

14. SCHEDULE OF MITIGATION

14.1 Introduction

14.1.1 The purpose of this chapter is to summarise the mitigation measures proposed for the proposed varied development in each of the technical chapters to avoid, reduce, or offset the impacts which would otherwise give rise to significant residual environmental effects.

14.1.2 The main aim of the design process was to 'design out' potential for environmental effects as far as possible. This chapter does not summarise 'mitigation by design'.

14.2 Summary of Mitigation and Residual Effects

14.2.1 The predicted effects and mitigation measures have been compiled into Table 14.1. They are presented in the order in which they appear within this ES.

- Chapter 4 - Landscape and Visual Amenity;
- Chapter 5 - Ornithology;
- Chapter 6 - Noise;
- Chapter 7 - Aviation and Telecommunications;
- Chapter 8 - Ecology;
- Chapter 9 – Hydrology, Hydrogeology, Geology, Soils and Peat;
- Chapter 10 - Access, Traffic and Transport;
- Chapter 11 - Cultural Heritage;
- Chapter 12 - Shadow Flicker; and
- Chapter 13 – Socio-economics.

Table 14.1: Summary of Mitigation and Residual Effects				
Topic	Potential Likely Significant Effect (without mitigation)	Mitigation Measures	Effect	Residual Effect
Chapter 4 - Landscape and Visual Amenity	<p>Significant effects upon a number of LCAs within the 16 km study area.</p> <p>Direct and substantial adverse landscape effects for East and West Kame and the Peatland and Moorland Inland Valley areas (Petta Dale and Kergord).</p> <p>Varying level of effects, with potential for significant effects for views orientated towards development within 15 km.</p> <p>Significant visual effects on walking routes within 10km.</p> <p>Majority of significant effects on roads within 5 km;</p> <p>Significant cumulative effects on nine of 24 landscape character areas/designations considered.</p> <p>Significant cumulative effects on three of the 17 viewpoints.</p> <p>The addition of turbine lighting (required by CAA guidelines) would result in additional significant visual effects from 12 of 13 viewpoints considered, during low light and night time conditions.</p>	<p>Advice on landscape and visual issues has been core to the design process including turbine scale, geometry, turbine and site layouts (as part of the ES and ES Addendum) and reinstatement measures. Because of this, there is no additional landscape and visual mitigation proposed.</p> <p>The Applicant proposes to engage with the Shetland Islands Council (SIC), the operators of Scatsta Airport and the CAA as part of agreeing an Aviation Mitigation Scheme (see Chapter 7) at the pre-construction stage to develop a lighting solution which may reduce these effects. Discussions would include consideration of:</p> <ul style="list-style-type: none"> • Potential reduction of lighting intensity during good meteorological visibility; • Radar activated lighting (should this be approved for use); and • Potential for cardinal or strategic lighting on selected turbines, 	Reduction of impact.	All significant effects remain.
Chapter 5 - Ornithology	<i>Construction</i>	The proposed varied development will not lead to any additional significant impacts on bird receptors compared to the consented Viking Wind Farm and	Reduction of impact levels	No significant effects

