



Viking Wind Farm

November 2018

Volume 1:
Non-Technical Summary

Section 36 Variation Application - Environmental Impact Assessment Report



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1. OVERVIEW

- 1.1.1 Viking Energy Wind Farm LLP (“the Applicant”) has applied for a variation¹ of the consent for the proposed Viking Wind Farm, on Mainland Shetland. On 4 April 2012 development consents for the construction and operation of the Viking Wind Farm (103 turbines) were granted by the Scottish Ministers under Section 36 of the Electricity Act 1989. By letter dated 29 March 2017, the Scottish Ministers extended the period for commencement of development up to 4 April 2020. The Applicant is also seeking a direction from the Scottish Ministers under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 that planning permission be deemed granted².
- 1.1.2 The purpose of the variation application is to change the specification of the 103 turbines, increasing the maximum tip height of the turbines, from 145 metres (m) to a maximum of 155 m. It is proposed that the maximum rotor diameter would increase from 110 m previously assessed and consented, to a maximum of 120 m. These changes in specification are referred to as “the proposed variations”. It is important to note that no changes to the layout or footprint of the consented Viking Wind Farm are proposed as the number and location of turbines and other site infrastructure have not altered. The consented Viking Wind Farm as varied in accordance with the variation application is referred to as “the proposed varied development”.
- 1.1.3 In 2009 the Environmental Statement for the proposed Viking Wind Farm with a 150 turbine layout reported likely significant effects for specific receptors and this is referred to as “the ES. In 2010 the ES Addendum for the proposed Viking Wind Farm with a 127 turbine layout reported likely significant effects taking account of the reduction from 150 turbines to 127 turbines and this is referred to as “the ES Addendum”. The Applicant has provided a new Environmental Impact Assessment Report (“EIA Report”) under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (“ the 2017 EIA Regulations”) to accompany the application for variation of the Section 36 consent for the construction and operation of the proposed Viking Wind Farm with a 103 turbine layout with the proposed variations to the turbine specification. This document provides a Non-Technical Summary of the EIA Report.
- 1.1.4 The aim of the NTS is to summarise the content and main findings of the EIA Report in a clear and concise manner to assist the public in understanding what the environmental effects of the proposed varied development are likely to be. The full EIA Report provides a more detailed description of the proposed varied development and the findings of the Environmental Impact Assessment (EIA) process.
- 1.1.5 Professional judgement, based on a review of the ES, the ES Addendum, and updated baseline information (where required), has been used to establish the likely significant effects of the consented Viking Wind Farm for the purposes of comparison with the assessed effects of the proposed varied development.
- 1.1.6 The EIA Report will comprise five volumes:
- Volume 1 - Non-Technical Summary (NTS);
 - Volume 2 – Main Report;
 - Volume 3a – Figures;
 - Volume 3b - Visual Representations; and
 - Volume 4 - Technical Appendices.

¹ Under Section 36C of the Electricity Act 1989 and the Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013.

² Under section 57(2) of the Town and Country Planning (Scotland) Act 1997.

1.1.7 The EIA Report and other documents submitted with the variation application will be available for viewing on the Scottish Government portal at www.energyconsents.scot. An application website is available to view at <https://www.vikingenergy.co.uk/>.

1.1.8 The full EIA Report will be available for viewing at the following locations:

Viking Energy Partnership	Shetland Islands Council	Shetland Library
The Gutters Hut	8 North Ness Business Park	Lower Hillhead
North Ness Business Park	Lerwick	Lerwick
Lerwick	Shetland	Shetland
Shetland	ZE1 0LZ	ZE1 0EL
ZE1 0LZ		

1.1.9 The EIA Report can also be viewed at the Scottish Government Library at Victoria Quay, Edinburgh, EH6 6QQ.

1.1.10 Any representations in respect of the application may be submitted via the Energy Consents Unit website at www.energyconsents.scot/Register.aspx; by email to The Scottish Government, Energy Consents Unit mailbox at representations@gov.scot or by post, to The Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the proposal and specifying the grounds of representation.

1.1.11 Written or emailed representations should be dated, clearly stating the name (in block capitals), full return email and postal address of those making representations. Only representations sent by email to representations@gov.scot will receive acknowledgement.

1.1.12 All representations should be received not later than the date falling 30 days from the date of the last published notice, although Ministers may consider representations received after this date. Any subsequent additional information which is submitted by the Applicant will be subject to further public notice in this manner, and representations to such information will be accepted as per this notice.

