Limekiln Wind Farm
Section 36C Variation Application

INFINERGY

harnessing the power of nature

Scoping Report

March 2021

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Applicant

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1. INTRODUCTION

The Proposal

1.1. In June 2019, Limekiln Wind Farm gained Section 36 consent and deemed planning permission from Scottish Ministers. The 'Consented Development' comprises 21 wind turbines[1] and associated infrastructure. The 'Development Site' is located approximately 2km south of Reay with the general location centred at National Grid Reference (NGR) NC 98270 60620 as illustrated in **Figure 1.0** in **Appendix A**. Limekiln Wind Limited (hereafter referred to as the 'Applicant') proposes to submit an application to the Energy Consents Unit to vary the consented Limekiln Wind Farm to:

- Increase the height of all turbines to 149.9m;
- Reroute certain access tracks;
- Removal of one borrow pit;
- Increase the operational period from 25 years to 40 years; and
- Relocate the construction compound and increase its size from (100m x 100m) to (150 x 100m).

1.2. Collectively, these proposed variations to the Consented Development are referred to as the 'Revised Consented Development', which is shown on **Figure 1.1** in **Appendix A**.

1.3. The Applicant intends to apply to the Scottish Government for consent under Section 36C of the Electricity Act 1989 (as amended) for the construction and operation of a wind farm with a generating capacity in excess of 50MW on the site of the Consented Development. This report forms the Applicant's written request to the Scottish Government, under Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, for its opinion as to the information to be provided in the Environmental Impact Assessment (EIA) Report for the Revised Consented Development (i.e. its 'Scoping Opinion').

1.4. The scope is cognisant of The Electricity Works (Environmental Impact Assessment) (Scotland) Amendment Regulations December 2017 which make it clear that for a variation application relating to an EIA development, further assessment required to inform the application should only consider the impacts of the proposed variation itself and how those differ from those previously identified in the relevant EIA report or environmental statement.

The Applicant

1.5. The Applicant, Limekiln Wind Limited, is a joint venture between Infinergy Limited and Boralex limited liability partnership (LLP), which is the same Applicant that received consent for the Consented Development.

[1] 15 No. with a maximum blade tip height of 139 m; and 9 No. with a maximum blade tip height of 126 m.

1.6. Infinergy Limited is a UK based renewable energy company with a strong focus on the development of onshore wind energy in Scotland, England and Wales. Infinergy develops wind energy projects from inception through to construction and operation and has offices in Wimborne (England), and in Edinburgh (Scotland).

1.7. Boralex LLP is a Canadian based independent power provider that has developed and operates a large portfolio of wind farms and solar parks, primarily in Canada and France. The company also owns and operates large hydro-electricity projects in Canada. Further information can be found at: http://www.boralex.com/projects.Environmental Impact Assessment.

1.8. The Applicant has also submitted a planning application for Limekiln Wind Farm Extension on 21st May 2020, seeking consent from the Scottish Ministers under Section 36 of the Electricity Act 1989 (as amended) along with deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, for a 5-wind turbine scheme and associated infrastructure. Further information on the Limekiln Wind Farm Extension application can be found on the Planning and Environmental Appeals Division website (https://www.dpea.scotland.gov.uk/) under the reference WIN-270-13.

Project History

1.9. In 2012 Limekiln Wind Limited submitted a Section 36 Application to the Scottish Ministers for a proposed wind farm at Limekiln Estate in the Highlands of Scotland. The application sought consent for the erection of 24 wind turbines (15 No. with a maximum blade tip height of 139 m; and 9 No. with a maximum blade tip height of 126 m) with an installed capacity of over 50 MW. This planning application was refused at a Public Local Inquiry (PLI) in 2014 on the grounds that it did not include adequate information to understand the potential impact of the proposal on Wild Land Area (WLA) 39 East Halladale Flows.

1.10. In 2016 the Applicant submitted a Section 36 Application with exactly the same proposed infrastructure and layout as the first section 36 Application submitted in 2012. The application, EIA Report and other documents which were submitted in support, took account of relevant changes in policy or guidance which had occurred in the intervening period since the first application and was supported by additional information regarding wild land and updated information on cumulative impacts.

1.11. In February 2017 the planning committee of the Highland Council (THC) voted to object to the section 36 Application on the grounds of a loss of recreational amenity close to the village of Reay and an unacceptable impact on Wild Land Area 39 - East Halladale Flows. The Scottish Ministers therefore referred the Section 36 Application to the Directorate for Planning and Environmental Appeals (DPEA) to be examined at Public Local Inquiry (PLI).

1.12. In response to feedback received, the Applicant decided to remove three turbines (T19, T20 and T21) and their associated access tracks from the (then) proposed wind farm (hereafter to be known as the 'Consented

Development'). Further Environmental information (FEI) to support this layout was submitted in September 2017 and it was consented by the Scottish Ministers in June 2019. Infinergy have subsequently had all of the planning conditions required for construction to commence discharged.

1.13. As access would be taken to a number of turbines along an existing Core Path, Infinergy submitted a Section 11 application to THC for temporary closure of this path for health and safety reasons. After considering the application THC refused the Section 11 in November 2020.

2. PROJECT DESCRIPTION

The Development Site

2.1. The Revised Consented Development Site is located 1.5 km to the south of the Village of Reay and 3 km south/south west of the Dounreay Nuclear Power Station, in Caithness, Highland. The Development Site extends to approximately 1,140 hectares and largely comprises of a commercial coniferous woodland plantation. The Development Site is centred on approximate National Grid Reference (NGR) NC 98270 60620 and is bounded to the north by undulating moorland and semi-improved agricultural land, with Reay village and dispersed settlement beyond. To the east lies further coniferous woodland while the land to the west and south is largely open moorland. The hill known as Beinn Ratha lies approximately 1.2 km to the west of the Development Site boundary.

Historic and Current Development Site Uses

2.2. The Development Site is located on the Limekiln Estate, Reay, Caithness in the Highlands. The main land uses of the site are commercial coniferous plantation forestry and sporting activities.

2.3. There has been no change in ownership or the primary use of the Development Site since the grant of the section 36 consent for the Consented Development.

Rationale for the Revised Consented Development

2.4. As the Section 11 application to temporarily close the Core Path to enable construction to begin was refused, the Applicant has decided to submit an application to vary the consent to allow an alternative route for the access tracks. The new application also presents the opportunity to look afresh at the Consented Development in the context of a wider range of renewable technologies since the section 36 application was submitted, in particular the availability of larger, more efficient turbines.

2.5. The Applicant has calculated that the energy yield can be significantly increased by a relatively modest increase in the height of the turbines. This, along with preliminary assessment work which has shown that there should only be a limited increase in any environmental effects, has led the Applicant to undertake an EIA for the Variation to the Consented Development as described.

The Revised Consented Development

2.6. The Revised Consented Development would comprise the construction and operation of up to 21 wind turbines in the same locations as those of the Consented Development, though with increased height and installed generating capacity. The changes to the consented layout primarily involve

the omission of the western borrow pit, rerouting the access tracks away from the existing Core Path and moving the construction compound to the south as shown on **Figure 1.1**.

2.7. The main elements of the Revised Consented Development would therefore comprise:

- Up to 21 wind turbines with blade tip heights of up to 149.9m and turbine foundations;
- Access tracks connecting infrastructure elements;
- A vehicular access point from the public highway;
- Hard standing areas e.g. crane pads;
- On site power collection system (transformers and underground cables);
- Control building and substation compound;
- Construction compound; and
- One borrow pit.

Turbines

2.8. The proposed details are as follows:

- Number of turbines – up to 21;
- Maximum height to blade tip – 149.9 m; and
- Total generation capacity – over 50 MW.

2.9. The turbine layout is shown in **Figure 1.1** in **Appendix A**, with grid references being listed in **Appendix B** (unchanged from the Consented Development).

2.10. For the purposes of the EIA, a precautionary approach will be taken and the largest prospective turbine will be assessed as the selected option. The worst-case scenario will be evaluated for each topic, for example the maximum tip height and rotor diameter for landscape and visual and the maximum rotor diameter and a lower feasible hub height for ornithology.

Access Tracks

2.11. The turbine components would be delivered to the Development Site using the existing road network. The use of public roads will require further consultation with the appropriate bodies.

2.12. Previous site visits and route modelling and inspection suggests that, as for the Consented Development, turbine components could be delivered to the Development Site from the Port of Scrabster via the A9, A836 and then via the unclassified road following the Quiet Waters Junction where access would be taken from. However, as larger turbine components would be used for the Revised Consented Development, further swept path analysis would be undertaken.

2.13. Existing forestry access tracks on site will be used as far as possible to provide access to the turbines, construction compound and substation. However, some of the tracks will follow a different alignment to that of the Consented Development such that it is no longer intended to use the existing Core Path for access. Where required, tracks will be upgraded and new tracks would be up to 6 m in width and constructed of a graded stone.

2.14. An access and traffic assessment will be conducted as outlined in Chapter 12 of this scoping report.

Construction of the Development

2.15. The construction phase of the Revised Consented Development will comprise on-site site preparation and construction activities, supported by deliveries of materials, components and staff to the Development Site.

2.16. Construction is expected to take approximately 18 to 24 months, depending on weather and ground conditions, as well as other technical and environmental factors. The principal operations are effectively unchanged from the Consented Development (other than reduction from two to a single borrow-pit), and will comprise the following:

- Forestry felling;
- Extraction of stone from an on-site borrow pit;
- Construction and upgrading of site tracks including water crossings/culverts;
- Construction of a temporary construction compound and office facilities;
- Construction of the substation buildings/compounds;
- Construction of turbine foundations;
- Construction of crane hardstanding areas;
- Excavation of cable trenches and cable laying adjacent to site tracks;
- Installation of temporary and permanent drainage;
- Erection and commissioning of wind turbines; and
- Reinstatement of borrow pits and temporary construction compounds.

Grid Connection

2.17. Underground cabling, laid where possible alongside the access tracks, will link the turbine transformers to a single storey control building. Each turbine transformer will be located either within the turbine nacelle, within the base of the tower or in a small enclosure at the base of the turbine.

2.18. The connection to the grid falls under a separate consent process and will be subject to a separate application. As such it will not be considered as part of this EIA.

Decommissioning

2.19. The Revised Consented Development will be designed to operate for a period of 40 years (an increase of 15 years from the consented 25 years). Provision will be made for the Revised Consented Development to be decommissioned and the Development Site restored at the expiry of consent. All above ground infrastructure will be dismantled and removed from the Development Site, while sub-surface infrastructure such as cables and turbine foundations will be cut 1 m below ground level and covered with topsoil. Typically, on-site access tracks are left in situ and this is the assumption made for the purposes of this assessment.

3. ENVIRONMENTAL IMPACT ASSESSMENT

EIA Overview

3.1. EIA is a systematic process that must be followed for certain categories of project before they can receive development consent. It aims to identify a project's likely significant effects through the scoping process, and then assess those effects. The assessment is the reported in an EIA Report that accompanies the application. This helps to ensure that the importance of the predicted effects and the scope for mitigation measures to reduce them are properly understood by the public and, in this instance, the Scottish Ministers before it makes its decision on the application.

3.2. The EIA process should be systematic, analytical, impartial, consultative and iterative, allowing opportunities for environmental concerns to be addressed in the design of a project. Typically, a number of design iterations take place in response to environmental constraints identified during the EIA process prior to the final design being reached.

3.3. The EIA should be based upon recognised good practice and guidelines specific to each technical area and identify the likely significant environmental effects arising from a proposed development. Consultees are also encouraged to provide confirmation of agreement to the proposed scope in terms of what is included and excluded, the methodology and the receptors identified.

EIA Terminology

Impacts and Effects

3.4. EIA is concerned with the identification of likely significant effects on the environment. However, the terms *impact* and *effect* are often used synonymously and this can lead to confusion. For clarity, the convention here and in the subsequent EIA is to use 'impacts' within the context of the term EIA, which describes the process from scoping through EIA Report preparation to subsequent monitoring and other work. 'Effects' is used when describing the consequences of the Revised Consented Development on the environment.

3.5. The predicted environmental effects are the consequences of the environmental changes for specific environmental receptors. For example, with respect to bats, the loss of roosting sites or foraging areas could affect the bats' population size; with regard to people, an increase in noise levels could affect amenity.

3.6. This assessment is concerned with assessing the significance of the environmental effects of the Variation Development, rather than the activities or changes that cause them. However, this requires these activities to be understood and the resultant changes identified; often based on predictive assessment work.

Type of Effect

3.7. The 2017 EIA Regulations (Schedule 4, Part 1) require consideration of a variety of types of effect, namely direct / indirect, secondary, cumulative, positive / negative, short / medium / long-term, and permanent / temporary. In the EIA Report that will follow this scoping report, effects are considered in terms of how they arise, their nature (i.e. whether they are positive or negative) and duration. Each will have a source originating from the development, a pathway and a receptor and may fall into one of several categories:

- Direct effects are readily identified because of the physical connection between some element of the development and an affected receptor;
- Indirect effects require some additional pathway for the effect to arise. For example, a listed building may not be physically affected by any element of a development. However, its 'setting' may be affected if the development is visible in views from or towards the listed building; in which case there would be an indirect effect;
- Secondary effects would typically require further pathway connections, for example, an effect on a receptor population A could have a secondary effect on receptor population B, if B was itself dependent on A in some way, as, for example, a food source; and
- Cumulative effects arise when the receptors affected by one development are also affected by other developments resulting in the aggregation of environmental effects or the interaction of impacts.

3.8. Most predicted effects will be obviously positive or negative, and will be described as such. However, in some cases it is appropriate to identify that the interpretation of a change is a matter of personal opinion, and such effects will be described as 'subjective'.