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	<p>Negligible magnitude (not significant) habitat loss.</p> <p>Negligible or low magnitude (not significant) construction stage disturbance effect for all species.</p> <p>Operation</p> <p>Negligible, low or low-moderate magnitude (not significant) operational stage disturbance effect for all species except merlin and whimbrel.</p> <p>Without mitigation, significant operational disturbance effects are predicted for merlin and whimbrel.</p>	<p>therefore no mitigation measures additional to those previously proposed are required.</p> <p>A programme of measures to benefit bird receptors would be delivered through the Habitat Management Plan (HMP) set out in Technical Appendix 8.9 and 8.10 (developed for the consented Viking Wind Farm (RPS, 2016)). The HMP is a package of practical measures designed to mitigate the potential adverse effects on key wildlife species (in particular on whimbrel, red-throated diver and merlin) and to address existing bird habitat quality issues including peat erosion. The implementation of an approved HMP is a condition of the existing consent and the Applicant is committed to delivering an appropriate HMP.</p> <p>The proposed mitigation measures delivered through the HMP focus on targeted habitat management work aimed at restoring degraded habitat, or, safeguarding existing good habitat or enhancing habitat quality. In combination the various measures are expected to lead to the HMP area supporting larger populations of or and having improved better breeding success for key bird species. The measures are also designed to stabilise or reverse some of the ongoing habitat degradation caused by peat erosion.</p> <p>Mitigation measures include the implementation of an approved Breeding Bird Protection Plan (BBPP) (a condition of the existing consent) with the aim of limiting disturbance to breeding birds during the Project’s construction stage to acceptable levels.</p> <p>Prior to the commencement of development, relevant preconstruction ornithological surveys shall have been completed, and the HMP and BBPP shall have been submitted to and approved in writing by Shetland Islands Council (SIC) in consultation with SNH. A revised BBPP will be prepared and approved by SIC for works beyond the anniversary of any current approved plan.</p>	<p>through offsetting and compensation.</p>	<p>expected following mitigation measures.</p>
<p>Chapter 6 - Noise</p>	<p><i>Construction</i></p> <p>No potential significant effects.</p> <p><i>Operation</i></p> <p>There are a small number of receptors where predicted noise levels from</p>	<p>To meet the noise limits during operation, mode management may be required for certain wind speeds and directions for both daytime and night-time periods. The level of mode management required would depend on the daytime fixed minimum noise limit adopted for the proposed varied</p>	<p>Reduction of impact.</p>	<p>Subject to mitigation wind turbine noise is predicted to be less than Site</p>

Table 14.1: Summary of Mitigation and Residual Effects

	<p>existing wind turbines (consented or operational) already exceed the noise limits recommended by ETSU-R-97 even when a 40 dB day time fixed minimum limit is adopted. Where such an exceedance already exists, the proposed varied development would operate such that it will cause a negligible increase in levels¹. Accordingly, whilst the combined cumulative effect of all developments in the area is significant at certain receptors, the additional cumulative effect of the proposed varied development would result in no additional significant effects.</p>	<p>development. It is anticipated that the achievement of noise limits would be subject to appropriately worded planning conditions.</p> <p>The Applicant requests that Conditions 42 – 47 of the relevant section 36 consent are removed and replaced with the condition in Annex 8 of Technical Appendix 6.1 (which is based upon the example condition in the IOA GPG amended as required to be suitable for the proposed varied development).</p>		<p>Specific Noise Limits, thus predicted noise levels are not significant.</p>
<p>Chapter 7 - Aviation and Telecommunications</p>	<p><i>Construction</i> No potential significant effects.</p> <p><i>Operation</i> Potential moderate and significant effect on Scatsta Airfield operations. Potential moderate and significant effect on television and radio reception.</p>	<p><i>Aviation</i> The relevant section 36 consent contains a condition (Condition 7) requiring an aviation mitigation scheme in relation to Scatsta Airport. No variation has been sought to that condition, which, if the Section 36C application for variation of the consent is granted, would remain in effect. The condition prohibits construction work on Affecting Turbines without such a scheme having been approved.</p> <p>The mitigation scheme would include the agreement of aviation lighting scheme, with the aim of ensuring no effect on aviation operations, along with reducing the magnitude of impact for sensitive visual receptors.</p> <p><i>Television</i> In accordance with the existing condition 50 (attached to the relevant section 36 consent), prior to the installation of the turbines, the Applicant would commission a further survey measuring existing television reception quality, which will be submitted to the Planning Authority. In the event that the proposed varied development is found to cause interference to television</p>	<p>Reductions or avoidance of impact.</p>	<p>No significant effects expected following mitigation measures.</p>

¹ To ensure the additional contribution from the proposed varied development is negligible, where required, it would be operated such that noise is at least 10 dB below the existing wind turbine noise levels. This would result in a negligible increase as, for example, 40 dB + 30 dB ≈ 40 dB.