1.1.13 This EIA Report is available in other formats if required. For details, including costs, contact:

Viking Energy Partnership
 The Gutters Hut
 North Ness Business Park
 Lerwick, Shetland
 ZE1 0LZ

2. PROJECT BENEFITS

2.1.1 Wind turbine technology is continually evolving with more productive and efficient designs coming on to the market place each year. A final turbine for the proposed wind farm has not yet been chosen, however suitable candidate machines which could be accommodated within the upper tip height of 155 m are currently being considered. For the purposes of the environmental impact assessment, the Siemens SWT 4.3 MW 120 has been identified as a suitable candidate turbine. The increase in tip height and rotor diameter would substantially increase the Average Energy Production (AEP) and associated carbon dioxide (CO₂) emissions reduction from the site as shown in Table 1.

Table 1: Energy Generation/ Carbon Dioxide Emissions Comparison		
	Siemens SWT-3.6-107 (90 hub height) Candidate Turbine – Consented Viking Wind Farm	Siemens SWT 4.3MW 120 Candidate Turbine – Proposed Varied Development
Energy Yield (GWh/annum)	1,503.92	1,796.35
Homes Equivalent³	397,757	475,099
CO₂ Emissions Reduction⁴ (tonnes/annum)	422,421.14	504,558.58
Carbon Payback Time (years)	1.72	1.65

2.1.2 The UK Government recently confirmed⁵ that the next Contracts for Difference (CfD) auction will be held in May 2019. Projects on remote islands, such as the consented Viking Wind Farm, will be eligible to participate in the auction. The aim of the proposed variations is to increase the energy generation potential and efficiency of the site to provide an economically competitive project with which to participate in the CfD auction.

2.1.3 There are several benefits associated with the proposed variations, which are summarised as follows:

- The larger turbine dimensions would improve the viability of the project in commercial terms by increasing the energy yield and would thereby support the Applicant in pursuing a route to market through the forthcoming CfD auction.
- The proposals would make a valuable contribution to the achievement of the UK and Scottish Government ‘whole system’ targets to decarbonise energy consumption by increasing the zero-carbon energy yield by 19%.
- The increase in energy production will lead to an equivalent increase in homes supplied with clean, renewable energy and an equivalent increase in CO₂ reduction, making a valuable contribution to the Scottish Climate Change Plan targets.
- The project will bring a wealth of socio-economic benefits to the Shetland Islands community, including the creation of jobs and opportunities for local businesses and suppliers during the construction phase and for the lifetime of the project. The project is jointly owned with the

³ Average home consumption base on 3.781 MWh. Available from URL: <http://www.renewableuk.com/page/UKWEDEexplained> (Accessed October 2018)

⁴ Based on comparison to carbon emissions associated with grid mix electricity (from Carbon Calculator v1.5, URL: <https://www2.gov.scot/WindFarmsAndCarbon>)

⁵ Department for Business, Energy & Industrial Strategy (2018) Contracts for Difference Scheme for Renewable Electricity Generation, Government response to consultation on proposed amendments to the scheme, URL: <https://www.gov.uk/government/consultations/contracts-for-difference-cfd-proposed-amendments-to-the-scheme> (accessed 26/07/2018)

Shetland Charitable Trust and the community share represents approximately 200 MW in generation capacity making it by far the largest community owned energy project in the UK.

- The contribution to public finances through non-domestic rates would increase in line with the increased installed capacity, thus increasing the total contribution to funding for public services in Scotland.

2.1.4 This application therefore not only complies with Scottish Government planning and energy policy but will also lead to increased benefits both in respect of climate change, as well as local economic benefits.

3. PROPOSED VARIED DEVELOPMENT

3.1 Project Description

3.1.1 The proposed development would include the following key components:

- Not more than 103 turbines each with a maximum tip height of 155 metres (m) and rotor diameter of 120m, and associated crane pads.
- All site tracks and foundations.
- Seven permanent anemometry masts for monitoring wind farm (free standing lattice masts up to 96.5 m tall).
- Substation at Moo Field and associated control buildings and compounds and a central sub-station/control building and workshop adjacent to the proposed Scottish Hydro Electric Transmission plc converter station in the Kergord valley.
- Up to 10 borrow pits for the excavation of rock.
- Temporary turbine component laydown areas.
- Underground power cables.
- Watercourse crossings.
- Temporary construction compound areas providing site offices, welfare facilities and storage for plant and materials and satellite construction compounds; and concrete batching plants.