Temporal and Spatial Scope

3.9. In its broadest sense, the spatial scope is the area over which changes to the environment would occur as a consequence of the development. In practice, an EIA should focus on those areas where these effects are likely to be significant.

3.10. The spatial scope varies between environmental topic areas. For example, the effect of a proposed development on the landscape resource and visual amenity is generally assessed within a zone of up to 35km from the wind turbines (and potentially up to 70km for cumulative effects), whilst noise effects are assessed within a much smaller area encompassing those representative properties close to a development site.

3.11. The temporal scope is stated where known and effects are typically described as:

- Temporary – likely to be related to a particular activity and will cease when the activity finishes. The terms 'short-term' and 'long-term' may also be used to provide a further indication of how long the effect will be experienced; and
- Permanent – this typically means an unrecoverable change.

3.12. Effects are generally considered in relation to the following key stages of a proposed development:

- Construction – the effects may arise from the construction activities themselves, or from the temporary occupation of land. Effects are often of limited duration although there is potential for permanent effects. Where construction activities create permanent change, the effects will continue into the operational period;
- Operation – effects may be permanent, or they may be temporary, intermittent, or limited to the life of a proposed development until decommissioning (as in the case of wind power developments which gain planning permission for a defined and finite number of years); and
- Decommissioning - effects may arise from the decommissioning activities themselves, or from the temporary occupation of land. The effects would generally be temporary and of limited duration. Additional permanent change would normally be unlikely unless associated with restoration.

EIA Scoping

3.13. The results of the EIA process are reported in an EIA Report and Schedule 4(4) of the EIA Regulations specifies that it should describe:

3.14. "…factors…likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape."

3.15. Regulation 4(2) of the EIA Regulations requires the interaction between these factors to be considered. In addition, Regulation 4(4) requires EIA Reports to consider:

3.16. "…the expected effects deriving from the vulnerability of the development to risks, so far as relevant to the development, of major accidents and disasters."

3.17. Establishing which aspects of the environment are likely to be significantly affected by a particular project is captured in the EIA scoping process, which aims to identify those aspects of the environment and associated issues that need to be considered when assessing the potential effects resulting from a proposed development. This recognises that there may be some environmental elements for which the project is unlikely to have a significant effect, and hence where there is no need for further investigation to be undertaken as part of the EIA.

3.18. This scoping report draws existing baseline data and assessment work from the 2012 ES, 2016 ES and 2017 Supplementary Information (SI) to identify where significant effects are likely in terms of each of the relevant environmental topics. This provides a robust process to 'scope in' those environmental receptors where significant effects are likely as a result of the

proposed variation, and to 'scope out' those where significant effects are unlikely.

3.19. The proposed scope of the EIA for the Revised Consented Development is set out in the following chapters of this report. Potentially significant effects as a result of the Revised Consented Development are summarised for each environmental topic area[2], and any such effects would be carried forward into the relevant EIA Report chapter.

3.20. The scope is cognisant of The Electricity Works (Environmental Impact Assessment) (Scotland) Amendment Regulations December 2017 which make it clear that for a variation application relating to an EIA development, further assessment required to inform the application should only consider the impacts of the proposed variation itself and how those differ from those previously identified in the relevant EIA report or environmental statement.

3.21. It is considered that for many technical areas the effects are likely to be of a similar nature to those for the Consented Development. On this basis, elements which have been scoped into the EIA are:

- Ecology (Chapter 5);
- Ornithology (Collision risk, disturbance and displacement of bird species - Chapter 6);
- Landscape and Visual (Chapter 7);
- Forestry (will focus just on new areas of felling, i.e. around additional access tracks and related construction compound - Chapter 8);
- Cultural Heritage (Chapter 9);
- Geology, Hydrology and Hydrogeology (Chapter 10);
- Traffic and Transport (Chapter 12);
- Other Issues – i.e. Aviation, Shadow Flicker, Infrastructure, Telecommunications and Safety and Major Accidents and Disasters (Chapter 13); and
- Socio-economics and Tourism (effects on public access and landuse other than those on Core Path CA11.03 and direct effects on tourism and recreation are proposed to be scoped out - Chapter 14).

3.22. It is proposed that an assessment of noise would be scoped out. The rationale for this is explained in Chapter 11, Noise.

3.23. The scope and assessment methodologies proposed in the subsequent technical chapters of this scoping report are based on recognised good practice and guidelines specific to each topic area. The environmental topic chapters identify where significant effects are anticipated as a result of the Revised Consented Development and take into account:

- The baseline data from the 2012 ES, 2016 ES, and the 2017 SI where appropriate;

1.1. [2] Where an effect cannot be confirmed as being 'not significant' these will be 'scoped in' to the assessment.

- The description of the Revised Consented Development;
- Changes to guidance on assessment methodologies (if any);
- Existing conclusions regarding significant effects for the Consented Development and the decisions made by the Scottish Ministers (where relevant); and
- Any cumulative effects, which may arise.

Cumulative Effects

3.24. Cumulative effects can arise from the interaction between a proposed development and other developments already built or proposed. In line with standard practice, for the purpose of the EIA, other wind farm developments which are operational (and not already part of the baseline), subject to planning approval or subject to a full and validated planning application will be included in the consideration of potential cumulative effects (subject to a cut-off point to allow assessments to be undertaken). It should be noted that not all of the cumulative developments would necessarily have a cumulative effect in respect of any particular environmental topic.

Mitigation

3.25. Some mitigation measures to avoid, reduce or offset the consequences of the Revised Consented Development would be embedded within its design whilst others may require adherence to particular constraints on construction methodology or mode of operation. The final assessment of significance in the EIA will take into account the mitigation measures and constraints that have been incorporated into the Revised Consented Development (i.e. it will be the assessment of residual effects).

EIA Methodology

3.26. The EIA Report will identify the assessment methodologies based on recognised good practice and guidelines specific to each of the relevant environmental topic areas where the proposed variation could result in significant effects. In general terms, the technical studies undertaken for each topic area and chapter included in the EIA Report to accompany the variation application would include:

- Baseline information about the receiving environment, largely based on the baseline presented within the 2015 ES and 2017 FEI, together with identification of any relevant trends in, or evolution of, the baseline;
- Consultation with experts and relevant consultees as necessary;
- Consideration of the potential effects of the Variation Development on the baseline, followed by identification of any additional mitigation measures to seek to avoid or reduce any predicted adverse effects;
- Assessment and evaluation of any residual significant effects after mitigation measures have been implemented; and
- Compilation of the EIA Report chapter.

Consultation

3.27. Consultation is an essential element of the EIA process and will be reported within the EIA Report and supporting documentation as necessary.

3.28. The Applicant is committed to promoting dialogue with statutory and non-statutory consultees and the local community, seeking to engage with all those with an interest in the Revised Consented Development to provide transparency during the process.

4. POLICY CONSIDERATIONS

Project Need and the Renewable Energy Policy Framework

4.1. The EIA Report will describe, in summary, the renewable energy policy framework and associated need case for renewables, identified as a matter of both law and policy, at international, European and domestic levels.

4.2. The Revised Consented Development relates to the generation of electricity from renewable energy sources and comes as a direct response to national planning and energy policy objectives. The clear objectives of the UK and Scottish Governments will be summarised, in relation to encouraging increased deployment and application of renewable energy technologies, consistent with sustainable development policy principles and national and international obligations on climate change.

4.3. The Revised Consented Development would clearly make a contribution to the attainment of renewable energy, electricity and net zero emissions reduction targets at both the Scottish and UK levels and the quantification of this contribution would be described. The description of the renewable energy policy framework will also make reference to the Scottish Government's Climate Change Plan Update, Energy Strategy and Onshore Wind Policy Statement.

National Planning Policy and Guidance

4.4. Reference will be made to various national planning policy and guidance documents including:

- The National Planning Policy Framework 3 (NPF3).
- Scottish Planning Policy (SPP).
- Scottish Government web-based Renewables Guidance.
- Scottish Government policy and good practice guidance on community benefit funding and community shared ownership.

Local Development Plan

4.5. The planning policy context applicable to the site will be taken into account in the iterative EIA design process. The relevant planning policy framework will also be described in the EIA Report.

4.6. The statutory development plan for the site comprises:

- the Highland-wide Local Development Plan (the HwLDP) (adopted April 2012);
- The Caithness and Sutherland Local Development Plan (CASplan adopted 2018); and
- Onshore Wind statutory Supplementary Guidance (SG) (November 2016).

4.7. It is anticipated that the Revised Consented Development will be guided primarily by the HwLDP policies. Key HwLDP policies will include Policies 57, 61 and 67. Other HwLDP policies that will be considered include policies 28, 30, 31, 36, 51, 52, 55, 56, 58, 59, 60, 62, 63, 66, 69 and 77.

4.8. In terms of landscape and visual matters, the Highland Council's (THC's) Onshore Wind Energy Supplementary Guidance including the Caithness Sensitivity Study will be considered.

4.9. It should be noted that a Planning Statement will be provided with the S36C application (but separate from the EIA Report) which will contain an assessment of the accordance of the Revised Consented Development with relevant policy documents as referred to above.

5. ECOLOGY

Introduction

5.1. This section details the approach to the baseline assessment of terrestrial and aquatic ecology features within the site and surrounding area and the approach to the assessment of potential effects on these feature during the construction, operation and decommissioning phases of the Revised Consented Development.

Study Area

5.2. The study area for the ecology assessment comprises the site (including the access track) and surrounding area. The desk study and survey areas are variable according to the target sites, habitats, species and survey methods used in the baseline assessment.

Baseline Conditions

Statutory Designated Sites

5.3. A desk study using Nature Scot Sitelink3 was undertaken in February 2021 to identify any statutory designated sites within 5 km of the site boundary.

5.4. Two Special Areas of Conservation (SACs) and one Ramsar Site are present within the 5 km search area (Table 5.1). A further two Special Protection Areas (SPAs), Caithness and Sutherland Peatlands SPA (adjacent to site boundary) and North Caithness Cliffs SPA (1.05 km north-west of site boundary). Five SSSIs are present within the 5 km search area (Table 2). Only the non-avian features of the SSSIs are presented in the table.

5.5. SAC and SSSI locations are shown in **Figure 5.1** and **Figure 5.2**.

Table 5.1 Summary of Internationally Important Nature Conservation Sites within 5 km of the Site

Site Name	Designation	Distance and Direction from Site	Description
Caithness and Sutherland Peatlands	SAC	0 km - Adjacent to south west boundary of the site.	Annex I habitats that are a primary reason for selection of the site: 3130 - Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or the *Isoëto-Nanojuncetea* 3160 - Natural dystrophic lakes and ponds Acid peat-stained lakes and ponds 7130 - Blanket bog Annex I habitats present as a qualifying feature, but not a primary reason for

[3] https://sitelink.nature.scot/home (accessed 18/02/2021)

Site Name	Designation	Distance and Direction from Site	Description
			selection of the site: 4010 - Northern Atlantic wet heaths with Erica tetralix 7140 - Transition mires and quaking bogs 7150 - Depressions on peat substrates of the *Rhynchosporion* Annex II species that are a primary reason for selection of this site: 1355 - Otter *Lutra lutra* 1528 - Marsh saxifrage *Saxifraga hirculus*
Caithness and Sutherland Peatlands	Ramsar Site	0 km - Adjacent to south west boundary of the site.	**Ramsar criterion 1:** The site supports one of the largest and most intact areas of blanket bog in the world. **Ramsar criterion 2:** The site supports a number of rare species of wetland plants and animals. The plants include three nationally rare mosses, eight nationally scarce vascular plants and four nationally scarce mosses.
Broubster Leans	Special Area of Conservation (SAC)	3.9 km - East	Annex I habitats that are a primary reason for selection of the site: 7140 Transition Mires and quaking bogs.

Table 5.2 Summary of Nationally Important Conservation Sites

Site Name	Designation	Distance and Direction from Site	Description
East Halladale	SSSI	0 km - Adjacent to south west boundary of the site.	Four designated features. One terrestrial habitat and three avian features. The terrestrial habitat feature is: - Blanket Bog
Sandside Bay	SSSI	0.3 km North at nearest point	One designated feature. Terrestrial habitat: Sand Dunes
Loch Caluim Flows	SSSI	1.8 km south-east	Five designated features. One terrestrial habitat and four avian features. The terrestrial habitat feature is - Blanket Bog
Red Point Coast	SSSI	2.9 km North west	Five designated features. Two geological, one terrestrial habitat, one biological and one avian feature. Terrestrial Habitat: - Maritime Cliff Biological Feature: - Scottish primrose *Primula scotica.*
Broubster Leans	Site of Special Scientific Interest (SSSI)	3.9 km east	Two designated features. One terrestrial habitat and one avian feature. Terrestrial habitat feature - Hydromorphological mire range.

General Site Description

5.6. The site is predominantly covered by coniferous plantation dominated by Sitka spruce *Picea sitchensis* and lodgepole pine *Pinus Contorta*. There are smaller areas of mixed broadleaved trees, such as birch *Betula sp*., rowan *Sorbus aucuparia* and alder *Alnus glutinosa* within the site.

5.7. There are two main watercourses draining through the site, flowing from south to north. The Achvarasdal Burn runs along the eastern site boundary and the Reay Burn is in the west of the site.

Habitats and Protected Species

5.8. National Biodiversity Network (NBN) Atlas together with baseline information from the 2012 Environmental Statement (ES)[4], 2016 ES Resubmission[5] and the results of pre-construction surveys, undertaken to discharge conditions to the original planning consent[6], were reviewed to identify any protected and/or notable species and habitats within 2 km of the site boundary.

Habitats

5.9. The following habitat surveys of the site have been undertaken:

- August 2010 – Phase 1 survey undertaken of site in support of original ES[7].
- September 2011 – National Vegetation Classification Survey (NVC) of site in support of original ES[8].