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		<p>reception in the vicinity, following a complaint made to the Planning Authority within one year of the final commissioning, the Applicant would take whatever action the Planning Authority deem necessary to remedy such impairment and alleviate the problem, to the satisfaction of the Planning Authority.</p>		
<p>Chapter 8 - Ecology</p>	<p><i>Construction:</i></p> <ul style="list-style-type: none"> • Potential construction pollution or runoff effects on the Sandwater SSSI would have a significant adverse effect at national level. • Accidental pollution events could lead to significant adverse effect at the regional level on blanket bog (including bare peat), standing/running water and GWDTE. • Pollution or sediments from construction runoff would lead to significant adverse effect on fish species at the regional level for salmon and brown trout and at the local level for macro-invertebrates, European eel, three-spined stickleback and flounder. <p><i>Operation:</i></p> <ul style="list-style-type: none"> • Potential operational pollution or runoff effects on the Sandwater SSSI would have a significant adverse effect at national level. • Accidental spillage of fuels, chemicals and lubricants during operational and maintenance work could lead to significant adverse 	<p><i>Pre-construction Protected Species Surveys</i></p> <p>Pre-construction protected species surveys, following best practice guidance, would be completed within eight months prior to the start of construction, particularly focusing on otter, which are known to be present at a low level in the ecological study area. The survey would focus on a buffer zone of 200 m around proposed infrastructure locations. This would identify any protected species signs within the proposed varied development not recorded during previous surveys. Should a breeding otter holt be discovered during the survey, SNH would be consulted immediately as a EPS licence is likely to be required for any construction work to continue, along with suitable mitigation or compensation works.</p> <p><i>Schedule of Works</i></p> <p>As far as possible, all relevant works would be programmed to avoid periods of high sensitivity for protected species and this would be agreed with the Shetland Islands Council (SIC) in consultation with SNH prior to the commencement of works. However, a lack of significant daylight during winter months means that construction work would be required during the spring, summer and early autumn months and this would unavoidably coincide with some ecological sensitivities, such as fish migration season.</p> <p>Before any construction works begin, ecological training and the raising of awareness of construction staff would be undertaken by the Ecological Clerk of Works (ECoW). All new staff would undergo an ecological induction and be made aware of the ecological features on the site and the legal implications of not complying with agreed working practices.</p> <p><i>Micro-siting of Infrastructure and Demarcation of Exclusion Zones</i></p> <p>The potential for temporary disturbance to protected species (e.g. otter, Atlantic salmon and brown trout) during construction would be minimised as far as possible. A 50 m exclusion zone would buffer all at-risk watercourses</p>	<p>Reduction and/or avoidance of significant effects.</p>	<p>No significant effects expected following implementation of mitigation measures.</p>