3.1.2 The site layout is shown in Figure 1.2.

3.2 Residues and Emissions

3.2.1 The EIA has considered the potential for residues and emissions associated with the construction and operation of the proposed development, including consideration of water, air, noise and vibration, light, soil pollution and waste, and concludes that:

- Following the application of mitigation, no significant residual residues or emissions with effects on the water environment or soil have been identified.
- The proposed development would result in significant beneficial effects in relation to air emissions, by offsetting carbon dioxide emissions (compared to a grid mix of electricity) by more than 0.5 million tonnes per year.
- An assessment of noise has confirmed that good practice noise limits are currently exceeded at a small number of receptors due to existing operational turbines, however there would be no additional significant effects associated with the proposed varied development.
- No sources and/or pathways for significant vibration have been identified.
- No significant sources of waste have been identified.
- As a result of the increased height of the turbines specified for the proposed varied development, a scheme of aviation lighting would be required. This would result in potential significant effects on visual amenity in the hours of darkness; however, it is noted that the aviation lights do not result in light pollution (in terms of glare, spill or sky glow).

4. EIA METHODOLOGY

4.1 Baseline

- 4.1.1 The 2017 EIA Regulations require the EIA Report to include a description of “the main respects in which the developer considers that the likely significant effects on the environment of the proposed varied development would differ from those described in any EIA report or environmental statement, as the case may be, that was prepared in connection with the relevant section 36 consent.” On that basis, the first step in the methodology used for the EIA Report has been to establish and provide a summary of the likely significant effects of the consented Viking Wind Farm (for the consented 103 turbine layout) against the baseline conditions at the site.
- 4.1.2 This EIA Report has been prepared with reference to baseline information collected and presented as part of the ES and the ES Addendum, subject to updates to that baseline where this was deemed to be necessary and proportionate. The EIA Report then provides an assessment of the effects of the proposed varied development in the context of the same baseline or updated baseline where appropriate. Finally, the EIA Report provides a description of the main respects in which the effects of the proposed varied development differ from those identified for the consented Viking Wind Farm. This methodological approach ensures that the EIA Report provides an assessment of the proposed varied development as a whole and describes any additional effects associated with the proposed variations when compared to the summary of the likely significant effects of the consented Viking Wind Farm.

4.2 Assessment of Alternatives

- 4.2.1 A detailed description of the consideration of reasonable alternatives studied is provided in the ES and in the ES Addendum. The only reasonable alternative that can be considered in the context of the proposed varied development is the ‘do nothing’ alternative as opposed to the variations to increase both the tip height and rotor diameter. No alternative site layouts have been considered as the number and location of turbines and other site infrastructure have not altered. In the ‘do nothing’ alternative scenario, the consented Viking Wind Farm would be constructed and operated. The main reasons for deciding to proceed with the proposed variations are to secure the benefits set out in section 2.
- 4.2.2 A comparison of the environmental effects between the consented Viking Wind Farm and the proposed varied development is set out in Chapter 3 of the EIA Report, a summary of which is provided in section 5.

5. COMPARATIVE ENVIRONMENTAL ASSESSMENT

- 5.1.1 A summary of the comparative assessment between the consented and proposed varied development, which is provided in Chapter 3 of the Main Report, is shown Table 2. The table provides a synopsis of the findings from the assessment of the likely significant effects for the receptors considered in Chapters 4 to 13 of the Main Report. This is provided for both the consented Viking Wind Farm and the proposed varied development, together with the conclusion that has been reached regarding any differences found.

Table 2: Summary of Comparative Assessment

Technical Chapter	Consented Wind Farm – Likely Effects	Proposed Varied Development – Likely Effects	Conclusion
<p>Landscape and Visual Amenity</p>	<p><i>Landscape Effects</i></p> <p>No Significant Effects upon on nationally designated or protected sites such as the National Scenic Areas or Gardens and Designed Landscapes.</p> <p>Significant Effects upon the two locally designated cLLAs closest to the consented Viking Wind Farm; Weisdale and Gletness & Skellister, (not in existence when the 2009 LVIA for the Viking ES Application was published).</p> <p>Significant Effects upon a number of LCAs within the 16 km study area.</p> <p>East and West Kame LCA (A2), where a majority of the turbines would be situated, the magnitude of direct change would be such that moderate to major adverse landscape effects would be experienced. Indirect effects would be moderate and significant.</p> <p>Significant (major) effects would also be experienced for part of the Peatland and Moorland Inland Valleys landscape character type where the consented Viking Wind Farm would be located (Pettadale and Kergord LCA; D4a).</p> <p>Moderate direct and indirect (significant) adverse landscape effects would be experienced by Coastal Crofting and Grazing Lands (E3) and the Scattered Settlements/ Crofting and Grazing Land (F5) LCAs. However, it should be noted that due to the widespread occurrence of these LCAs within the study area effects range down to minor-moderate and minor depending on distance from the consented Viking Wind Farm and significant effects are likely to be experienced only up to around 10 km.</p> <p>Indirect significant adverse landscape effects ranging from moderate, to moderate – major would also be experienced in part of the Farmed and Settled Inland Valleys (Weisdale, D1a), the Crofting and Grazing Inland Valleys: (Cuckron,D2) and the Farmed Land (E1), local character areas.</p> <p>No Significant Effects are likely on approximately two-thirds of the LCAs within the study area.</p> <p><i>Visual Effects</i></p> <p>17 key VPs considered for the consented Viking Wind Farm LVA, 13 of the representative receptor locations were found to receive significant visual effects as result of the consented Viking Wind Farm as follows:</p>	<p>The LVA concluded that considering the minimal changes in the baseline since 2012 and a marginally increased magnitude associated with the 10 m tip height increase and rotor diameter increase, all of the effects ratings for landscape, visual and cumulative effects would be the same as those for the consented Viking Wind Farm.</p> <p>The tip height increase would require visible aviation lighting on each turbine. This lighting has been assessed to result in significant adverse effects on visual amenity.</p>	<p>The requirement for aviation lighting and its visual effects for the proposed varied development is likely to be the only change in significant effects between the proposed and the consented development.</p>

