

Chapter 3: Consideration of Alternatives

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Figure 3.1: Comparison Showing 2016 and 2019 Alignments

3 Consideration of Alternatives

3.1 Introduction

3.1.1 The Proposed Development has evolved through an iterative design process which has been influenced by engineering feasibility design works, economic considerations, environmental survey data, and discussions with the Shetland Islands Council (SIC) Roads Department. This Chapter provides an overview of the design evolution process for the Proposed Development.

3.2 Site Selection

3.2.1 The purpose of the Proposed Development is to enable access for the construction of the Viking Wind Farm and associated components. Feasibility of access for abnormal loads such as wind turbine components was a key technical consideration in the design of the wind farm and the existing B9075 was identified at an early stage in the wind farm development process as a potential route for turbine delivery, subject to upgrade or realignment to allow passage of wind turbine and converter components. The rationale for the choice of turbine delivery and access routes was discussed in the Viking Wind Farm Environmental Statement, 2009¹.

3.3 The 2016 Application

3.3.1 In 2016, an application to upgrade the B9075 Sandwater Road between Weisdale Burn and the A970 (the 2016 Application) was made to SIC by VEFW and subsequently withdrawn in 2017. This involved the widening and upgrade of approximately 730m of the existing B9075 and the realignment of approximately 1,530m. The 2016 Application was withdrawn in 2017 due to a decision made by VEFW to review the proposed upgrade and realignment options.

3.3.2 Key considerations influencing the alignment selection for the 2016 Application were to maintain access along the existing road during construction, whilst protecting the Sandwater SSSI and minimising the amount of redundant land that would be created between the existing and proposed roads.

3.3.3 Consultation advice from SEPA recommended that the final layout and design of the road should stay within the footprint of the existing road as much as possible in order to limit the potential effects on the environment. However, it was agreed following consultation with SNH and SIC that road alterations should take place on the north side of the existing B9075 to ensure that works would not encroach into the Sandwater SSSI. Furthermore, the online upgrade of the entire road was not considered feasible by SIC, as this would have required the closure of the road for up to 9 months and a lengthy diversion for road users.

3.3.4 A partial upgrade and partial realignment was therefore proposed for the 2016 Application to limit the requirement for road closures and traffic management, whilst also staying within the footprint of the existing B9075 as far as possible.

¹ Viking Energy Partnership, 2009: Viking Wind Farm Environmental Statement.

- 3.3.5 Full environmental survey and assessment work was previously carried out along, and in the vicinity, of the B9075 road as outlined in the 2016 ES. With the implementation of mitigation measures, likely effects on the majority of environmental features assessed were not considered significant. This included potential effects on the Sandwater Site of Special Scientific Interest (SSSI).
- 3.3.6 Significant visual effects were predicted during the construction phase for building receptors at Setter and Sandwater, and the aspirational core path, immediately following construction (i.e. before mitigation had established). However, the assessment concluded that there would be no visual receptors significantly affected once construction had been completed and mitigation measures had begun to establish.
- 3.3.7 The 2016 ES identified that the realignment and improvements to the existing road would pass through an area of extensive and highly variable peat cover. A Peat Management Plan (PMP) supported the 2016 ES due to the potential impact the enabling works for the road could have on the peat deposits. In summary, the 2016 Application for the site indicated that the peat excavation was estimated to be in the order of 170,000m³. The 2016 Application was estimated to give rise to a permanent displacement of 105,000m³ of peat and the temporary displacement of 65,000m³ of peat. The permanently displaced peat volume was estimated to comprise approximately 25,000m³ of acrotelmic peat and 80,000m³ of catotelmic peat.
- 3.3.8 The PMP for the 2016 Application noted that there is potential for excavated peat to be reused on site (in the backfilling of temporary excavations or for earthworks and landscaping) or opportunities to use peat for restoration at Viking Wind Farm development, although a notable quantity may need to be sent to landfill under a waste exemption license. In this scenario, a large / very large impact on materials was predicted in the event that all of the excavated peat would need to be sent to licensed landfill. It was however noted that VEFW has a commitment to minimise waste, and there would be numerous opportunities to reuse peat associated with Viking Wind Farm.