5.10. The Phase 1 habitat survey identified areas of sensitive habitat along the outskirts of the plantation and recommended a further botanical survey, National Vegetation Classification (NVC) survey of the site. An NVC survey was undertaken for the consented layout in 2011 (Plant Ecol, 2012). A total of 31 different plant communities were recorded, as well as remnants of blanket bog.

5.11. None of the communities identified were considered rare, but some of the fen communities may be considered as scarce locally or regionally. Most of the blanket bog habitat has been subject to degradation either through artificial drainage or grazing pressures from red deer *Cervus elaphus*.

Otter

5.12. The following otter surveys of the site have been undertaken:

- July/August 2011 – otter survey of Reay and Achvarsdal Burns, including suitable terrestrial habitat for submission with 2012 Environmental Statement[9]

[4] Infinergy (2012). Limekiln Wind Farm Environmental Statement. Infinergy Ltd
[5] Infinergy (2016). Limekiln Wind Farm Resubmission Environmental Statement. Infinergy Ltd
[6] Nevis Environmental. (2020). *ENVr1074 Species Protection Plan*. Infinergy Ltd
[7] Aquaterra Ecology. (2010) Phase 1 Habitat Survey. Infinergy Ltd
[8] PlantEcol. (2012). Vegetation Survey of Limekiln Wind Farm. Infinergy Ltd
[9] Waterside Ecology. (2012). *Survey of Otter Lutra lutra*. Infinergy Ltd

- February 2020 – otter survey of all suitable habitat within 200m of site infrastructure as part of pre-construction surveys (Nevis Environmental, 2020).

5.13. Otter signs were recorded on both the Reay and Achvarasdal Burns during the surveys in 2011. No holts or resting places were identified. No otter signs were recorded during the 2020 preconstruction surveys, however an otter was observed on the Achvarasdal Burn, outside of the site boundary during summer 2020.

5.14. Both the Reay and Achvarasdal Burns offer excellent foraging with evidence of several fish species being recorded within these burns.

Pine Marten

5.15. The following pine marten *Martes martes* surveys of the site have been undertaken:

- Summer 2011 – Limited pine marten scat survey to collect samples for DNA analysis.
- May 2012 - Pine marten survey of suitable habitat within the site boundary[10]
- February 2020 – Pine marten survey of proposed felling areas, including a 200 m buffer (where accessible) [11].

5.16. Possible pine marten scats were collected from the site in 2011, and DNA analysis returned positive results for pine marten. A further survey was conducted in 2012 and although further scats were recorded, no den sites were confirmed. A pre-construction survey for pine marten was undertaken in 2020, focusing on proposed felling areas, including a 200 m buffer (where accessible) and similar results were returned, with scats and no den sites recorded.

5.17. The site is considered to offer limited denning potential, with most of the trees within the forest, not mature enough to offer elevated denning features favored by pine marten.

Water Vole

5.18. The following water vole *Arvicola amphibius* surveys of the site have been undertaken:

- July/August 2011 – Water vole survey of Reay and Achvarasdal Burn, including any suitable tributaries within the site boundary[12] to inform the 2012 ES.
- August 2019 – Water vole survey 50 m upstream and downstream of each of the proposed water crossings[13] as pre-construction surveys.

[10] Waterside Ecology. (2012). *Survey of pine marten Martes* martes. Infinergy Ltd
[11] Nevis Environmental. (2020). *ENVr1074 Species Protection Plan*. Infinergy Ltd
[12] Waterside Ecology. (2012). *Survey of water vole Arvicola amphibius*. Infinergy Ltd
[13] EnviroCentre. (2019). Limekiln Wind Farm: Phase 1 Ecology Support Summary. Infinergy Ltd

- June 2020 – Water vole survey, 50 m upstream and downstream of each of the proposed water crossings and any suitable habitat within 50 m of infrastructure (Species Protection Plan, 2020)

5.19. During the 2011 surveys, 14 active water vole colonies were recorded. These colonies were recorded in both Achvarasdal and Reay Burn catchments. Further survey works in 2019 and 2020 of the five proposed water crossings confirmed the absence of any water vole within a 50 m buffer either upstream or downstream.

5.20. Each of the water crossing locations surveyed in 2019 and 2020, were considered sub-optimal or unsuitable water vole habitat due to flat sides with little suitable vegetation or unstable bank substrate.

Bats

5.21. The following bat surveys of the site have been undertaken:

- May to October 2011[14] – Surveys conducted to accompany 2012 ES included 11 transect routes repeated between May to September (both dawn and dusk) and 84 nights of recording using automated detectors placed at the north and south of the site.
- August 2019– Dusk activity survey of building roost recorded by 2011 surveys (EnviroCentre, 2019).
- December 2019 to February 2020 - Hibernation survey of suitable structures, using an automated detector.
- August 2020 – September 2020 activity surveys (two dusk and one dawn) of potential building roosts along proposed access route at Milton.

5.22. Surveys of the site for the 2012 ES, recorded low levels of common *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*. These surveys also identified a non-breeding roost within a wooden building at OS grid reference NC 97352 62819 during 2011. A dusk activity survey was conducted on the roost site in August 2019, no bats were observed using the roost structure, however one common pipistrelle was recorded foraging close to the roost structure. One structure suitable for hibernation was identified (OS grid reference NC989608), however the hibernation surveys did not find any evidence of bats. Pre-construction activity surveys of the structure along the access route (OS grid reference NC 97694 6425), did not record any evidence of bats roosting within the structure and no bats were recorded at any times during these surveys.

5.23. Further survey work was conducted on the proposed extension of Limekiln Wind Farm, which is immediately adjacent, to the site in 201915. The results of the surveys showed similar numbers of pipistrelle bats within the wider forest area as those recorded for the site itself by the baseline surveys for the 2012 ES.

[14] Aquaterra Ecology. (2012). *Limekiln Wind Farm: Bat Survey*. Infinergy Ltd
[15] BSG Ecology. (2020). Limekiln Wind Farm Extension Bat Survey Report. Infinergy Ltd

5.24. The site offers good foraging and commuting sites for bats, with both main watercourses and woodland rides, connecting the woodland habitat with Reay village in the North and the wider landscape.

Reptiles

5.25. No specific reptile population surveys have been undertaken at the site.

5.26. There was an incidental record of a common lizard *Zootoca vivipara*, approximately 2km from the site boundary to the east. No other records of reptiles were returned for reptiles in the desk study.

5.27. Much of the site is covered by dense plantation and is therefore considered unsuitable for reptiles.

Red Squirrel

5.28. No specific red squirrel *Sciurus vulgaris* surveys have been undertaken at the site.

5.29. There are no records of red squirrel within 2 km of the site. Although no specific surveys for red squirrel have been undertaken, signs have been searched for during pine marten and other site surveys and none have been found.

5.30. The site is considered outside the regular range of red squirrel. It is likely that the proposed site offers sub-optimal habitat, being dominated by spruce species, which offer lower cone yields for foraging and are less likely to support a squirrel population.

Badger

5.31. No specific badger *Meles meles* surveys have been undertaken at the site.

5.32. No records for badger were returned during the desk study and no signs have been recorded during other mammal surveys conducted within the site area, such as during pine marten transects.

5.33. The site is considered to offer limited potential for badgers, due to the poorly drained soils and lack of mosaic habitats which are favoured by badgers for sett creation and/or foraging.

Terrestrial Invertebrates

5.34. No specific invertebrate surveys have been undertaken at the site.

5.35. Four records of the great yellow bumblebee *Bombus distinguendus*, a Scottish Biodiversity List (SBL) species, are present within 2 km, with the most recent record held by NBN for 2013. There were no other desk study records for notable terrestrial invertebrate species within the site.

5.36. The site does not offer suitable habitat to support the great yellow bumblebee, which is associated with the species rich grasslands found within Sandside Bay SSSI approximately 0.3 km from the site boundary.

Fish

5.37. The following surveys of fish have been undertaken at the site:

- July 2012[16] – Fish habitat survey and electrofishing of Reay and Achvarasdal Burn for the 2012 ES.
- September 2020[17] – Fish habitat survey and electrofishing at 11 sites over the Reay, Achvarasdal and Sandside burns as part of the pre-construction baseline study.

5.38. Trout *Salmo trutta* fry and parr were caught at all sites during the baseline surveys. Both the Achvarasdal and Reay Burn had excellent densities of trout fry and parr (by regional standards). Salmon *Salmo salar* were caught on both Sandside and Achvarsadal Burn, with the results suggesting that salmon spawning had occurred somewhere along the Achvarsadal Burn, no evidence of salmon spawning was recorded on either Sandside or Reay Burn. Eels *Anguilla angullia* were caught at most survey sites on each of the three watercourses.

5.39. The Sandside Burn was included in pre-construction surveys as requested by the Local Planning Authority as part of a planning condition.

Freshwater Pearl Mussel

5.40. The following freshwater pearl mussel *Margaritifera margaritifera* surveys have been undertaken at the site:

- July and August 2011[18] - Freshwater pearl mussel survey of all potentially suitable reaches within the site as part of the 2012 ES submission.

5.41. Suitable habitat for fresh water pearl mussel exists within the Achvarsadal Burn and Reay Burn. However, no records of freshwater pearl mussel were recorded within the site during the initial survey in 2012 and no incidental records were made during any macroinvertebrate or fish habitat surveys.

Freshwater invertebrates

5.42. The following freshwater invertebrate surveys have been undertaken at the site:

- October 2011[19] – Freshwater macroinvertebrate sampling at three sites on Achvarasdal Burn and three sites on Reay Burn.

[16] Waterside Ecology. (2012). Limekiln Wind Farm: Survey of fish and fish habitats. Infinergy Ltd
[17] Waterside Ecology (2020). *Limekiln Baseline Fish Survey*. Infinergy Ltd
[18] Waterside Ecology. (2012). Survey of freshwater pearl mussels Margaritifera margaritifera. Infinergy Ltd
[19] Aquaterra Ecology. (2012). Freshwater Invertebrate Survey. Infinergy Ltd

- April and October 2020[20] - Freshwater macroinvertebrate sampling at five sites on Achvarasdal Burn and three each in Reay and Sandside burns.

5.43. In both surveys, largely common and widespread invertebrate species typical of Scottish rural watercourses were identified and no rare species were encountered at any of the sites surveyed.

5.44. The results suggest that all three watercourses are healthy and well oxygenated and there is no evidence of significant organic pollution in the watercourses.

Potentially Significant Environmental Effects

5.45. The following potentially significant environmental effects relating to ecology will be assessed for the construction and operational phases of the Revised Consented Development, in consideration of the baseline conditions and the description of the Revised Consented Development.

Construction Phase

- Adverse effects on internationally and nationally designated sites through direct loss or disturbance and indirect impacts such as increased impact of displaced herbivores.
- Adverse effects on Annex I and other valuable habitats through direct loss, disturbance or alteration of hydrology and indirect impacts such as pollution.
- Adverse effects on protected species through direct disturbance and indirect impacts such as habitat fragmentation and pollution.

Operational Phase

- Adverse effects on the internationally and nationally designated sites by direct disturbance and indirect impacts such as increased impact of displaced herbivores.
- Adverse effects on Annex I and other valuable habitats through direct loss or disturbance associated with ongoing maintenance works on turbines, infrastructure or access tracks.
- Adverse effects on bats during operation through mortality from collision or barotraumas associated with turbines.
- Adverse effects on protected species due to disturbance by site maintenance activity.

[20] Aquaterra Ecology (2020) *Freshwater Invertebrate Survey*. Infinergy Ltd

Issues Scoped Out

Designated Sites

5.46. Significant effects on the following designated sites have been scoped out of the ecology assessment due to distance and/or lack of ecological connectivity with the site:

- Sandside Bay SSSI – although 0.3 km from the site at is closest point, this is the already existing access point location. There is no construction planned at this location and therefore there are no risks considered to this site or its designated features.
- Red Point Coast SSSI – has been scoped out due to it being 2.9 km from the site. Due to this separation, it is unlikely any of the constriction works or operational as aspects of the development will impact the designated, maritime cliff or Scottish primrose features.
- Loch Caluim Flows – has been scoped out as although it is within 1.8 km of the site boundary, the nearest construction feature would be approximately 3 km from this site. Loch Caluim also lies up gradient of the site, and therefore it is not considered there are any pathways for effects in relation to the designated terrestrial habitats.
- Broubster Leans SAC/SSSI – has been scoped out of the assessment due to the distance from the proposed construction area of 3.9 km and the lack of apparent hydrological connectivity between the two sites.

Reptiles

5.47. Significant effects on reptiles have been scoped out of the assessment due to the limited area of suitable habitat for reptiles within the development footprint and the low number of records of reptiles within the wider area. Although it is not considered likely, mitigation to prevent any accidental injury or death to reptiles will be covered through a Species Protection Plan (SPP).

Red Squirrel

5.48. Significant effects on red squirrel have been scoped out of the assessment due to the site lying outwith the typical range of the species and because red squirrels are sparsely distributed in the far north of Scotland, with NBN holding records of this species for only six No. 10 km grid squares to the north of Loch Shin.

Badger

5.49. Significant effects on badger have been scoped out of the assessment due to a lack of desk study and site assessment records of badger within the site and wider area. The waterlogged soils found throughout much of the site, offer limited suitability for sett building.

Terrestrial Invertebrates

5.50. The wetland areas within the woodland are likely to support an assemblage of common invertebrates. However, significant effects on terrestrial invertebrates have been scoped out of the assessment due to the site being predominately plantation woodland and containing limited diverse semi-natural habitats which are usually associated with rich invertebrate assemblages.