Table 2: Summary of Comparative Assessment

	<ul style="list-style-type: none"> • VP1: Burn of Lunklet (Major); • VP2: Aith Pier (Moderate – Major); • VP3: Kergord Valley (Weisdale Mill) (Major); • VP6: North Nesting (Laxfirth) (Moderate – Major); • VP7: South Nesting (Major); • VP8: A971 between Bixter and Walls (Moderate – Major); • VP9: Near Voe (car park at Laxo Road Junction (Moderate – Major); • VP10: Vidlin (Moderate); • VP11: Whalsay (Clate) (Moderate – Major); • VP12: A970 Kames (Major); • VP15: Mulla, Voe (Major); • VP16: Laxo (Major); and • VP17: Heglibister (Moderate – Major). <p><i>Cumulative Effects</i></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 (VP10: Vidlin; VP11:Whalsay (Clate); and VP12: A970, Kames.).</p>		
<p>Ornithology</p>	<p>Negligible magnitude (not significant) habitat loss.</p> <p>Negligible or low magnitude (not significant) construction stage disturbance effect for all species.</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 collision mortality effects are predicted for merlin and whimbrel; however, following the implementation of the proposed Habitat Management Plan (HMP), no significant residual effects remain.</p>	<p>The increase in both tip height and rotor diameter could potentially increase the risk of bird collision, as the turbines will have an increased ‘swept area’. However, the minimum rotor ground clearance remains unchanged from the consented Viking Wind Farm at 35 m above ground level. The activity of all priority species is disproportionally concentrated below 35 m above ground level. As such the increase in rotor swept area does not materially change the</p>	<p>Reassessment of the effects on birds concluded that following the consideration of mitigation, there would be no residual likely significant effect. As a result, there would be no change to the residual effects predicted for the consented Viking Wind Farm.</p>

Table 2: Summary of Comparative Assessment

		collision risk mortality. Nevertheless, without mitigation significant operational collision mortality effects are predicted for merlin and whimbrel. However, following the implementation of the proposed Habitat Management Plan (HMP), no significant residual effects remain.	
Noise	Negligible to minor, short term, temporary (not significant) noise effects predicted for the construction phase. Turbines would operate within the ETSU-R-97 limits for the operational stage (not significant).	Increased turbine dimensions could be associated with a wider range of turbines which may be used, some of which could have higher noise emissions than previously assumed. Updated baseline noise monitoring and noise modelling to take account of micro-turbines that have become operational since the ES and ES Addendum were prepared has identified that the residual combined cumulative effects of operational wind turbines on residential amenity is significant for some receptors (solely as a result of existing turbines); however, the additional cumulative effect of the proposed varied development is negligible and not significant . The proposed varied development would operate within the ETSU-R-97 noise limits.	A review of the potential for operational noise effects has confirmed that the proposed varied development would operate within the appropriate ETSU-R-97 limits and therefore result in no residual significant effects. There would be no change to the residual effects predicted for the consented Viking Wind farm.
Aviation and Telecommunications	No predicted significant effects following the implementation of mitigation for: <ul style="list-style-type: none"> • Aviation operations; • Telecommunications; and • Television and radio. 	There is an additional requirement for aviation warning lighting for the proposed varied development due to the maximum tip height exceeding 150 m. Assuming the agreement of an	The proposed varied development differs from the consented Viking Wind Farm in one respect with the additional requirement