3.4 Updated Design (March 2019 Application)

- 3.4.1 Following the withdrawal of the 2016 Application further consideration was given to the design. In discussion with SIC's roads department, a fully offline alignment was agreed as the most appropriate approach. The construction of a fully offline road will allow continued use of the existing B9075 by members of the public throughout the entirety of the construction works of Viking Wind Farm. This will ensure minimal traffic disruption to the public during the works and will minimise any interfaces between members of the public and construction traffic.
- 3.4.2 It is anticipated that a Recreational Management Plan, prepared in discussion with SIC will set out the principles for promoting access in the area, including retaining access to Sand Water Loch, and access to the wind farm. The plan will also allow for potential reinstatement of the existing road (in part), if this is considered to be desirable.
- 3.4.3 Other design considerations included:
- In discussion with SIC the road has been designed to ensure that in areas of deep peat the alignment would be floated, where possible, thereby minimising peat excavations and leaving vegetation and soils intact;

- Where topography has resulted in the need for some cuttings and embankments to be established, the cut and built-up slopes would be at a suitable gradient to enable revegetation and the re-establishment of habitats as far as possible; and
 - Where areas of cut occur within stable bedrock, rock cuttings would be established to minimise the footprint of the Proposed Development and volume of excavated materials.
- 3.4.4 In discussion with SIC, it was agreed that a phased approach would be adopted whereby the new road would be constructed for use by Viking Wind Farm construction access traffic only and the existing B9075 would remain available during this period for use by public road users to maintain separation between Viking Wind Farm construction and members of the public. Once the wind farm construction is complete, the new realigned road would be brought up to adoption standards and public traffic would move onto the newly realigned B9075. The Recreational Management Plan, prepared in discussion with SIC would determine the reinstatement or ongoing use of existing B9075, as part of the wider promotion of access in the area.
- 3.4.5 A comparison of the 2016 and 2019 alignments is shown in Figure 3.1.
- 3.4.6 As per the 2016 Application and ES, with the implementation of mitigation measures, likely effects on the majority of environmental features assessed in relation to the Proposed Development in this EIA Report are not considered significant, including potential effects on the Sandwater SSSI.
- 3.4.7 Significant effects on visual receptors during the construction phase are comparable with the 2016 ES, with the addition of temporary significant effects on the A970 and B9075. Direct and potentially significant effects on the Peatland and Moorland Inland Valleys Landscape Character Area (within which the majority of the Proposed Development is located) are predicted for the Proposed Development. However, with the implementation of mitigation measures, no significant landscape and visual residual effects in the long term are predicted. This is discussed further in Chapter 7: Landscape and Visual Impact Assessment.
- 3.4.8 A notable difference between the 2016 Application and the Proposed Development is the reduction in peat volumes anticipated. Following an objection by SEPA to the 2016 Application based in part on the disturbance and reuse of peat, the Proposed Development has been re-designed to minimise disturbance to peat while still accommodating the engineering requirements to satisfy the specification for road design. In accordance with good practice, the re-design has considered a floated design in part to minimise excavating deep peat.
- 3.4.9 The peat volumes for the Proposed Development have been calculated utilising the excavated areas identified along the route and modelling the cut volume of peat based on peat probing data. The total excavated peat volume along the route has been estimated to give rise to the temporary displacement of 31,150m³ of peat. The temporarily displaced peat is estimated to comprise approximately 28,450m³ of acrotelmic peat and 2,700m³ of catotelmic peat. This is a significant reduction in the volume of peat excavated in comparison to the 2016 Application. Furthermore, the Proposed Development is expected to achieve an overall peat balance with all excavated material required for reuse as part of

the works and no surplus peat anticipated. This is detailed in a Stage 1 Peat Management Plan prepared for the Proposed Development (see Appendix 10.4).

3.5 Do Nothing Scenario

- 3.5.1 There is always the option of not developing a project. However, given the access requirements for the Viking Wind Farm, it is considered that the Proposed Development is the best option. The existing road is not considered suitable, in the absence of significant online upgrade works, for the types and number of vehicles that will require using it for the construction of Viking Wind Farm. Online upgrades would increase traffic disruption to members of the public and present an increased safety risk through significant construction and public traffic interfaces. The successful construction of the Viking Wind Farm will contribute towards achieving the Scottish Government's targets for renewable energy production and reduction of harmful emissions.

3.6 Summary

- 3.6.1 Given the notable reduction in peat volumes, and the comparable nature of other predicted environmental effects with the 2016 Application, the Proposed Development as presented in this EIA Report is considered to be the optimum design to achieve the aims and objectives of the project.