Table 14.1: Summary of Mitigation and Residual Effects

	<p>effect on blanket bog, standing and running water, and GWDTE at the regional level.</p> <ul style="list-style-type: none"> Fuel and chemical spills from service vehicles and plant could lead to significant adverse effect on fish species at the regional level for salmon and brown trout and at the local level for macro-invertebrates, European eel, three-spined stickleback and flounder. 	<p>and water bodies, whenever possible and as agreed with SEPA. Where exclusion is not possible, such as at water crossing points, access to the watercourses by personnel and machinery would be kept to a minimum. Infrastructure would be micro-sited to avoid the most sensitive habitats, such as active priority peatland habitat and GWDTE, wherever possible. The ECoW would help to ensure that opportunities to avoid sensitive habitats during construction are identified and undertaken.</p> <p><i>SEMP</i></p> <p>An outline SEMP is included in Technical Appendix 2.2. The SEMP would be further developed post-consent and pre-construction to include protection and mitigation measures, as well as monitoring programmes, for all predicted and potential environmental impacts identified.</p> <p><i>Minimising the construction of watercourse crossings</i></p> <p>Where a watercourse crossing has been unavoidable, best practice would be followed for any construction works combined with appropriate hydrological mitigation, as detailed in Technical Appendix 2.7: Watercourse Crossing Details.</p> <p><i>Minimising impacts of potential hydrological changes due to cabling, tracks and drains</i></p> <p>The potential for cable trenches to act as drains would be avoided by back-filling with compacted excavated material, rather than more porous bedding. In areas where cabling trenches are on steeper slopes, clay bunds may be installed if required within the trenches at regular intervals to minimise groundwater flow downslope. In order to limit the disruption to surface water flows caused by trackside drains, cross drains would be constructed at regular intervals to conduct surface flow across the track where it would be discharged into the drainage system.</p> <p>Regular discharge points would limit the concentration of surface run-off and the diversion of flows between sub-catchments. Run-off control measures, such as interceptor drains and silt traps, would be used to control the flow of any run-off from operation activities and maintain water quality. In accordance with industry guidance (SNH, 2015), ditches would follow the natural flow of the ground with a generally constant depth to ditch invert. They would have shallow longitudinal gradients where possible. Regular</p>		
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		<p>check-dams would be used where necessary to control the rate of run-off. The ditches would be designed to intercept any stormwater run-off and to allow clean water flows to be transferred independently through the works without mixing with construction drainage. The regular interception and diversion of clean run-off around infrastructure would prevent significant disruption to shallow groundwater flow, flush areas and blanket bogs.</p> <p>The proposed drainage management measures would also reduce the flow of water onto any exposed areas of rock and soil, thereby reducing the potential volume of silt-laden run-off requiring treatment. Greenfield run-off (i.e. non-silty surface water flow that has not yet passed over any disturbed construction areas) would be discharged into an area of vegetation for dispersion or infiltration, mimicking natural flows, so as not to alter downstream hydrology or soil moisture characteristics.</p> <p>Floating track construction would be adopted with the aim of maintaining existing surface and sub-surface flows where possible. Floating track construction would avoid compression of peat by ensuring sufficiently low pressure from the tracks, maintaining maximum permeability by using large sized clean aggregate and installing small diameter pipe cross drains in the track base to aid percolation. There would be no mounding or re-use of excavated peat in the track side areas where surface flows would be impeded. The track design would have due regard to key principles set out in the joint SNH/FCS guide to floating roads on peat (SNH/Forestry Commission Scotland, 2010). Track construction through potential GWDTE, where there is no clearly defined channel flow, would use a floating construction that incorporates measures, such as a porous granular rock fill blanket, non-alkaline porous layer and perforated pipes, to maintain the flow connectivity across the tracks. Careful management would mitigate potential changes to the hydrology of peat and GWDTE and consequent changes to habitats and species distribution.</p> <p><i>Habitat reinstatement, restoration and compensation</i></p> <p>Best practice techniques of vegetation and habitat restoration would be adopted and implemented in areas of disturbed vegetation, such as track sides, borrow pits and waste peat and soil mounding. Early restoration of all disturbed areas would be undertaken to minimise the effects of soil and peat</p>		
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		<p>exposure erosion. Re-instatement techniques would be agreed in consultation with SNH prior to construction.</p> <p>Compensatory restoration for the predicted 85.1 ha of blanket bog permanently lost as a consequence of construction would be undertaken, as detailed in Technical Appendix 8.9: Habitat Management Plan and Technical Appendix 8.10: Habitat Management Plan Figures. The Habitat Management Plan (HMP) proposes to match the 260 ha of blanket bog that was to be restored in the ES and the ES Addendum. It is noted that the HMP was submitted to SIC for approval on the 15th June 2018. It is proposed that the same HMP would take effect for the proposed varied development.</p> <p>Any plant material used in restoration techniques would be of local provenance and appropriate for the locations being restored. Where it is not possible to use plant material of local provenance, the ECoW would be consulted to provide guidance on suitable alternatives.</p> <p><i>Best practice borrow pit working</i></p> <p>Borrow pit design and reinstatement would ensure that best practice is adopted, and the sites are reinstated as soon as possible. Detailed reinstatement plans for each borrow pit would be produced separately and agreed in consultation with SNH prior to construction. Up to ten borrow pit sites have been identified, as discussed in Chapter 2: Description of Development. These range in size from approximately 0.2 ha to 1.8 ha. This provides a range of sites where reinstatement work would be undertaken. Further details are provided in Technical Appendix 8.9: Habitat Management Plan.</p>		
<p>Chapter 9 - Hydrology, Hydrogeology, Geology, Soils and Peat</p>	<p><i>Construction:</i></p> <ul style="list-style-type: none"> • Potential for moderate adverse and significant direct effects on the soil/peat resource as a result of pollution, erosion and peat landslide. • Potential for moderate adverse and significant erosion associated with the construction work. Potential 	<p><i>Peat Erosion Control and Landslide Mitigation</i></p> <p>All peat handling during construction and reinstatement will be in accordance with the Peat Management Plan (PMP) provided (see Technical Appendix 2.4). A Stage 2: PMP would be developed post-consent to establish clear protocols for peat excavation, storage, handling and transport based on a more detailed design.</p> <p>Mitigation measures that seek to avoid and/or reduce the potential for peat landslide include:</p>	<p>Reduction and/or avoidance of significant effects.</p>	<p>No significant effects expected following implementation of mitigation measures.</p>