Table 2: Summary of Comparative Assessment			
		Aviation Mitigation Scheme there would be no residual significant effects on aviation operations. No residual significant effects are predicted for telecommunications or television and radio. Effects of aviation lighting on visual amenity are considered in Chapter 4.	for a scheme of aviation warning lighting to satisfy current CAA policy. Assuming the agreement of an Aviation Mitigation Scheme there would be no residual significant effects on aviation operations.
Ecology	The sensitive non-avian ecological receptors considered include all the designated sites (including neighbouring Sites of Special Scientific Interest), habitats and vegetation communities and species (otter, terrestrial invertebrates, freshwater macro-invertebrates, trout and salmon) identified within this chapter. No residual significant adverse effects are predicted for these non-avian ecological receptors.	On the basis that the footprint of the proposed varied development is unchanged from the consented Viking Wind Farm, there would no residual significant effects on ecological features.	Given that the footprint of the proposed varied development does not differ from the consented Viking Wind Farm, there would be no difference in the likely significant ecological effects.
Soil and Water	The assessment of the likely significant effects for the consented Viking Wind Farm concludes that following the consideration of proposed mitigation, including measures set out in a Site Environmental Management Plan (Technical Appendix 2.2), the Peat Management Plan (Technical Appendix 2.4) and the Habitat Management Plan (Technical Appendix 8.9) all activities with potential to affect hydrology, hydrogeology, geology, soils and peat would be appropriately managed and there would be no significant effects .	On the basis that the footprint of the proposed varied development is unchanged, and on the assumption that mitigation measures are implemented, there would no residual significant effects on hydrology, hydrogeology, geology, soils and peat.	There is no material difference between the residual likely significant effects reported for the consented Viking Wind Farm and the proposed varied development.
Access, Traffic & Transport	Following the application of proposed mitigation measures, including an agreed Traffic Management Plan, no significant residual effects are predicted for the consented Viking Wind Farm.	No significant residual effects are expected from the proposed varied development because traffic movements are expected to be the same as for the consented Viking Wind Farm.	There would be no significant residual effects associated with the proposed varied development; or, for the proposed varied development in combination with relevant cumulative wind farm developments.

Table 2: Summary of Comparative Assessment

			Furthermore, there would be no difference between the effects identified for the consented Viking Wind Farm and the proposed varied development.
Cultural Heritage	<p>There would be no significant indirect impacts on the settings of designated heritage assets.</p> <p>Following the consideration of proposed mitigation, including the measures set out in the Archaeological Management Plan (Technical Appendix 11.4) there would be no significant direct effects on known heritage assets.</p> <p>No significant cumulative effects are identified.</p>	<p>The increase in tip height and rotor diameter has been assessed as having a negligible impact on the magnitude of change to the setting of designated heritage assets.</p> <p>The proposed varied development does not result in any change in the footprint of the development, as such there would be no additional direct impacts associated with the proposed varied development.</p> <p>No significant cumulative effects are identified.</p>	<p>The effects for the proposed varied development are the same as those predicted for the consented Viking Wind Farm, as such there would be no residual significant effects and no significant cumulative effects.</p>
Shadow Flicker	<p>No significant shadow flicker effects predicted during the operation phase. Non-significant residual effects may impact a few occupied buildings located within the study area. However, if a valid complaint is made control systems will be used to mitigate the effects.</p>	<p>Three properties were identified inside the new study area, however were below the guideline exposure levels, resulting in a non-significant impact. If a valid complaint is made a control system (photosensitive monitor) would be used to remove the shadow flicker impact.</p>	<p>Both the consented and proposed varied development will give rise to no significant shadow flicker effects. Both have mitigation options in-place should a complaint be made regarding shadow flicker.</p>
Socio-Economic & Recreation (now named Socioeconomics)	<p>The assessment identified locally significant short term beneficial effects during construction related to employment, contract value/awards in Shetland and local salary spend (and associated induced benefits).</p>	<p>The overall capital investment and community benefit fund are related to the proposed generation capacity. As such the benefits associated with capital investment and the community</p>	<p>Both the consented and proposed varied development detail significant benefit at the local level.</p>

Table 2: Summary of Comparative Assessment

	<p>Locally significant long term beneficial effects duration operation associated with the community benefit funding.</p>	<p>benefit fund would be enhanced with the proposed varied development. Although it is noted that the employment, skills and training benefits are likely to be the same for both the consented Viking Wind Farm and the proposed varied development, the purpose of the variation application is to improve the economics of the scheme in order to find a route to market, such that the likelihood of the socioeconomic benefits being realised is materially increased as a result of the proposed variation.</p>	
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6. SUMMARY AND CONCLUSIONS