Freshwater Pearl Mussel

5.51. Significant effects on freshwater pearl mussel have been scoped out of the assessment as this species was not recorded during a species-specific survey in 2011 or in aquatic invertebrate surveys carried out in April and October 2020.

Assessment Methodology

Consultation

5.52. In order to augment baseline data and, if necessary, refine the baseline survey scope, consultation requests will be sent to the following organisations:

- NatureScot;
- SEPA;
- Marine Scotland; and
- Caithness District Salmon Fishery Board.

Ecological Impact Assessment

5.53. The ecological impact assessment (EcIA) would be completed in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 201821). The assessment would establish the ecological baseline for the site and its zone of influence, and which important ecological features would be subject to likely significant effects.

5.54. The following frame of reference would be used and adapted to suit local circumstances where necessary:

- International and European;
- National;
- Regional;
- Metropolitan, County, vice-county or other local authority-wide area; and
- Local.

[21] CIEEM. 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine. CIEEM, UK.

5.55. For designated sites, importance would reflect the geographical context of the designation. For habitats and species, importance would be based on their conservation status and population/assemblage trends and other relevant criteria (including size, naturalness, rarity and diversity). The importance of any ecosystem services would also be considered in the assessment.

5.56. The assessment of impacts would take into account the baseline conditions to allow a description of how these could change as a result of the Revised Consented Development and associated activities. The significant effects would be assessed in the context of the predicted baseline conditions within the zone(s) of influence during the lifetime of the Revised Consented Development and would take into account information from other specialists as required.

5.57. When describing the ecological impacts and effects reference will be made to the following characteristics as required:

- Positive or negative;
- Extent;
- Magnitude;
- Duration;
- Frequency and timing; and
- Reversibility.

5.58. Significance of effect would be determined through consideration of whether the effect in question either supports or undermines biodiversity conservation objectives for 'important ecological features'. An effect would be deemed significant if it is sufficiently important to require assessment and reporting and would be qualified with reference to an appropriate geographic scale.

5.59. In addressing likely significant effects, the mitigation hierarchy would be adopted. That is mitigation measures would be prioritised in the following order: avoidance, mitigation, compensation.

5.60. In summary, the impact assessment process would involve:

- Identifying and characterising impacts and their effects;
- Incorporating measures to avoid and mitigate negative impacts and effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects; and
- Identifying opportunities for ecological enhancement.

Additional Field Surveys and Assessments

5.61. A significant amount of baseline data has already been collected between 2011 and February 2021. This will be used inform the baseline for the EIA in conjunction with the additional surveys detailed below that will be completed in April/May 2021.

Habitats

5.62. The Phase 1 and NVC maps of the site made in 2012 will be checked and updated, as necessary, in May 2021. The survey area will include a 250 m buffer around all proposed infrastructure for any Ground Water Dependent Terrestrial Ecosystems (GWDTEs). The survey methods will follow Rodwell (2006)*22.*

Otter

5.63. An otter survey will be conducted along Reay and Achvarasdal Burns (including tributaries). The survey area will include all suitable riparian and terrestrial habitat within 200 m of any proposed infrastructure or works. Surveys will be undertaken in accordance with Chanin P (2003)23 and Nature Scot guidance (2020)24

Pine marten

5.64. A pine marten survey of suitable woodland habitat will be conducted within the site boundary, searching for signs of pine marten, such as potential dens sites or scats. Surveys will be undertaken with Nature Scot guidance (2020) and Creswell *et al* (2012)25

Water vole

5.65. Water vole surveys will be undertaken within a 50 m buffer each of the four proposed water crossing and around any proposed infrastructure within 50 m of suitable water vole habitat. Surveys will be undertaken in accordance with Dean *et al* (2016).

Bats

5.66. No additional bat activity surveys are proposed for the EIA. Data collected for the adjacent Limekiln extension site in July and August 2019 (BSG Ecology, 2020) will be used to inform an assessment of the bat populations within the site, so the effect of the Revised Consented Development can be assessed. Emergence and re-entry surveys were conducted on all potential roost sites

[22] Rodwell, J.S. (2006) NVC Users' Handbook, JNCC, Peterborough.
[23] Chanin, P. (2003). Ecology of European Otter. Conserving Natura 2000 Rivers Ecology Series No. 10. Peterborough
[24] Nature Scot. (2020). Protected Species Advice for Developers: Otter. Nature Scot
[25] W.J Cresswell, J. B. (2012). UK BAP Mammals Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. Southampton: The Mammal Society.

during 2019 (EnviroCentre 2019) and 2020 (Nevis Environmental, 2020) and no further surveys of this type are proposed.

Fish

5.67. No additional fish population surveys are proposed for the EIA. The results of electrofishing surveys conducted in 2020 will be used to inform an assessment of the potential impacts of the local fish populations.

Freshwater Invertebrates

5.68. No additional freshwater invertebrate surveys are proposed for the EIA. The results from spring and autumn freshwater invertebrate sampling undertaken in 2020 will be used to inform an assessment of the potential impacts of the Revised Consented Development on the freshwater invertebrate communities within the Sandside, Achvarsadal and Reay burns.

Mitigation

5.69. Specific ecological mitigation measures for the Revised Consented Development are likely to include;

- Revision of current Habitat Management Plan[26].
- Peatland Restoration Plan – outline proposals, to be developed after construction and felling activities completed.
- Revision of current SPP (Nevis Environmental, 2020).

Key Questions for Consultees

5.70. Key questions for consultees are:

- Are Consultees content with the proposed baseline ecology surveys for habitats and protected species, and the level of survey effort?
- Are Consultees content with the proposed approach to the evaluation and impact assessment methods?
- Can Consultees provide details of any recent ecological records or projects within or in the vicinity of the site, which may not yet be in the public domain?
- Are Consultees content with the ecological features that would be scoped out of the assessment?

[26] Nevis Environmental. (2020). ENVr1078 Limekiln Wind Farm Habitat Management Plan. Infinergy Ld.

6. ORNITHOLOGY

Ornithology Overview

6.1. A significant amount of bird data has been collected for the Revised Consented Development site and surrounding area since 2010. The data collected has been sufficient to allow the consenting of the Limekiln Wind Farm in June 2019 ("the Consented Development").

6.2. The reporters, appointed by Scottish Ministers to hold an inquiry into the application under section 36 of the Electricity Act 1989, stated that "*In reaching our conclusions on ornithology, we attach weight to the positions of SNH and the RSPB, neither of which object to the proposed development on ornithological grounds, subject to conditions. We are further reassured in this regard by the statement of agreed matters between the applicant, council and SNH, where it is stated that subject to the application of appropriately worded conditions, the proposal is acceptable in relation to ornithology including impacts on designated sites. We have no evidence before us which would lead us to challenge that agreed position*". The Scottish Ministers agreed with the reporters' recommendations and that consent should be granted subject to conditions.

6.3. No additional ornithological effects were considered during the Public Local Inquiry for Limekiln Wind Farm. The results of the assessments completed in the 2012 Environmental Impact Assessment (EIA) Report, the 2016 EIA Report and the 2017 Supplementary Information (SI) Report concluded that the effects on ornithology would not be significant.

Change in effects

6.4. Chapter 12: Ornithology of the EIA Report (June 2016) and Chapter 7: Ornithology of the SI Report (September 2017) presents the findings of the assessment of effects of the Consented Development on birds in terms of habitat loss, disturbance, displacement and collision risk. All the information contained in Chapter 12 of the EIA Report and Chapter 7 of the SI Report remains valid in terms of existing conditions, assessment methodology and significance of effects.

6.5. The purpose of the Revised Consented Development EIAR is to assess the potential effects arising from the amendments to the Consented Development (i.e. an increase in the height and rotor diameter of the turbines, alternative site access tracks, relocation and increase in size of the construction compound and increase in the operational period) on bird species. With regard to bird species, only those effects that are considered likely to change as a result of the amendments to the Consented Development will be re-assessed, and conclusions drawn as to whether effect significance has changed. Unless otherwise stated, the other effects as reported in Chapter 12 of the Consented Development 2016 EIA and Chapter 7 of the 2017 SI Report will remain valid.

Effects scoped in

6.6. Effects of the Revised Consented Development to ornithological receptors will be assessed following industry, NatureScot and EU guidance. The assessment will consider collision risk, disturbance and displacement of bird species from the Revised Consented Development Site and the surrounding area during the construction, operation and decommissioning stages. Cumulative effects to ornithological receptors from operational and proposed wind farms will similarly be considered.

6.7. In consideration of the effects of the Revised Consented Development to surrounding designated sites, information will be provided to allow the Competent Authority to undertake an appropriate assessment of the effects of the Revised Consented Development in meeting the requirements of the Habitat Regulations.

6.8. Based on the previous assessments completed for the Consented Development and on-going insights into wind farm and bird interactions, it is considered likely that no significant effects to ornithological receptors will be identified from the proposed variations associated with this application.

7. LANDSCAPE AND VISUAL

Introduction

7.1. The Landscape and Visual Impact Assessment (LVIA) evaluates the effects of the revised Limekiln Wind Farm scheme (the 'Revised Consented Development') on the landscape and visual resource. The requirement to assess the environmental impacts of the Revised Consented Development is provided for in The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. The assessment will accord with the 'Guidelines for Landscape and Visual Assessment Third Edition (2013)'. The LVIA will be undertaken by Optimised Environments Limited ('OPEN'), a practice registered with The Landscape Institute and experienced in this field of work.

7.2. In June 2019, a 21 turbine wind farm layout was consented on the site that is the subject of the current application (thereafter known as the Consented Development). This comprised 15 wind turbines at 139.4 m in height to blade tip, and six wind turbines at 125.6 m in height to blade tip. The Revised Consented Development comprises 21 wind turbines, each 149.9 m in height to blade tip. The Consented Development has the same location and layout of turbines as the Revised Consented Development. The only material variation is the 10.5 m or 24.3 m increase in blade tip height between the wind turbines of the Consented Development and the wind turbines of the Revised Consented Development. In addition, it is proposed to remove one of the consented borrow pits from the layout and reduce the amount of new track construction required to access the wind turbines, as explained in the Project Description. Either the Consented Development or, if approved, the Revised Consented Development will proceed, but not both as they are located in exactly the same location. The Consented Development, therefore, does not need to be considered in the cumulative assessment presented in this chapter.

7.3. The study area for the LVIA of the Revised Consented Development will cover a radius of 40 km from the nearest turbine, as shown in Figure 7.1. This is considered to be the maximum radius within which a significant landscape and/or visual effect could occur given the height of the turbines that are being considered for use, and follows guidance given in 'Visual Representation of Wind Farms Good Practice Guidance' (Version 2.2 February 2017).

7.4. The cumulative assessment will cover a study area to be agreed with The Highland Council (THC) and NatureScot (formerly SNH). The Revised Consented Development is located in the same location as the Consented Development and immediately to the west of the proposed Limekiln Wind Farm Extension, as shown in Figure 7.2. There are existing influences from operational wind farms in the local area, including Baillie Hill Wind Farm at approximately 4 km to the north-east, and operational Strathy North Wind Farm at approximately 15 km to the west.

7.5. A review of the current wind farm context radius has been undertaken by OPEN, based on the latest NatureScot mapping of large-scale wind farm

development. Known baseline wind farms within a 40 km study area are shown for scoping purposes in Figure 7.2. It is considered that potential cumulative effects will arise because of the pattern of development within the 40 km study area radius rather than as a result of changes beyond this.

7.6. It is proposed that following a detailed review of the cumulative sites within the area, a plan will be produced showing the locations of wind farms within 40 km that are operational, under construction, consented or which are at application stage and where the turbines are greater than 50m to blade tip. THC and NatureScot will be consulted over the final list of sites to be considered within the detailed cumulative assessment. Exceptionally, scoping stage sites may also be included where they are considered to be of specific relevance to the cumulative assessment.

Site context

7.7. The site is situated in Caithness, on the north coast of Scotland, some 12 km west of Thurso. The site occupies the western half of a large Coniferous Woodland Plantation known as Limekiln and which lies 2 to 3 km south of the North Atlantic coast. The underlying landform comprises relatively low and gently undulating hills characteristic of the wider Sweeping Moorland LCT. The site rises from 50 m AOD along the northern boundary to 200 m AOD along the southern boundary. The landform follows a south to north alignment marked by the orientation of the low hill ridges and intermediate valleys and the flow of the water courses toward the Atlantic Ocean.

7.8. There is a central ridge which runs through the site, connecting the high points at Cnoc an Fhraoich (approx. 180m AOD) and Cnoc an Airigh (approx. 140m AOD). Reay Burn lies within the site and Sandside Burn outwith the site, both to the west of the central ridge. Achvarasdal Burn lies to the east of the ridge and marks the eastern boundary of the site. Smaller burns form tributaries flowing down into the shallow valleys of the larger water courses. One small lochan occurs along the ridge close to Cnoc nan Airigh, with bigger lochs occurring in the forestry to the east of the site. The most distinctive landform feature on the site is a small knoll, Creag Leathan, which sits at the northern end. The slightly steeper slopes and conical form make it apparent in views from the settlements and roads to the north. Borlum Hill which lies outwith the northern site boundary forms a similar but smaller knoll, along with other smaller knolls along this northern edge.

7.9. The land is currently used for commercial forestry and, except for the upper slopes of Creag Leathan and the south-west corner of the site, is almost continuously covered with coniferous blocks of Sitka Spruce. Forestry tracks encircle the central ridge and extend south to the disused property at Gleann Dubh.

7.10. A ridge of slightly higher hills wraps around the west and the south of the site with high points at Beinn Ratha, 242m AOD, to the west and Beinn nam Bad Mor, 290m AOD, to the south. The landscape in these directions comprises Sweeping Moorland which is characterised by its open and gently undulating

landform and distinct absence of development, other than the occasional track and a few abandoned buildings.