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	<p>effects include indirect effects on aquatic ecology and fluvial morphology downstream of the site.</p> <ul style="list-style-type: none"> High surface runoff coefficient means that in the event of a pollution event, when assessed assuming no further mitigation is implemented, a large area could be affected resulting in a large magnitude effect. This could potentially result in a major adverse and significant effect. <p><i>Operation:</i></p> <ul style="list-style-type: none"> Despite the reduction in the number of potential pollutants during the operational phase the magnitude of a pollution incident, without mitigation in place, is medium, leading to potential moderate adverse and significant effect. 	<ul style="list-style-type: none"> Micrositing will be used during the detailed design and construction phases to further avoid areas identified as of high risk of instability. This would be undertaken under the direction of an environmental advisor and geotechnical engineer (as necessary). Tracks will be microsited to avoid the need for localised cut and fill, particularly on convex slopes. Geotechnical supervision will be provided throughout construction. A Geotechnical Risk Register will be completed as part of the design phase. All excavated materials would be removed to temporary storage mounds positioned at safe slope gradients and certified by a geotechnical engineer. All tracks will be, as far as possible, constructed under geotechnical supervision and monitored during and after construction. Earthworks and any excavation would be designed and undertaken in such a way as to avoid any excavation of toe support material. The excavation of any temporary slopes would be fully designed. The design of any new drainage would be undertaken to ensure no adverse loading is placed on areas of marginal peat stability. <p><i>Pollution Prevention</i></p> <p>The Site Environmental Management Plan (SEMP), as described in outline in Technical Appendix 2.2 to this EIA Report (and as required by Condition 22 (Annex 2, part 2) of the relevant section 36 consent), will be developed to include comprehensive mitigation measures written in accordance with the relevant best practice guidance on pollution prevention and mitigation, namely the SEPA Guidance for Pollution Prevention². The SEMF will include the following controls:</p>		
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² Guidance for Pollution Prevention (January 2017) Works and Maintenance In or Near Water. GPP5, Version 1.2, February 2018, published by NetRegs –URL: <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/> (accessed 21/8/18)

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		<ul style="list-style-type: none"> • All equipment, materials and chemicals will be stored well away from any watercourses. Chemical, fuel and oil stores will be sited on impervious bases within a secured bund. • Standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Where practicable refuelling of vehicles and machinery will be carried out in one designated area, on an impermeable surface, and well away from any watercourse. • Construction traffic access would be restricted wherever possible, and the number of vehicle movements limited as much as possible. Land surrounding the immediate construction area would be fenced off or otherwise demarcated to prevent inadvertent intrusion from construction plant. • Only emergency maintenance to construction plant will be carried out on site, in one designated area, on an impermeable surface well away from any watercourse or drainage, unless vehicles have broken down necessitating maintenance at the point of breakdown, where special precautions will be taken. • Silt traps and sediment attenuation ponds will be inspected and cleared regularly to ensure they remain fully operational and effective. Silt fences and mats shall be utilised to ensure minimum sediment runoff from stockpiles. • Runoff flow and loading should be kept to pre-development levels. • Watercourses, culverts and drainage ditches will be inspected and cleared regularly to prevent blockages and remove the risk of flooding. • On-site welfare facilities will be adequately designed and maintained to ensure all sewage is disposed of appropriately. This may take the form of an onsite septic tank with soakaway, or tankering and offsite disposal depending on the suitability of the site for a soakaway and agreement with SEPA. • The use of wet concrete in and around watercourses will be minimised and carefully controlled. • Development of contingency plans will ensure that emergency equipment (e.g. spill kits and absorbent materials) is available at appropriate 		
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Table 14.1: Summary of Mitigation and Residual Effects