- 6.1.1 This EIA Report required the completion of a three-step process. The first step for this EIA Report was the assessment of likely significant effects for the consented Viking Wind Farm (a 103 turbine layout). Following on from that, the second step was to assess the likely significant effects of the proposed varied development, and finally the third step was to assess how the effects of the proposed varied development differ from those associated with the consented Viking Wind Farm.
- 6.1.2 The assessment of the consented Viking Wind Farm and the proposed varied development has been prepared with reference to baseline information collected and presented as part of the ES and the ES Addendum, subject to updates where this was deemed to be necessary and proportionate. The EIA Report then provides an assessment of the effects of the proposed varied development in the context of the same baseline.
- 6.1.3 The main potential environmental effects were identified, based on the previous ES and ES Addendum as being landscape and visual, ornithology, noise and socio-economics. In summary, significant residual effects were identified for the consented Viking Wind Farm as being limited to landscape and visual amenity receptors (see chapter 4 of the EIA Report). In addition, locally significant beneficial residual effects were identified for socio-economic receptors for the consented Viking Wind Farm. All other potentially significant environmental effects were considered to be subject to suitable mitigation, such that there would be no significant residual effects.
- 6.1.4 The assessment of the proposed varied development confirms that the same significant effects would arise. Overall, while there would be some increase in the magnitude of effects, relative to the consented Viking Wind Farm, the change is considered to be negligible or small for the majority of factors (with the exception of aviation lighting) and thus doesn't change the conclusion reached for the consented Viking Wind Farm.

6.2 Landscape and Visual

- 6.2.1 The effects identified for the proposed varied development differ materially from the consented Viking Wind Farm only in respect of the requirement to implement a scheme of aviation warning lighting. Current regulations⁶ requires 'en-route obstacles' taller than 150 m to be provided with aviation lighting scheme. The assessment presented in Chapter 4: Landscape and Visual identifies the potential for significant visual effects when aviation lighting is switched on in the hours of darkness. It is noted that the Applicant would seek to agree suitable lighting scheme with the planning authority in consultation with the Scatsta Airport Operator and the Civil Aviation Authority (CAA) that would reduce and/or avoid the effect.
- 6.2.2 Significant Effects upon the two locally designated cLLAs closest to the consented Viking Wind Farm; Weisdale and Gletness & Skellister, (not in existence when the 2009 LVIA for the Viking ES Application was published have been identified; however, it is noted that the effect does not change with the proposed varied development.

6.3 Ornithology

- 6.3.1 For the nationally important breeding whimbrel receptor it is concluded that the in-combination effects of collision (based on the SNH recommended but highly precautionary 98% avoidance rate) and displacement could lead to an effect evaluated as Significant for the purposes of the 2017 EIA Regulations. However, after mitigation delivered through the proposed Habitat Management Plan, the combined effect is evaluated to be Not Significant.

⁶ The Air Navigation Order 2016, URL: <http://www.legislation.gov.uk/uksi/2016/765/contents/made>

- 6.3.2 For all the other species examined, the assessment concludes that the in-combination effects of the proposed varied development would lead to effects evaluated as being Not Significant for the purposes of the 2017 EIA Regulations.
- 6.3.3 The potential for the proposed varied development to impact on the breeding red-throated diver that is a qualifying interest of the newly designated East Coat Mainland, Shetland proposed SPA is examined. It is concluded that there would be no more the negligible effects on this qualifying interest.
- 6.3.4 The proposed Habitat Management Plan includes mitigation measures to compensate for collision and displacement losses to bird receptors of high conservation value through enhancing breeding numbers and productivity through habitat management.

