direct nest loss, an appropriately sized surrounding stand-off zone (see below) will be decided upon by the ECoW. The stand-off zone will be centred on the nest or a relatively small defined area where a nest is suspected.

### **9.3 Stand-off zones**

Stand-off zones are defined areas from which construction activities and personnel are temporarily excluded and are designed to afford protection to one or more pairs of breeding bird species and their nest(s) and young. Stand-off zones will be set-up and managed by the ECoW team in consultation with the ornithology team. Table 2 details the species-specific default stand-off distances which will be used as an initial guide by the ECoW. The ECoW may vary these distances (up or down) depending on topography and judged sensitivity to disturbance and risk of direct harm to a particular nest site. Stand-off zones need to be large enough to prevent disturbance to a particular breeding pair, bearing in mind the variability shown between pairs in disturbance tolerance.

Stand-off zones will be clearly marked out. For example, it is proposed that blue-topped canes are used to mark out the zones. Stand-off zone marker canes would be removed by the ECoW

and construction staff updated once the potential for disturbance within that zone ended, for example when a pair's breeding attempt ends.

#### 9.4 Other measures

In some circumstances, and in consultation with an ornithologist, the ECoW may consider it appropriate to instigate vehicle no-stopping zones along access tracks as a means to reduce the potential for disturbance. Although breeding birds may habituate to vehicle traffic, they can also be prone to disturbance if a vehicle is stationary and particularly if a person gets out of the vehicle.

Several of the bird species (e.g. all wader species, greylag goose and red grouse) that breed on the wind farm site have mobile chicks that leave their nest shortly after hatching and then wander over wide areas to feed. For these species it may not be appropriate during the chick-rearing stage to use a fixed stand-off zone centred on the nest, as chicks are likely to move out of the zone. The main risk to these species during chick-rearing is that chicks could be killed in road traffic accidents. To reduce this risk all drivers will be made aware, including through the use of signs, of the locations and times where mobile chicks are likely to be active. Drivers will be instructed to show additional vigilance, and slow down or stop as appropriate. A maximum speed limit (likely to be set at 15mph) shall be enforced.

The potential for construction activity to cause bird disturbance will also be reduced by, as far as practically possible, limiting the area over which activities occur, and thereby minimising the area of habitat affected. Measures to minimise damage to bird habitats are set out in the Viking Energy Wind Farm Construction Environmental Management Plan (CEMP).

Bird deterrent measures (e.g., streamer tapes or kites mounted on poles) are regularly deployed in upland wind farm construction sites in Scotland, aimed at discouraging certain species from settling to breed close to construction works. However, such measures have met with only limited success for some species, e.g., golden plover (Sansom, *et al.*, 2016). The need for deterrent measures for at VEFW construction sites will be considered on a case by case basis, rather than applied routinely. The deployment of such measures will be kept to a minimum and normally used in conjunction with other measures including stand-off zone and temporal avoidance. Deterrent methods may be particularly useful for species that can be attracted to construction activity. For example, breeding ringed plover and oystercatcher, and possibly lapwing, may be attracted to the disturbed ground stripped of vegetation. If this occurs, deterrent measures to discourage these species from nesting in inconvenient places may be required.

## 10. Consultation and review

SNH was consulted regarding the proposed approach to avoid and manage construction disturbance set out in this BPP and commented on a draft version of this BPP (emails from J. Swale (SNH) on 22/11/2019 and 11/12/2019). Following this consultation the default stand-off distances for some species was revised upwards and additional information was added on whimbrel flush distances.

The construction programme is scheduled to last a period of approximately four years. The BPP will be annually reviewed after the breeding season and if necessary revised ahead of the



next breeding season in light of new information and experience gained. Regular ECoW reports to VEFW will describe the BPP measures undertaken each season, including commenting on the deployment experience and how any problems encountered were dealt with.

The BPP presented here is closely aligned with the equivalent plans for the associated smaller-scale developments<sup>3</sup> that also form part of the VEFW development, including the Kergord Access Track (Appendix A: Kergord Access Track Bird Protection Plan) and B9075 Sandwater Road Upgrade (Appendix B: B9075 Sandwater Road Upgrade Bird Protection Plan) projects. The execution of all BPPs associated with the VEFW development will be integrated and the plans managed together.

## 11. References

Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. and Gregory, R. (2015). Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds* 108, 708-746.

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Whitfield, D.P., Ruddock, M. and Bullman, R. (2008). Expert opinion as a tool for quantifying bird tolerance to human disturbance. *Biological Conservation* 141: 2708-2717.

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<sup>3</sup> All Bird Protection Plans (BPP) produced in accordance with planning consents associated with the development of the Viking Energy Wind Farm shall be subsequently appended to this BPP. This approach will ensure parity between documents and ensure the civil contractor has a single document to which reference can be made throughout construction.

## **12. Appendices:**

- 12.1 Appendix A: Kergord Access Track Bird Protection Plan [TBC - once the Kergord Access Track BPP is approved it will be included as an appendix to this BPP]**
- 12.2 Appendix B: B9075 Sandwater Road Upgrade Bird Protection Plan [TBC - once the Sandwater Road BPP is approved it will be included as an appendix to this BPP]**