		<p>locations on site and that advice is available on action to be taken and who should be informed in the event of a pollution incident.</p> <ul style="list-style-type: none"> All relevant staff personnel will be trained in both normal operating and emergency procedures, and, be made aware of highly sensitive areas on site. The staff training, and implementation of site procedures will be overseen by an Environmental Manager or Environmental Clerk of Works to ensure that these measures are carried out effectively to minimise the risk of a pollution incident. 		
<p>Chapter 10 - Access, Traffic and Transport</p>	<p><i>Construction</i></p> <ul style="list-style-type: none"> North of Voe the magnitude of increase in traffic is predicted to be medium and therefore, prior to the application of mitigation, the significance of effect is predicted to be moderate (a significant effect in EIA terms). Voe the magnitude of cumulative construction traffic increase is predicted to be medium and therefore, prior to the application of mitigation measures, the significance of effect is predicted to be moderate (a significant effect in EIA terms). Due to the high magnitude of change for HGV movements at the A971 west of Tingwall, and in the absence of mitigation, the significance of effect is predicted to be moderate (a significant effect in EIA terms). <p><i>Operation</i></p> <p>No potential significant effects.</p>	<p><i>Concrete Batching</i></p> <p>It is proposed that the concrete works will be carried out by installing batching plants on-site, and to deliver aggregate and cement (and possibly water if site water is unsuitable) in tippers and tankers. Aggregates can be delivered for storage prior to use over a longer period than ready mixed concrete. By batching on-site, the number of vehicle loads required is significantly reduced over the duration of the construction phase.</p> <p><i>Traffic Management Measures</i></p> <p>In addition to the specification of the preferred access route and the detailed phasing of construction traffic, additional measures and initiatives will be introduced to minimise the intrusive effects of construction-related traffic. Measures proposed are:</p> <ul style="list-style-type: none"> Regulated site working hours in accordance with condition 11 of the relevant section 36 consent, which states that construction work with the potential to create nuisance will only take place between the hours of 0700 and 1900 on Monday to Friday, 0700 to 1600 on Saturday with no working on a Sunday or local/national public holidays unless approved by the Planning Authority. Deliveries to the site (excluding AILs) would be limited to 0800 – 1800, Monday to Friday, and 0900 to 1200 on Saturday. Where appropriate, additional warning and speed control signs will be installed, temporarily or otherwise, with the agreement of the roads authority. A construction liaison committee shall be established to ensure the smooth management of the project / public interface. Traffic management is likely to be an issue considered by the liaison committee. 	<p>Reduction and/or avoidance of significant effects.</p>	<p>No significant effects expected following implementation of mitigation measures.</p>

Table 14.1: Summary of Mitigation and Residual Effects

		<p>It is proposed that representatives of the Applicant, the construction contractors, the local community, and, if appropriate, the Police form the committee. This committee will form a means of communicating and updating on forthcoming activities and dealing with any issues arising.</p> <p>Driver’s induction to include:</p> <ul style="list-style-type: none"> • A safety briefing. • The need for appropriate care and speed control. • Identification of specific sensitive areas. • Identification of the specified route. • The requirement not to deviate from the specified route. • Preferred routes for non-abnormal load construction traffic will be agreed with Shetland Islands Council and included in the construction/traffic management plan, prior to construction starting. <p><i>Roads Structural Alterations</i></p> <p>To allow for project traffic to pass, structural alterations or assessments will be made at the locations set out in Table 10.16 (and Figure 10.3) in Chapter 10 of this EIA Report.</p> <p><i>Car Pooling (B9075/A970 Junction)</i></p> <p>An opportunity exists to incorporate improved parking arrangements for these people at or near the junction, either by making use of road widening at the junction itself or by making use of parts of the proposed construction compound and access track (on the A970 about 680 m south of the junction) after wind farm construction is complete. The Applicant will work with Shetland Islands Council to provide such facilities.</p> <p><i>Road/Junction Improvements</i></p> <p>Mitigation will involve the construction of new access points. These are likely to be in the form of widened priority junctions wide enough to handle the abnormal loads as well as general construction traffic. Junction upgrades include: the A968/A970 junction at Voe, the Sella Ness access junction (B9076) and the A970/B9075 junction upgrade, however the latter will be covered in the Sandwater Road upgrade, which is covered in a separate</p>		
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		application. In addition, improvements to five existing accesses are also necessary along with some street furniture movements.		
Chapter 11 - Cultural Heritage	<p><i>Construction</i> Without mitigation a moderate adverse and significant effect is anticipated upon Laxo Burn settlement (Site 447) identified during the walkover survey.</p> <p>Without mitigation a moderate adverse and significant effect is expected upon Catfirth Linen Industry Landscape (Site 448).</p> <p>Potential significant effects on hitherto unknown heritage assets.</p> <p><i>Operation</i> No significant effects predicted.</p>	<p>A programme of archaeological work is proposed, supplemented by an Archaeological Management Plan (AMP) (provided with this EIA Report in Technical Appendix 11.4). The AMP commits to producing a revised report of archaeological potential based on geophysical works, which would be used to identify areas requiring an archaeological watching brief during ground breaking works.</p> <p>Technical Appendix 11.4 provides details regarding a programme of archaeological works designed in consultation with the Shetland Regional Archaeologist to investigate the potential for archaeological sites within the development area and allow for the preservation or recording of any significant archaeological remains.</p> <p>It is noted that known sites within 100 m of the proposed varied development would be fenced off during construction works. Conditions 33 to 41 of the relevant section 36 consent provide protection for archaeology and cultural heritage. No material changes to these conditions are proposed as part of the variation application.</p>	Reduction and/or avoidance of significant effects.	No significant effects expected following implementation of mitigation measures.
Chapter 12 - Shadow Flicker	<p><i>Construction</i> Not applicable.</p> <p><i>Operation</i> No significant shadow flicker effects predicted.</p>	Notwithstanding the fact that no significant effects are predicted, in order to protect the amenity of local residents, the turbines would be fitted with suitable controls that would, in the event of a complaint to the planning authority, allow the causal turbines to be shut down during periods when shadow flicker could occur.	Reduction and/or avoidance of non-significant effects.	No likely residual significant effects.
Chapter 13 - Socioeconomics	<p><i>Construction</i> Short term beneficial effects, significant at the local level during construction.</p> <p><i>Operational</i> Locally significant long term (for the life of the wind farm) beneficial effect during operation associated with the community benefit fund, in addition to</p>	<p>No significant adverse socio-economic effects have been identified. As a result, no mitigation is required or proposed as part of the proposed varied development.</p> <p>Additional good practice: Good practice management measures carried forward from the 2009 ES to be used during the construction phase include:</p>	Enhancement of significant beneficial effects.	Proposed good practice measures included will support the realisation of the significant beneficial socio-economic