7.11. To the north of the site the landscape comprises improved agricultural land and small settlements. The small settlement of Reay is situated along the main north coast road, the A836 and other individual properties are scattered along this northern edge. The decommissioned Dounreay Nuclear Power Plant lies to the north-east, situated on the coast with its domed building forming a distinctive landmark feature. To the east, the predominance of agricultural land, albeit a mix of improved and unimproved fields, along with the extent of small settlements, isolated farm steads and minor roads, establish the rural and settled nature of this landscape. Large scale development occurs at Baillie Hill Wind Farm, 4.5km to the north-east and Forss Wind Farm, 8.3km to the north-east, where the turbines form a distinct focus in the landscape.

Landscape Character

7.12. Landscape character information, prepared by, or on behalf of NatureScot (formerly SNH), forms the basis of much of the characterisation of the study area. NatureScot has recently reviewed and updated the 30 original Landscape Character Assessments (LCAs), produced to cover the whole of Scotland during the 1990s, by creating a single data set in a digital version. In respect of the study area, the Landscape Character Types (LCTs) presented in the updated dataset, form a much simpler and less detailed categorisation of landscape character compared to the original LCA. It is proposed that the LCTs presented in the original LCA be used in the LVIA for two key reasons; firstly, to enable a more detailed assessment of local landscape character; and secondly, to enable direct comparison between the findings of the original and the revised LVIAs.

7.13. Landscape character information is based on SNH Landscape Character Assessment (LCT) documentation. The study area lies within the following LCT report:

- Stanton, C. 1998. Caithness and Sutherland landscape character assessment. Scottish Natural Heritage Review No 103.

7.14. The LCTs identified in the original LCA, and located within the 40 km study area, are shown overlaid with the blade tip ZTV in Figure 7.4. The LVIA will identify the relevant LCTs within a 20 km radius of the wind farm. This reduced extent reflects the localised extent over which significant effects on landscape character were found to occur in the 2017 SEI for the Consented Development.

7.15. Many of the LCTs are extensive, often covering several areas that are geographically separate. The effects of the proposed development can vary widely across a single LCT. In order to distinguish between geographically separate areas of each type, the name of each area is attached to the name of the LCT and this is referred to as a landscape character unit or LCU. Where the effects of the Revised Consented Development vary across an LCU the extent of these different effects will be geographically defined in the LVIA.

7.16. The 40 km study area encompasses a distinct contrast between the cultivated landscapes in the north east and the moorland landscapes to the south and west. The cultivated lands are classified predominantly as Mixed Agriculture and Settlement and are characterised by an open, broad, and gently undulating landscape with some low hills and shallow glens which contain agricultural land uses and small rural settlements. The moorlands are classified predominantly as Sweeping Moorland and are characterised by an absence of agriculture and settlement, as well as an open and exposed moorland appearance with intermittent Coniferous Woodland Plantations.

7.17. Coastal scenery occurs as narrow strips along the North Atlantic Coast, comprising either, High Cliffs and Sheltered Bays, or Long Beaches, Dunes and Links. The coastal influence does not extend far inland with Sweeping Moorland, Mixed Agriculture and Settlement and Open Intensive Farmland meeting these LCTs close to the coastal edge.

7.18. The site lies in an area of Coniferous Woodland Plantation LCT and is surrounded to the west, south and east by predominantly Sweeping Moorland LCTs. Small pockets of Moorland Slopes and Hills occur to the west and south and an area of Small Farms and Crofts occurs to the east. Further south lies a greater expanse of Flat Peatland interspersed with large areas of Coniferous Woodland Plantation. To the north of the site, an area of Mixed Agriculture and Settlement, and Intensive Farmland occurs along the coast, with nearby Sandside Bay classified as Long Beaches, Dunes and Links.

7.19. The Sweeping Moorland LCT extends over much of the southern and western parts of the study area, interspersed by smaller areas of other landscape types, including Moorland Slopes and Hills, Flat Peatland, Strath, Lone Mountains and Small Farms and Crofts.

Landscape Designations

7.20. The site itself is not subject to any national or local landscape designations intended to protect landscape quality, as shown in Figure 7.5 with the preliminary ZTV overlaid. A number of other landscape designations do, however, occur within the 40 km study area, including the nationally important Kyle of Tongue National Scenic Area (NSA) and four Gardens and Designed Landscapes (GDLs). THC's local landscape designation comprises Special Landscape Areas (SLAs), of which, four occur across the study area.

National Scenic Area

7.21. The Kyle of Tongue National Scenic Area (NSA) is located on the eastern edge of the study area. The ZTV in Figure 7.5 shows there to be no theoretical visibility across the majority of the NSA, with the exception of small patches occurring from 37 km. It is proposed that this NSA be scoped out of the LVIA owing to the very limited extent of visibility and its separation distance from the Revised Consented Development.

Gardens and Designed Landscapes

7.22. The four nationally important GDLs within the study area are Castle of Mey, Tongue House, Dalbeath Castle and Melsetter House. The ZTV in Figure 7.5

shows there to be no theoretical visibility from Tongue House and Dalbeath Castle, and very limited theoretical visibility from Castle of Mey and Melsetter House at distances of 33 km and 39 km respectively. It is proposed that all four of these GDLs be scoped out of the LVIA owing to their notable separation distance from the Revised Consented Development and either no or very limited extents of theoretical visibility.

Special Landscape Areas

7.23. The HwLDP designates Special Landscape Areas (SLAs) and The Highland Council ('THC') has produced citations for each of the SLAs in its publication 'Assessment of Highland Special Landscape Areas'. SLAs are afforded protection at the local level with the policy context for these SLAs set out in Policy 57: Natural, Built and Cultural Heritage of the HwLDP which also has an appendix item for SLAs.

7.24. The four SLAs in the study area are Farr Bay, Strathy and Port Skerra SLA, Dunnet Head SLA, Ben Griam and Loch nan Clar SLA, and Flow Country and Berriedale Coast SLA. At a minimum range of 10 km, Farr Bay, Strathy and Port Skerra SLA is the closest SLA and although visibility is very patchy, owing to the sensitivity of this area, there is the potential that a significant effect may arise and, therefore, it is proposed that this SLA be included in the LVIA.

7.25. In respect of the remaining SLAs, the combination of their separation distance from the Revised Consented Development, and the limited extents of visibility, moderate the potential for significant effects to arise. In respect of Flow Country and Berriedale Coast SLA, the closer range cluster of operational wind farms, including Halsary, Causeymire, Achlachan and Bad a Cheo will moderate the effect on the SLA arising from the addition of the Revised Consented Development. Similarly, the closer range of operational Baillie Hill Wind Farm to Dunnet Head SLA, and its location in the same sector as the more distant Revised Consented Development will also moderate the effect on this SLA. It is, therefore, proposed that the remaining SLAs be scoped out of the LVIA.

Wild Land

7.26. The Revised Consented Development is not located in a Wild Land Area (WLA) but lies close to the northern boundary of the East Halladale Flows WLA as shown in Figure 7.6. This WLA is a mapped interest that has been defined by NatureScot.

7.27. Four Wild Land Areas (WLA) occur in the study area; namely, the East Halladale Flows to the immediate west, south-west and south of the Revised Consented Development; the Causeymire - Knockfin Flows WLA to the more distant south; the Ben Klibreck – Armine Forest WLA to the south-west, and the Ben Hope – Ben Loyal WLA to the west.

7.28. A preliminary assessment of the potential effects of the Revised Consented Development on the four WLAs undertaken as part of the original LVIA, found that only the East Halladale Flows WLA has the potential to undergo significant effects as a result of the Revised Consented Development. The

ZTV in Figure 7.6 illustrates the extent to which the Revised Consented Development will be theoretically visible across the four WLAs.

7.29. It is proposed that the effects of the Revised Consented Development on the wildness qualities of the East Halladale Flows WLA be assessed in detail in the LVIA, following guidance set out in NatureScot's 'Assessing Impacts on Wild Land technical guidance' (2020) and with reference to NatureScot's 'Description of Wild Land Areas' (2017). It is also proposed that the other three WLAs be scoped out of the LVIA, owing to a combination of their separation distance from the Revised Consented Development, the limited extents and levels to which the Revised Consented Development would be visible, and the existing influence from operational wind farms, closer to the WLAs than the Revised Consented Development.

Landscape Designations and Wild Land Areas

7.30. Table 7.1 below lists the Landscape Designations and WLAs and provides information about their distance to the Revised Consented Development turbines and relationship to the ZTV, as shown in Figures 7.5 and 7.6. Thereafter, it is assessed in the final column whether or not, in OPEN's opinion, these designated areas can be scoped out of the assessment, unless changes to the layout, during the detailed design process, materially alter the potential for significant effects. The boxes that are shaded grey will be assessed further within the LVIA. THC's and NatureScot's agreement to this list is sought through this scoping exercise in order to enable the LVIA to be focussed on key considerations.

Table 7.1: Landscape Designations and Wild Land Areas

Designation/WLA		**Distance to nearest turbine (km)**	**Subject to ZTV-theoretical visibility?**	**Need to assess effects further within LVIA?**
NSA	Kyle of Tongue	27	Yes	No – due to very limited extent of ZTV shading at c38km+, special qualities are not likely to be affected
GDL	Castle of Mey	33	Yes	No – due to very limited extent of ZTV and separation distance at 33km
	Dunbeath Castle	36	No	No – no ZTV shading
	Tongue House	37	No	No – no ZTV shading
	Melsetter House	39	No	No – due to very

				limited extent of ZTV and separation distance at 39km
SLA	Farr Bay, Strathy and Port Skerra;	10	Yes	Yes – despite the limited extent of visibility, the separation distance of 10km means significant effects may arise.
	Dunnet Head	22	Yes	No – due to the separation distance of c22km+ and closer range influence from operational wind farms
	Ben Griam and Loch nan Clar	22	Yes	No – due to limited extent of ZTV and separation distance of c22km+
	Flow Country and Berriedale Coast	16	Yes	No – due to limited extent of ZTV and closer range influence from operational wind farms
Wild Land Area	East Halladale Flows	0	Yes	Yes – due to the proximity of the Revised Consented Development on the WLA and its potential effects on the wildness qualities
	Causeymire - Knockfin Flows	16	Yes	No – due to limited extent of ZTV and influence from other closer range operational wind farms, wildness qualities are not likely to be affected.
	Ben Klibreck – Armine Forest	32	Yes	No – due to very limited ZTV and separation distance of 32km+, wildness qualities are not likely to be affected

	Ben Hope – Ben Loyal	37	Yes	No – due to very limited ZTV and separation distance of 37km+, wildness qualities are not likely to be affected

Visual Receptors and Visual Amenity

7.31. The LVIA will undertake an assessment of the likely visual effects of the Revised Consented Development through consideration of the specific visual effects at a selection of representative viewpoints and by considering the wider effects on visual amenity with reference to a range of principal visual receptors.

Visualisations

7.32. Visualisations and figures will be produced to NatureScot's standards as set out in 'Visual Representation of Wind Farms Guidance: Version 2.2' (February 2017). A further set of figures will be prepared in accordance with THC's current visualisation guidance 'Visualisation Standards for Wind Energy Developments' (July 2016).

General Visibility

7.33. The pattern of theoretical visibility on the ZTV shows a concentration of visibility in the first 5 km radius of the Revised Consented Development and then patches beyond that. The openness of the North Atlantic Ocean means visibility is extensive across the northern half of the study area, although the only visual receptors in the North Atlantic Ocean and Pentland Firth will be transitory boats, most notably the Scrabster to Stromness Ferry. Visibility of the Revised Consented Development across the landscape to the west is reduced by the north-south ridge of low hills which effectively screen visibility from much of the adjacent landscapes in this direction. Visibility then reoccurs across the east facing slopes of similar north-south ridges at approximately 10 km and 20 km.

7.34. To the south, a similar pattern of visibility emerges, whereby the hills to the south of the Limekiln Coniferous Woodland Plantation disperse visibility across the landscapes further south. Patches occur between 6 km and 24 km, beyond which the extent of visibility becomes limited to high summits and ridges. To the east, visibility is more continuous in parts, reflecting the low and gently undulating character of much of this settled and cultivated landscape. Again, bands of visibility generally follow the north-south alignment of the low hill ridges which screen visibility from the intermittent shallow valleys. Theoretical visibility extends as patches out to the 40 km study area boundary, although actual visibility is reduced in certain parts by settlement and occasionally by tree cover. Figure 7.8 comprises a cumulative ZTV that illustrates the additional theoretical visibility of the Revised Consented Development, over and above that of the Consented Development, to be extremely limited in geographical extent.

Viewpoint Selection

7.35. A preliminary viewpoint list is shown in Table 7.2 below. The locations of the viewpoints are shown in conjunction with the preliminary ZTV Figure 7.3. This list is based on the viewpoints used in the 2017 SEI for the Consented Development, with some amendments to reflect the revised viewpoints included in the 2020 LVIA for the Limekiln Wind Farm Extension. The final list will be established through the scoping process and in agreement with THC and SNH. The viewpoints were selected to represent sensitive visual receptors with the potential to undergo significant effects, as well as represent landscape receptors, and landscape and visual receptors with the potential for cumulative effects to arise.

7.36. It is proposed that the visualisations for the Revised Consented Development will be based on the photography used in the previous LVIA illustrations and within the Limekiln Extension LVIA figures. This will allow a direct comparison with the previous assessments. The existing photography will be ground-truthed to verify its continuing accuracy for this purpose.