6.4 Noise

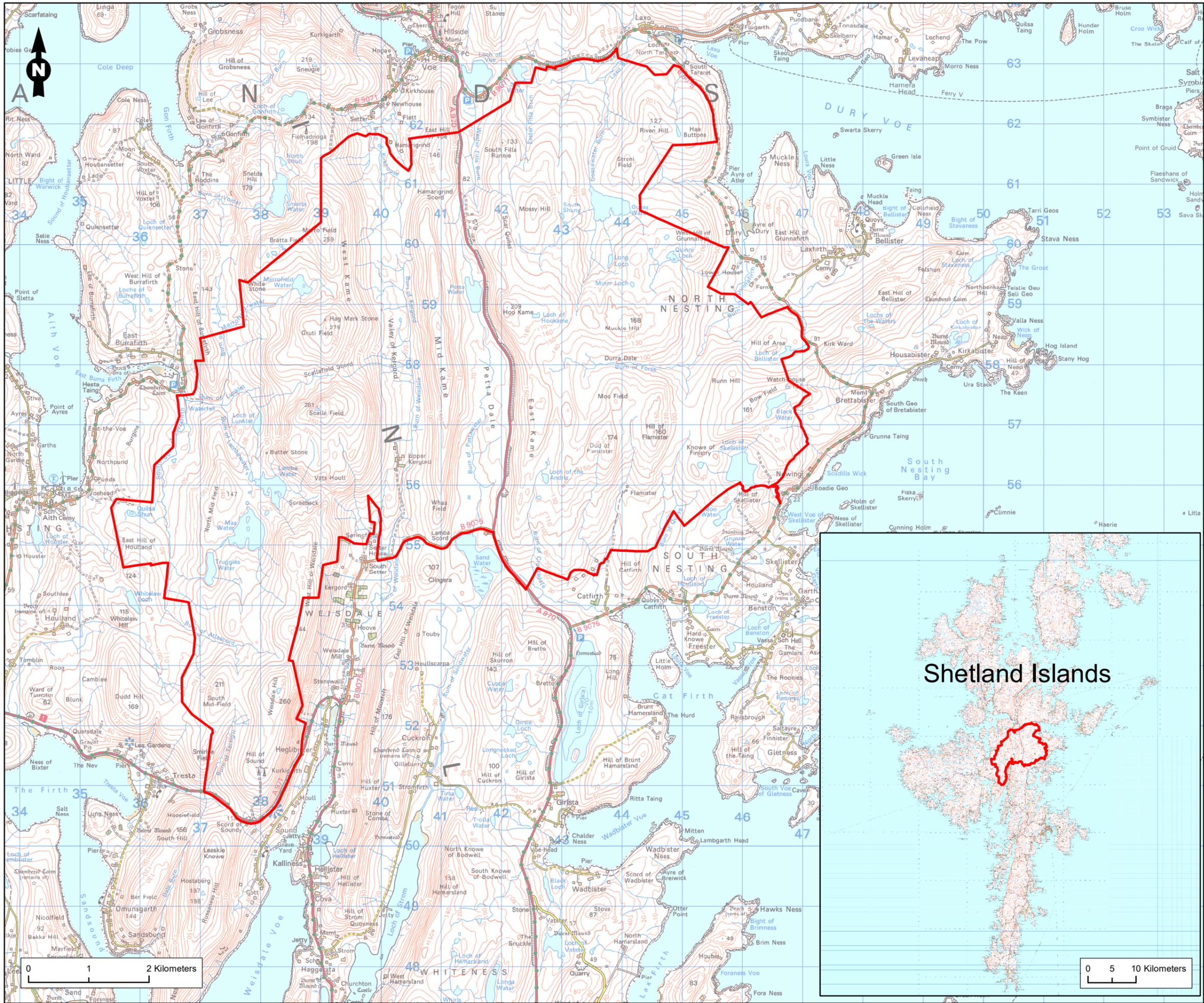
- 6.4.1 A noise assessment has been undertaken to determine the likely significant noise effects from the operational phase of the proposed varied development. Predicted cumulative operational noise levels indicate that for noise sensitive receptors neighbouring the proposed varied development, cumulative wind turbine noise (which considers noise predictions from all consented or operational wind turbines within the Study Area and the proposed varied development) would meet the Total Noise Limits (derived based on ETSU-R-97 guidelines) at the vast majority of receptors. There are a small number of receptors where predicted noise levels from 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 levels⁷. 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**.

6.5 Socioeconomics

- 6.5.1 The assessment has identified that the both the consented Viking Wind Farm and the proposed varied development would support a **locally significant** number of job years during construction and operation within the context of the Shetland labour market. The proposed varied development, as a result of the increased investment value and the increased renewable energy generation capacity, would lead to enhanced socio-economic benefits when compared with the consented development. Overall the socioeconomic effects of the capital investment, employment and gross value added to the economy are considered to result in beneficial effects (short term during construction, and long term for operational phase effects). The benefits would be significant at the local level for both the consented development and the proposed varied development during construction.
- 6.5.2 The community benefit funding offered by both the consented Viking Wind Farm and the proposed varied development is considered to provide a material change to the funds available for community projects in Shetland and is therefore assessed as a **locally significant** long term (for the life of the wind farm) beneficial effect.
- 6.5.3 With regard to tourism effects, there are not considered to be any sensitive tourism receptors that have the potential to be adversely affected by the proposed varied development, due to its location away from key tourist sites in Shetland. This conclusion is considered valid for both the consented Viking Wind Farm and the proposed varied development.

⁷ 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.

- 6.5.4 It is noted that the proposed varied development would also generate an enhanced significant beneficial socio-economic effect as a result of the shared ownership model, whereby 50% of the proposed varied development is owned by the local community and of that 50%, 90 % is owned by the Shetland Charitable Trust. Viking Wind Farm is the largest community shared ownership renewables development in the United Kingdom. Finally, the aim of the proposed varied development is to improve the economics of the scheme, such that the likelihood of the benefits identified here being realised is materially increased should the variation be granted consent.