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	<p>the Shetland Charitable Trust income from 40% project ownership.</p>	<ul style="list-style-type: none"> • A commitment to develop a communication strategy to be used to provide consistent and regular updates to the public and other interested parties. • The use of the SSE Open4Business procurement portal to encourage local suppliers to tender for work packages – Tier 1 and Tier 2 suppliers will be required to list available contracts through SSE’s Open4Business online procurement portal for transparency and ease of access for local supplies. • The utilisation of raw materials from local sources, where possible. • Careful planning of vehicle movements through a traffic management plan to minimise disruption to local traffic during the construction period. <p><i>Good practice measures to be implemented during the operation phase include:</i></p> <ul style="list-style-type: none"> • Ongoing monitoring of the community benefit scheme. • Commitment to an access plan that maximises the potential benefits of the development through provision of public access through organised tours, development of mountain bike routes away from restricted areas, promotion of alternative walking routes, improvement in car parking, promotion of Shetland as a sustainable community with respect to energy production to generate an energy tourism market and the development of tourism viewpoints. • The provision of information and interpretation about the wind farm at appropriate locations near to or within the wind farm. <p><i>Monitoring</i></p> <p><i>The monitoring to be employed during the construction phase includes the following activities:</i></p> <ul style="list-style-type: none"> • Monitoring of available accommodation spaces within a 24-month period leading up to the start of construction activities to consider the significance for the tourism sector in reducing available spaces. • Monitoring of the price of local labour and related services. • Monitoring of vehicular traffic routes to ensure that mitigation measures designed to reduce traffic impacts are adequate. 	<p>effects associated with the proposed varied development.</p>
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		<ul style="list-style-type: none"> • Establishment of a Shetland Wind Farm Environmental Advisory Group (SWEAG) to examine and advise on the environmental impacts of the Viking wind farm during construction, operation and decommissioning. <p><i>The measures to be employed during the operational phase include:</i></p> <ul style="list-style-type: none"> • Monitoring of the effectiveness of any community benefit scheme with respect to strategic goals achieved, expenditure over time and other Key Performance Indicators (KPIs); • Ensuring training is available for local people to take advantage of direct new job opportunities, and encouraging training in the tourism sector; and • Encouraging promotion of Shetland as a tourist destination, especially promoting its green credentials. 		
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