Table 7.2: Preliminary Viewpoint List

ID	Viewpoint name	Grid ref. (Preliminary)		Dist. nearest turbine (km)	Description
1	Drum Holliston Layby, A836	293266	964521	4.54	Road-users
2	Reay Footpath	296147	964382	2.68	Walkers / residents
3	Reay Church, A836	296736	964809	2.93	Road-users / residents
4	Shebster	301793	963941	3.76	Road-users / residents
5	Sandside Bay Harbour	295782	965986	4.32	Walkers / residents
6	A836 / Dounreay Road Junction	299668	966898	5.09	Road-users / workers
7	Strathy Point Car Park	282724	968602	15.73	Walkers / road-users
8	Angler's Car Park, Loch Calder	307148	962275	8.02	Anglers / walkers / road-users
9	Ben Dorrery	306287	955053	8.62	Walkers
10	Minor Road Lythmore Junction	305255	966422	7.99	Road-users

11	Georgemas Junction Station	315546	959421	16.20	Rail-users / road-users
12	A9 north of Spittal	316446	954654	17.99	Road-users
13	Dunnet Head	320519	976504	26.24	Walkers
14	Borlum Hill	297437	963530	1.56	Walkers
15	Beinn Ratha	295415	961310	1.54	Walkers
16	Shurrery	305014	958499	5.94	Walkers / road-users
17	A836, Hill of Forss	305643	969385	10.34	Road-users / Residents
18	Broubster Core Path	301148	960042	2.2	Walkers

Principal Visual Receptors

7.37. A number of potential visual receptors are found within the 40 km study area, as shown in conjunction with the preliminary ZTV in Figure 7.8. The landscape and visual assessment will include consideration of the receptors listed below, although it should be noted that this is not intended to be a definitive list of receptors, but rather examples of those receptors that may be included.

Settlements and Residents

7.38. While settlements are relatively limited in this study area, due to the predominantly rural nature of the landscape, there are some villages and rural clusters that need to be scoped into the LVIA as views from them may be significantly affected by the Revised Consented Development.

Settlements are shown in conjunction with the preliminary ZTV in Figure 7.8.

7.39. The previous assessment presented in the 2017 SEI for the Consented Development, considered the potential effect of the Consented Development on settlements in the study area (Appendix 9C). This found that of the 28 settlements considered, three were found to have the potential to be significantly affected, which were assessed in detail, while the remaining 25 were discounted from the detailed assessment. The three settlements assessed in detail included Reay/ Isauld, Shebster and Westfield.

7.40. Following a review of the preliminary ZTV in Figure 7.3, the comparative ZTV with the Consented Development in Figure 7.8, and the findings of the preliminary assessment in the 2017 SEI, it is proposed that the same three settlements be scoped into the LVIA. It is also proposed that the remaining settlements be scoped out, based on a combination of their separation distance from the Revised Consented Development, the limited extents

and/or levels of visibility, and the baseline influence from other operational wind farms, all of which will moderate the effect of the Revised Consented Development.

7.41. While individual properties are not assessed in this LVIA, those that lie within a 2 km radius of the Revised Consented Development will be included in the Residential Visual Amenity Assessment (RVAA). The RVAA will be prepared in accordance with the Landscape Institute's Technical Guidance Note 2/19 'Residential Visual Amenity Assessment' (RVAA). This guidance sets out the 'Steps' to be followed when undertaking a RVAA and highlights how it should be informed by the principles and processes of GLVIA3. The purpose of the RVAA is to identify those properties where the effect of the Development leads to the 'Residential Visual Amenity Threshold' being reached or, in other words, where the effect could be described as overwhelming or overbearing. The study area is set at a 2 km radius in line with the maximum radius recommended in the technical guidance. The RVAA will consider the effect on views from each property, as well as views from the associated garden grounds and access tracks.

Routes

7.42. There are a number of routes, including roads, railways, ferry routes and cycle routes, passing though the study area, and some of these require to be scoped into the LVIA as views from them may be affected by the Revised Consented Development. Routes are shown in conjunction with the preliminary ZTV in Figure 7.8.

7.43. A network of roads occurs across the area to the east and north-east of the development where the landscape is more settled and cultivated. These include the A9, B870 and B874, as well as a network of minor roads. The A836 / NCR1, is the main coastal route, which runs to the north of the development, while to the west and especially the south, there are very few roads owing to the remote and undeveloped nature of the landscape. The North Coast 500, the popular route for motorists and cyclists, follows the route of the A836 along the north coast.

7.44. The previous assessment presented in the 2017 SEI for the Consented Development, considered the potential effect of the Consented Development on routes in the study area (Appendix 9C). This found that of the 11 roads considered, two were found to have the potential to be significantly affected and were, therefore, assessed in detail, while the remaining nine were discounted from the detailed assessment. The two roads assessed in detail included the A836 and the Shebster minor road between Reay and Thurso.

7.45. Following a review of the preliminary ZTV in Figure 7.3, the comparative ZTV with the Consented Development in Figure 7.8, and the findings of the preliminary assessment in the 2017 SEI, it is proposed that the same two roads be scoped into the LVIA. It is also proposed that the remaining routes be scoped out, based on a combination of their separation distance from the Revised Consented Development, the limited extents and/or levels of visibility, and the baseline influence from other operational wind farms, all of which will moderate the effect of the Revised Consented Development.

Core Paths

7.46. There are a number of core paths, within the study area, and some of these require to be scoped into the LVIA as views from them may be affected by the Revised Consented Development. Core paths are shown in conjunction with the preliminary ZTV in Figure 7.8. This shows that there is a concentration of paths within the first 10 km radius of the Revised Consented Development, with a number subject to theoretical visibility of the Revised Consented Development.

7.47. The previous assessment presented in the 2017 SEI for the Consented Development, considered the potential effect of the Consented Development on core paths in the study area (Appendix 9C). This found that of the 17 local core paths considered, nine were found to have the potential to be significantly affected and were, therefore, assessed in detail, while the remaining eight were discounted from the detailed assessment. The nine core paths assessed in detail included CA11.02 – Achvarasdal Woodland, CA11.03 – Limekiln Forest, CA11.04 – Sandside Head, CA11.05 – Achins / Helshetter, CA11.06 – Reay Roadside Link, CA11.07 – Reay Golf Course via Mary's Cottage, CA11.08 – Reay Golf Course via Clubhouse, CA11.09 – Borlum Circuit, and CA11.10 – Achvarasdal East Drive.

7.48. Following a review of the preliminary ZTV in Figure 7.3, the comparative ZTV with the Consented Development in Figure 7.8, and the findings of the preliminary assessment in the 2017 SEI, it is proposed that the same nine core paths be scoped into the LVIA. It is also proposed that the remaining core paths be scoped out, based on a combination of their separation distance from the Revised Consented Development, the limited extents and/or levels of visibility, and the baseline influence from other operational wind farms, all of which will moderate the effect of the Revised Consented Development.

Methodology

7.49. The landscape and visual assessment will assess the potential effects of the Revised Consented Development on landscape character and visual receptors around the study area. This includes the effects of the access tracks, substation, operations and maintenance building, and other associated infrastructure, as well as the turbines.

7.50. It is anticipated that despite there being a consent for the Consented Development on the same site, that the baseline assessment will consider a site with no wind farm development. Reference to the Consented Development, will however be made in the LVIA, with a comparison made between the effects of the Consented Development and Revised Consented Development. A comparative ZTV of the Revised Consented Development and the Consented Development is shown in Figure 7.8.

7.51. The assessment will be carried out using a methodology that has been specifically devised by OPEN for the landscape and visual assessment of wind farms. This methodology generally accords with 'Guidelines for the

Assessment of Landscape and Visual Impacts: Third Edition (2013)'. The following summary provides information on the methodology.

7.52. The potential effects of the Revised Consented Development on the landscape and visual resource are grouped into four categories: physical effects, effects on landscape character, effects on views, and cumulative effects.

7.53. Physical effects are restricted to the area within the site boundary and are the direct effects on the fabric of the site and its access, such as the removal or addition of trees and alteration to ground cover. This category of effects is made up of landscape elements.

7.54. Effects on landscape character arise either through the introduction of new elements that physically alter the pattern of elements that makes up landscape character, or through visibility of the Revised Consented Development, which may alter the way in which the pattern of elements is perceived. This category of effects is made up of landscape character receptors, which are landscape character types, designated areas and WLAs.

7.55. The assessment of effects on views is an assessment of how the introduction of the wind farm will affect views throughout the study area. The assessment of effects on views is carried out in two parts;

- an assessment of the effects that the wind farm will have on a series of viewpoints that have been selected to represent the views of people, for example, residents, walkers and road-users, throughout the study area; and
- an assessment of the effects that the wind farm will have on views from principal visual receptors, which are the notable settlements, routes, features and attractions found throughout the study area.

7.56. Cumulative effects arise where the study areas for two or more wind farms overlap so that both of the wind farms are experienced at proximity where they may have an incremental effect, or where wind farms may combine to have a sequential effect, irrespective of any overlap in visibility. The cumulative assessment will include existing wind farms, those that are under construction and consented, and those for which planning applications have been submitted, where the turbines are greater than 50m to blade tip. Sites that are at scoping stage will only be included exceptionally if they are of specific relevance to the assessment. The cumulative assessment will focus on the most relevant cumulative sites as recommended in SNH's guidance.

Significance of Effect

7.57. The broad objective in assessing the effects of the Revised Consented Development is to determine, as required by the EIA Regulations, what the predicted significant effects of the Revised Consented Development on the landscape and visual resource will be. In this LVIA, effects will be assessed to be either significant or not significant.

7.58. The significance of effects is assessed through a combination of two considerations; (i) the sensitivity of the landscape element, landscape character receptor, view or visual receptor, and (ii) the magnitude of change that will result from the introduction of the Revised Consented Development.

7.59. Sensitivity is an expression of the ability of a landscape element, landscape character receptor, view or visual receptor to accommodate the Revised Consented Development, and is dependent on baseline characteristics including its susceptibility to change, value, quality, importance, the nature of the viewer, and existing character.

7.60. Magnitude of change is an expression of the scale of the change on landscape elements, landscape character receptors and visual receptors that will result from the Revised Consented Development.

7.61. The factors that are considered in sensitivity and magnitude of change are assimilated to assess whether the Revised Consented Development will have an effect that is significant or not significant. OPEN's methodology for assessing wind farm development is not reliant on the use of a matrix to determine the significance of landscape and visual effects, nor does it define levels of significance. It is, however, considered useful to include a matrix in the methodology to illustrate how combinations of sensitivity and magnitude of change can give rise to a significant effect and to provide an understanding as to the threshold at which significant effects may arise. Table 3 below provides this illustration.

Table 3: Illustrative Matrix of Significance of Effects

Magnitude **Sensitivity**	**High**	**Medium-High**	**Medium**	**Medium-Low**	**Low**	**Negligible**
High	Significant	Significant	Significant	Significant or not significant	Not Significant	Not Significant
Medium-High	Significant	Significant	Significant or not significant	Significant or not significant	Not Significant	Not Significant
Medium	Significant	Significant or not significant	Significant or not significant	Not Significant	Not Significant	Not Significant
Medium-Low	Significant or not significant	Significant or not significant	Not Significant	Not Significant	Not Significant	Not Significant
Low	Significant	Not	Not	Not	Not	Not

	or not significant	Significant	Significant	Significant	Significant	Significant

7.62. Effects that are assessed within the dark grey boxes in the matrix are assessed to be significant in terms of the requirements of the EIA Regulations. Those effects that are assessed within the light grey boxes may be significant, or not significant, depending on the specific factors and effect that is assessed in respect of a particular landscape or visual receptor. In accordance with the Landscape Institute's Guidelines for Landscape and Visual Impact Assessment (GLVIA3) (paragraph 3.23), experienced professional judgement is applied to the assessment of all effects and reasoned argument is presented in respect of the findings in each case.

7.63. A significant effect occurs where the Revised Consented Development will provide a defining influence on a landscape element, landscape character receptor or view. A significant cumulative effect occurs where the combined effect of the Revised Consented Development with other existing and Revised Consented Developments will result in a landscape character or view that is defined by the presence of more than one wind farm and is characterised primarily by wind farms.

Nature of Effects

7.64. Electricity Works (Environmental Impact Assessment) (Scotland) Regulations (2017) state that the Environmental Statement should include a description of the likely significant effects of the Revised Consented Development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short and long-term, permanent and reversible, positive and negative effects of the Revised Consented Development. Guidance provided by the Landscape Institute on the Nature of Effect, in its publication 'Guidelines for Landscape and Visual Impact Assessment' 3rd Edition, is limited to a single entry which states that "*One of the more challenging issues is deciding whether the landscape (or visual) effects should be categorised as positive or negative. It is also possible for effects to be neutral in their consequences for the landscape. An informed professional judgement should be made about this and the criteria used in reaching the judgement should be clearly stated.*"

7.65. In relation to many forms of development, the EIA Report will identify beneficial, neutral and adverse effects under the term Nature of Effect. The landscape and visual effects of wind farms are difficult to categorise in these brackets as, unlike other disciplines, there are no definitive criteria by which these effects can be measured as being categorically beneficial or adverse. For example, in disciplines such as noise or ecology it is possible to identify the nature of the effect of a wind farm by objectively quantifying its effect and assessing the nature of that effect in prescriptive terms. However, this is not the case with landscape and visual effects, where the approach combines quantitative and qualitative assessment. The LVIA will determine whether effects are beneficial, neutral or adverse in accordance with defined criteria.

7.66. Judgements on the nature of effect are based on professional experience and reasoned opinion informed by best practice guidance.

Cumulative Assessment

7.67. The operational, consented, application stage and scoping stage cumulative wind farms within 40 km of the Revised Consented Development are shown in Figure 7.2. The cumulative assessment will be carried out in accordance with 'Assessing the cumulative impact of onshore wind energy developments' (SNH 2012), and advice will be sought from THC and SNH as to sites to be included in the assessment, as well as agreement of a cut-off date for updating cumulative data prior to submission. The cumulative assessment will focus on the most relevant cumulative sites as recommended in SNH's guidance.