Legend

S36c Variation Application Boundary

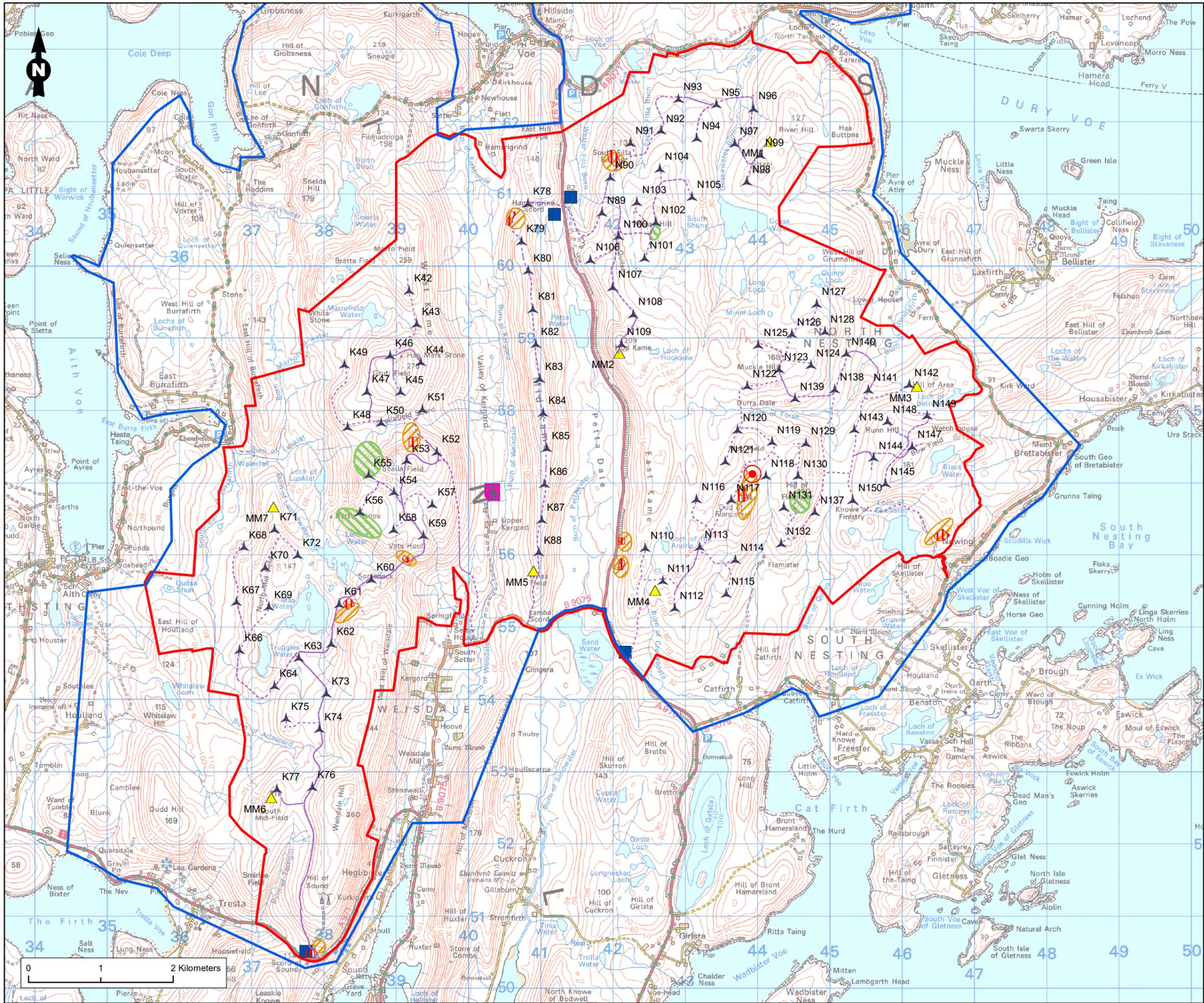
Figure Title
Figure 1: Site Location

Project Name
Viking Wind Farm

Project Number 1700001846	Figure No. 1
Date August 2018	Prepared By FB
Scale 1:60,000 @A3	Issue 1

Client



Legend

- Consented S36 Site Boundary
- S36c Variation Application Boundary
- Converter Station Platform
- Converter Station
- Converter Station Access
- Borrow Pit Extraction Area
- Borrow Pit Search Area
- Secondary Borrow Pit Search Area
- Turbines
- AccessTracks
- Permanent Met Masts
- Substation
- Construction Compound

Figure Title	
Figure 2: Site Layout	
Project Name	
Viking Wind Farm	
Project Number	Figure No.
1700001846	2
Date	Prepared By
October 2018	FB
Scale	Issue
1:50,000 @A3	1
Client	