7.68. The cumulative effect of the Revised Consented Development in conjunction with operational and consented wind farms will be given due consideration, along with the additional interactions relating to operational Baillie Hill Wind Farm at approximately 4 km and Forss Wind Farm at approximately 8 km, both to the north-east, and operational Strathy North Wind Farm at approximately 15 km to the west. Other operational wind farms that will have an influence on the cumulative situation include the cluster comprising Causeymire, Achlachan, Halsary and Bad a Cheo at approximately 17 to 23 km to the south-east of the Revised Consented Development.

7.69. In respect of application stage wind farms, those of most relevance to the assessment will include Limekiln Extension to the immediate east of the Revised Consented Development, as well as Ackron (resubmission) at approximately 6 km to the north-west, Cairnmore Hill at approximately 9 km to the north-east and Strathy Wood and Strathy South S36C at approximately 16 km and 18 km respectively to the south-west.

7.70. The cumulative assessment will consider any other operational, under construction, consented and application stage wind farms, relevant to the assessment. Typically, scoping stage wind farms would not be considered in the assessment unless requested by statutory consultees. In respect of the scoping stage Broubster Wind Farm, it is proposed that this development be scoped out of the cumulative assessment as it has remained inactive since its Scoping Report was submitted in 2012. During the recent Limekiln Public Inquiry it was agreed by the Reporter that this development need not be considered in the determining of cumulative effects.

7.71. The cumulative assessment will also include a statement on the 'in combination' effects which considers the relationship of the Revised Consented Development in-combination with the cumulative developments, and the extent to which this in-combination effect may alter the pattern of wind farm developments in this area and, in so doing, redefine the character of the landscape or visual receptors.

Key Issues

7.72. The following bullet points summarise the key considerations that will be addressed in the LVIA. This is not intended to be a definitive list but indicates OPEN's assessment of the potential key effects of the Revised Consented Development at the Scoping stage.

- The potential cumulative effects of the Revised Consented Development in respect of the cumulative context comprising the proposed Limekiln Wind Farm Extension and all other relevant operational, consented and proposed wind farms.
- The potential effects of the Revised Consented Development on those relevant LCTs and LCUs within a 20 km radius.
- The potential effects of the Revised Consented Development on the local landscape designation of the Farr Bay, Strathy and Port Skerra SLA.
- The potential effect of the Revised Consented Development on the wildness qualities of the East Halladale Flows WLA.
- The potential effects on the views and visual amenity of residents in local settlements and walkers on local core paths.
- The potential effects on the views of road-users on sections of close-range roads and routes, including North Coast 500 and NCR1.
- The potential effects on the views of walkers in the local hills and along the local coastlines.

Key References

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Landscape Institute and Institute of Environmental Management and Assessment (2013) 'Guidelines for Landscape and Visual Assessment: Third Edition'

Scottish Natural Heritage. (February 2017) 'Visual Representation of Wind Farms: Version 2.2'

Scottish Natural Heritage. (May 2014) 'Siting and Designing Windfarms'

Scottish Natural Heritage. (2020) 'Assessing Impacts on Wild Land technical guidance' and associated Wild Land Area Descriptions

Landscape Character Assessment of Scotland held by NatureScot and available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions

Inventory of Gardens and Designed Landscapes held by Historic Environment Scotland and available at:https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/gardens-and-designed-landscapes/

Scottish Natural Heritage (2010). 'The Special Qualities of the National Scenic Areas: Commissioned Report No. 374'

The Highland Council (July 2016). 'Visualisation Standards for Wind Energy Developments'

The Highland Council (2012). 'Highland-wide Local Development Plan'

The Highland Council (2011). 'Assessment of Highland Special Landscape Areas'.

Scottish Natural Heritage (2012). 'Assessing the cumulative impact of onshore wind energy developments'

Scottish Natural Heritage (2018). 'Guidance for Assessing the Effects on Special Landscape Qualities' Working Draft and Annexes.

8. FORESTRY

Introduction

8.1. The Consented Development includes the area within Limekiln Plantation, a productive conifer plantation which has an amended Long Term Forest Plan in place. This amendment took account of the construction and operation of the consented Limekiln Wind Farm.

8.2. Arrangements are in place for the required compensatory planting based on the permanent woodland loss associated with the Consented Development.

8.3. The proposed variation of the Section 36 Consented Development is seeking to:

- increase the blade tip height of 15 turbines of 10.9m and of 6 turbines of 20.9m, so as to make all turbines a maximum blade tip height of 149.9m;
- relocate some of the internal access tracks (not affecting the site access location from the public road) and the construction compound; and
- the removal of one borrow pit

8.4. There are no changes proposed to the consented wind turbine locations.

8.5. This section of the S36c Scoping Report describes the existing forest resource and identifies potential for effects to occur as a result of the Revised Consented Development.

Baseline Conditions

8.6. The Consented Development is located within the Limekiln Plantation, a first rotation plantation under a single ownership. The landowner's main objective of the management of Limekiln Plantation is to optimise the operation of the wind farm.

8.7. Limekiln Plantation is managed under a Long Term Forest Plan, Ref 16FGS09175. The Forest Plan Amendment was approved by Scottish Forestry on 27th March 2020.

8.8. Within the approved amendment a table of proposed felling for each phase is shown as summarised in table 1 below

Table 1 Amended Felling Phases

Fell phase	1	2	3	4	LTR	Out-with 20yr plan

Area ha	150.40 (12%)	243.50 (20%)	192.55 (16%)	140.70 (11%)	17.71 (2%)	448.92 (36%)

8.9. The table does not include approximately 60 hectares of felling which will take place during Phase 1 to allow the infrastructure for the consented wind farm to be installed.

8.10. The total woodland loss associated with infrastructure including turbine buffer areas, new track construction, widening of existing forest roads and the installation of a substation has been calculated as some 55.95 hectares.

8.11. The amended LTFP shows the future species composition as the table 2 below

Table 2 Future Species Composition

Species	**Year 20 Area (ha)**	**% Forest Area (ha)**
SS	408.25	34.5
SS/LP	30.84	2.6
SP	44.35	3.7
NS	30.84	2.6
GF/NF	2.88	0.2
Retentions	17.52	1.5
NBL	152.40	12.9
OG	497.07	42.0
Total	1184.15	

Potential Effects

8.12. The Revised Consented Development may result in changes to the temporary and permanent felling within Limekiln Plantation due to:

- Tip height changes may require a slightly larger buffer zone for specific turbines which will result in a slightly increased permanent felling area with the consequential compensatory requirement
- Relocation of the internal tracks and construction compound will result in a change in felling requirements; where internal tracks were planned for the consented development and not required in

the variation this will reduce the felling area whereas the varied track layout will require felling in these areas. The balance will be +/- permanent felling with the consequential effects on compensatory planting requirements

- Removal of one borrow pit will therefore require a reduction in temporary felling for the wind farm nonetheless will result in no change in the LTFP restocking plan

8.13. These variations may result in minor changes to sub-compartment shapes and design with a review of any further opportunities for species choice or peatland restoration.

8.14. The effect of the variations to increase tip height, relocation of internal tracks and the construction compound as well as the removal of one borrow pit to the forest structure are likely to be so small as to be insubstantial.

Proposed Scope

8.15. The purpose of this forestry scope is to consider the variation against the Consented Development in terms of changes to the amended LTFP. This will illustrate the new felling requirements for relocated tracks and construction compound, and any adjustment to the buffer zones for the turbines with variation to tip heights. Those areas, tracks and compound, no longer required for felling for the wind farm can be returned to forested land as the LTFP restocking plan. The total revised felling areas will be recalculated and measured against the consented felling for wind farm requirements.

8.16. With the proposed variations, the size and shape of the forestry sub-compartments will be reviewed and where required will be adjusted in size and shape to form practical boundaries.

8.17. The overall changes will be considered against the UK Forestry Standard to ensure that requirements such as species percentages and age separation are within the guidelines and that the woodlands remain fully compliant to UKFS.

8.18. Any resultant changes in permanent woodland loss will be measured against the current compensatory planting commitments for the consented development. Any difference will be noted.

<u>Issues scoped out</u>

8.19. The Forestry scope would be limited to the effects of the Revised Consented Development on forest composition and yield. Secondary effects resulting from forestry activities including effects on habitats and species, ornithology, hydrology and landscape and visual effects would be considered within their respective scopes and is not be covered by the Forestry Scope.

Assessment Methodology

8.20. The Forestry Scope refers to relevant industry guidance including, but not limited to:

- Forestry Commission Scotland (2009): The Scottish Government's Policy on Control of Woodland Removal. Forestry Commission Scotland, Edinburgh and
- Implementation Guidance (February 2019);
- Forestry Commission (S2017): The UK Forestry Standard, The Government's Approach to Sustainable Forestry. Forestry Commission, Edinburgh;
- Forestry Commission (2017): Forests and Water. UK Forestry Standard Guidelines (and other guidelines in the same series). Forestry Commission, Edinburgh;
- Scottish Government (2019): Scotland's Forestry Strategy >2019-2029 Forestry Commission, Edinburgh;
- UKWAS 4.0 (2012): The UK Woodland Assurance Standard Third Edition. UKWAS, Edinburgh;
- SEPA Guidance on the Management of Forestry Waste (SEPA, 2013).
- The Highland Council (2006): Highland Forest & Woodland Strategy
- The Highland Council (2013): Supplementary Guidance. Trees, Woodlands & Development
- Scottish Planning Policy (2014): (A Natural, Resilient Place; Valuing the Natural Environment) Section 218 (Woodland)
- NatureScot (2019): Bats and onshore wind turbines: survey, assessment and mitigation

Summary

8.21. The Revised Consented Development would require recalculating the areas involved with the changes to the amended LTFP for Limekiln Plantation. These will be in terms of temporary and permanent felling associated with the variation including track and construction compound location, buffer zone adjustment with turbine tip height variation and the removal of one borrow pit. The turbine locations are unchanged and any changes to the sub-compartments will be for best forest practice purposes and minor in detail.

8.22. The changes to the existing forestry effects are considered so small as to be clearly in substantial.

9. ARCHAEOLOGY AND CULTURAL HERITAGE

Introduction

9.1. Wind farm developments may have both direct and indirect impacts upon the physical fabric and setting of cultural heritage assets. A heritage asset is defined as any element of the historic environment which is of sufficient cultural significance to merit consideration in the planning process.

9.2. The archaeology and cultural heritage chapter of the Revised Consented Development accompanying the S36 Application will identify any changes to the historic environment baseline since the submission of the 2016 ES for the Consented Development, and any changes to impacts upon that baseline as a result of the Revised Consented Development. Proposals include an increase in tip height from 126m & 139m to up to 149.9m (all 21 turbines), the omission of the western borrow pit, rerouting the access tracks away from the existing Core Path and moving the construction compound to the south and increasing it's size. It is also proposed to increase the operational period from 25 to 40 years.

Baseline

9.3. The baseline data for this scoping document has been informed by the 2016 ES and the Royal Commission on the Ancient and Historical Monuments of Scotland's (RCAHMS) Pastmap website, Highland Council Historic Environment Record website and Historic Scotland's GIS data download portal.

9.4. There are no statutorily designated cultural heritage assets present within the limits of the proposal site area (i.e. Scheduled Monuments or Listed Buildings).

9.5. The 2016 ES identified 28 known undesignated cultural heritage assets within the proposal site area. No additional assets have been added to the above on-line resources in the interim. These assets are largely related to the prehistoric period and include hut circles and associated clearance cairns, possible scooped settlements and a burnt mound. In addition to these there are a number of assets recorded from the First Edition Ordnance Survey maps, including a farmstead, limekiln and enclosure. Assessment of archaeological potential of the proposal site area in the 2016 ES for the Consented Development concluded that there is a moderate potential for cultural heritage assets to survive.

9.6. The 2016 ES for the Consented Development considered a 5km study area for all nationally important heritage assets, with consideration of assets beyond this distance that were identified as being located within the ZTV and highlighted specifically by consultees or identified as being at risk of significant effects.

9.7. Within this zone 18 scheduled monuments were considered in the 2016 ES. These are largely prehistoric in date and include five cairns, a stone circle,

standing stones, stone rows as well as five brochs. The early historic period is represented here by two carved Pictish symbol stones. There is also one scheduled monument dating to the medieval period; the remains of Reay burial ground, old church and cross slab. One of the scheduled monuments, Cnoc Freiceadain long cairns, is also a property in care (PIC).

9.8. Fourteen listed buildings were considered in the 2016 ES, including three Category A Listed Buildings, eight Category B Listed Buildings and three Category C(S) Listed Buildings.

Potential Environmental Impacts

9.9. Potential environmental impacts on cultural heritage assets which may arise from the construction, operation and decommissioning phases of the Revised Consented Development therefore include:

- direct physical impacts: disturbance during construction;
- indirect physical impacts: dewatering, peat slide, vibration, noise; and
- setting impacts (mostly direct, but potentially indirect): visual intrusion, noise, physical separation.

9.10. There is a potential for direct physical impacts within the proposal site area as a result of rerouting the access tracks away from the existing Core Path .

9.11. There is a potential for significant impacts on the setting of cultural heritage assets in the surrounding area through visual intrusion. The 2016 ES identified three residual effects on the setting of designated heritage assets ranging between a Negligible (Cnoc Freiceadain long cairns, The Hill of Shebster chambered cairn) and Slight (Clach Clais an Tuirc standing stone) effect significance.

Mitigation

9.12. Mitigation of identified physical impacts is likely to include preservation in situ through design as far as reasonably practicable and preservation by record where this is not possible. Setting impacts will be avoided or reduced where possible through design.

Methodology and Approach to EIA

9.13. Updated data from The Highland Council's Historic Environment Record (HER) and relevant additional information will be gathered to inform the Revised EIAR chapter. It is understood that since the 2016 ES, Limekiln Wind Ltd has commissioned further site surveys to inform archaeological mitigation proposals for the Consented Development. Additional archaeological features identified within the proposal site identified during these surveys will be considered in the Revised EIAR.

9.14. It is proposed that the results of the Revised EIAR will be presented in terms of a comparative document with the 2016 ES for the Consented Development. The Revised EIAR will consider:

- Where heritage assets lay outwith the zone of theoretical visibility (ZTV) for the Consented Development, but are within the ZTV for the revised scheme; and
- Where the likely experienced effects at individual heritage assets may be increased due to the increased tip height. This includes heritage assets where previously no impacts were identified, as well as assets where impacts were identified.

Consultation

9.15. Relevant bodies will be consulted regarding the revised scheme proposals and its likely impact, and the impact assessment methodology and report format. Consultees will include:

- Historic Environment Scotland; and
- The Highland Council Historic Environment Team.

Field Surveys and Assessment

9.16. Study areas will remain as defined in the 2016 ES for the Consented Development.

9.17. A comprehensive desk-based review of the existing baseline for the study areas will be carried out. For the purposes of assessment, cultural heritage features have been defined as all relict man-made features predating the earliest Ordnance Survey mapping in this area and selected sites of more recent date.

9.18. The following data sources will be used:

- Designation data downloaded from the Historic Environment Scotland website;
- Historic Scotland Schedule of Ancient Monuments and List of Listed Buildings;
- The National Record of the Historic Environment (NRHE), including the Canmore database;
- The Highland Council Historic Environment Record (HER) digital data; and
- Existing previous assessments and site surveys carried out for the Consented Development and other relevant readily accessible published and online sources.

9.19. Reassessment of aerial photos and historic mapping is not proposed as this was fully considered in 2016 and is unlikely to result in significant new findings.

9.20. The route of newly proposed access tracks will be surveyed on foot by an archaeologist to identify any hitherto unknown archaeological potential.

9.21. The findings of the desk-based assessment, recently completed and updated site surveys as part of the EIAR will be taken into account during the design of the Revised Consented Development in order to prevent or reduce impacts as far as is reasonably practicable.

9.22. The assessment of impacts will consider:

- Potential direct and indirect construction impacts upon cultural heritage assets (including paleoenvironmental deposits) within the proposed site area;
- Potential impacts upon the setting of all scheduled monuments, Non-Statutory Register sites of schedulable quality and Category A listed buildings within 5km of the development boundary. Other assets beyond 5km will be considered generally, but will only be assessed where they are raised specifically by consultees or where the assessor considers there to be a potential for significant impacts.

9.23. The assessment will be carried out with reference to the following:

<u>Policy</u>

- Scottish Planning Policy (SPP) 2014;
- Planning Advice Note (PAN) 2/2011: Planning and Archaeology;
- Historic Environment Policy for Scotland (HEPS, 2019);
- Historic Environment Scotland Circular (2019);

<u>Guidance</u>

- Managing Change in the Historic Environment: Setting (Historic Environment Scotland (HES) 2016);
- Highland Council Standards for Archaeological Work (post-consultation draft, February 2012)
- Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA 2020); and
- Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (CIfA 2020)

9.24. Official designations applied respectively to archaeological assets and buildings will be taken into account as indicators of importance. These designations reflect a number of factors which can be used to assign their importance, including their potential as a resource of archaeological data, their association with significant historical events, their role as a local landmark with cultural associations and their aesthetic value. These factors will be used to determine the sensitivity of cultural heritage assets to direct impacts and will form the basis on which their sensitivity to setting impacts will be assessed. The magnitude of the impact of the Revised Consented Development on the cultural heritage asset will also be assessed.

9.25. The significance of the impact on the cultural heritage asset will be determined by considering the magnitude of impact and the sensitivity of the cultural heritage asset in question. A detailed methodology will be produced in the EIAR chapter.

10. GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

Introduction

10.1. An assessment of the impact of the Revised Consented Development on geology (including peat), hydrology and hydrogeology will be undertaken. This will establish the baseline conditions, inform the assessments and designs whilst determining any suitable mitigation measures required.

10.2. The conclusion of the assessment presented in the 2016 Environmental Statement (ES) was that the adoption of the identified mitigation measures would ensure that there would be no significant effects on the water environment. It is considered that the layout of the Revised Consented Development is unlikely to cause any increased significant effects on the key sensitivities that were assessed in the 2012 and 2016 ESs.

Baseline Conditions

10.3. An initial review of the geological, hydrological and hydrogeological conditions of the Development Site has been undertaken. This section outlines the potential hydrological receptors which have been identified within the Development Site and its wider area.

10.4. The Development Site is largely covered by commercial forestry plantation, with an undulating topography. Ground elevations in the application site range from ~30 metres Above Ordnance Datum (mAOD) at the northernmost tip of the Development Site, near Reay (NC 976 649) to ~170mAOD at the southernmost tip (NC 995 578).

Soils and Peat

10.5. The 1:25,000 Soil Map of Scotland (The James Hutton Institute, 2020)[27] indicates that the soil types within the Development Site are dominated by a mixture of blanket peat and peaty podzols. In addition, areas to the north of the Development Site are underlain by peat gleys and mineral podzol soils.

10.6. The Scottish Natural Heritage Carbon and Peatland 2016 map (SNH, 2016)[28] indicates that the Development Site is dominated by Class 1 and Class 2 soils that are classified as carbon-rich and deep peat. In addition, there are smaller areas of Class 5 in the north and through the centre of the Development Site.

10.7. Peat depth data obtained by three separate surveys undertaken in 2012, 2013 and 2020 as well as a ground investigation in 2020 have been reviewed. In total approximately 3,600 peat depth measurements have been undertaken across the consented layout of the wind farm. The peat depth

[27] https://map.environment.gov.scot/Soil_maps/?layer=1

[28] http://gateway.snh.gov.uk/natural-spaces/index.jsp

data indicates that peat depths range from 0.1m to 4.2m with the majority of the Development Site underlain by peat depths <1.0m.

Geology

10.8. Superficial geology comprises peat deposits in the south of the Development Site on higher ground, with glacial till on the lower ground in the north of the Development Site.

10.9. The Development Site is predominantly underlain by bedrock geology of late Silurian felsic igneous intrusion known as the Strath Halladale Granite (biotite-granite). Devonian conglomerate, known as the Tobaireach conglomerate, is also present, in the north of the Development Site, underlying Milton Moss (NC 983 621) and in the south of the Development Site. Sandstone with subordinate conglomerate and siltstone (Rubha Sandstone Member) underlie the eastern flank of the Development Site. A small outcrop of Silurian age quartz-diorite is also present in the northwest of the Development Site, known as the Reay Diorite.

10.10. An extensive local fault intersects the southern part of the Development Site, named the Bridge of Forss Fault. The fault downthrows in a north northeast to south south-westerly direction. Across most of the Development Site the sedimentary strata are highly inclined in a south-easterly direction at angles of about 25-40°.

Hydrology

10.11. The Development Site lies within the surface water catchments of the Reay Burn to the west and the Achvarasdal Burn to the east.

10.12. The Reay Burn drains the western side of the site and discharges to the sea through the Sandside Bay SSSI at Sandside Bay (NC 966 652). The headwaters of this watercourse lie just south of the Development Site boundary.

10.13. The Achvarasdal Burn, which drains the eastern side, and forms the eastern Development Site boundary, is confluent with the Burn of Isauld, south of Archvarasdal House (NC 983 645), 800 meters southeast of the Bridge of Isauld (NC 976 650), near the Development Site entrance. This, in turn, discharges to sea at Sandside Bay (NC 969 656).

10.14. Lochan nan Eun (NC 981 613) is located close to the centre of the Development Site. It is situated on a high ridge within an area of particularly wet, boggy ground, to the south of a large rock outcrop. With no discernable flow into or out of the lochan, it is likely that the majority of the water within this water body originates from rainfall.

10.15. Achvarasdal Burn is classified by SEPA as having a 'Good' Water Framework Directive (WFD) overall status. Reay Burn is not classified by SEPA. However, it is likely to have similar characteristics to Achvarasdal Burn as well as Sandside Burn to the west, and is therefore assumed to have 'Good' overall status also.

10.16. The SEPA Floodrisk map[29] indicates that there is a high risk of flooding from rivers, to the northeast of the Development Site, downstream on the Achvarasdal Burn. It indicates that the fields which lie between Loancorrisbest and Milton (NC 980 641) are an area where a flood event is likely to occur on average once in every ten years (1:10). Or a 10% chance of happening in any one year.

Hydrogeology

10.17. The hydrogeology map of the UK (BGS)[30] indicates that the predominant geology (Strath Halladale Granite) is an aquifer of low productivity, where small amounts of groundwater may be present in the near surface weathered zone and secondary fractures. The conglomerate and sandstone lithologies are classed as moderately productive aquifers. These are described as sandstones, which are flaggy in places, and comprise siltstones, mudstones and conglomerates and interbedded lavas, and they can locally yield small amounts of groundwater.

10.18. The Development Site lies within the Dounreay WFD groundwater body, which is classified as 'Good' for its overall status. However, there are no boreholes monitoring groundwater quality in the immediate vicinity of the Development Site.

10.19. A site walkover was undertaken by Amec (now Wood) during 2012 to assess the hydrological receptors on site. This included a brief assessment of the single Private Water Supply (PWS) identified from the Highland Council database, at Loancorribest (NC 985 640). This is located ~0.2km north of the Development Site boundary and information provided by the owner suggested that this was a shallow well, approximately 1m deep, and used for potable water supply.

Statutory Designated Sites

10.20. The closest conservation interests to the Development Site are the East Halladale Site of Special Scientific Interest (SSSI) and the Caithness and Sutherland Peatlands Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar. The East Halladale and Caithness and Sutherland designated sites (NC 945 555) cover much of the same, relatively large area, lying to the west, southwest and south of the Development Site, straddling the Caithness and Sutherland border. The East Halladale and Caithness and Sutherland SAC and Ramsar are designated for their blanket bogs as well as other ornithological interests. The Caithness and Sutherland SPA is designated for its breeding birds interests only. These conservation sites are situated up-gradient of the proposed wind farm site activities.

1.2. [29] https://map.sepa.org.uk/floodmap/map.htm

[30] http://mapapps2.bgs.ac.uk/geoindex/home.html?layer=BGSHydroMap

10.21. In addition, the Wild Land Area, East Halladale Flows, is present to the west of the site and is largely coincident with the statutory designated land to the west of the Development Site.

GWDTEs

10.22. The updated Groundwater Dependent Terrestrial Ecosystems (GWDTE) assessment presented in the 2016 ES identified that GWDTEs are located throughout the site. It found that the communities that are highly dependent on groundwater emergence (i.e. springs, flushes and fen) were localised in extent and were assessed as being at low risk of being affected by the proposed infrastructure. The resulting effect for all stages of the development was therefore be considered 'Minor'.

10.23. Should additional potential GWDTEs be identified by the updated National Vegetation Classification (NVC) survey, consideration would be given to the hydrological function of these habitats to determine their actual dependency on groundwater and an assessment would be undertaken to determine the impact on them from the Revised Consented Development.

2012 Scoping Opinion

10.24. Scoping opinions with relevance to the water environment were received from SEPA, The Highland Council (THC) and Marine Scotland Science (MSS) in relation to the hydrological and hydrogeological assessment in 2016.

10.25. The key issues that SEPA requested should be included in the assessment were appropriate consideration of GWDTEs, watercourse crossing design, details of borrow pits (including water abstraction) and flood risk.

10.26. THC requested that the ES included the assessment of the potential effects from forest felling and construction activity on peatland habitats and hydrology.

10.27. MSS made a number of recommendations of mitigation measures and construction methods to minimise the risk of pollution of the water environment.

10.28. The above issues were addressed in the 2012 ES.

2016 Scoping Opinion

10.29. Comments were received from SEPA and MSS in relation to the hydrological and hydrogeological assessment in 2016.

10.30. The comments from SEPA are summarised below:

- SEPA were 'content' that the baseline vegetation survey and assessment presented in the previous (2012) ES demonstrated that the windfarm would not have unacceptable impacts on GWDTEs. However, they requested that the assessment should be in accordance with the updated guidance (LUPS-GU31); and

- SEPA noted that they were previously content that the layout had due regard for the water environment and requested that the ES brings together all the proposed mitigation measures into a single draft Schedule of Mitigation.

10.31. MSS requested that details of the proposed monitoring programme should be provided in the ES and they also recommended that an integrated hydrochemical, macroinvertebrate and fish monitoring programme should be established prior to, during and after construction.

10.32. The 2016 ES addressed these concerns by updating the baseline GWDTE information according to updated guidance, presenting a Schedule of Mitigation and adopting an integrated hydrochemical, macroinvertebrate and fish monitoring programme.

Methodology

10.33. The revised design will take account of the existing baseline information and constraints. It is expected that the effects are likely to be of a similar nature and level to those assessed for the Consented Development, however further consultation, desk studies and data requests will be undertaken as necessary to inform the updated baseline for the assessment.

10.34. The geology (including peat), hydrology and hydrogeology datasets will be updated including, but not limited to, the following aspects:

- Review of published data and maps;
- Consultation with the SEPA and THC;
- Identification of solid and surface geologies by review of British Geological Survey (BGS) mapping;
- Filling in peat depth data gaps by means of a Phase 2 peat depth survey of the variation track layout;
- Update of the Peat Slide Risk Assessment and Peat management Plan in accordance with best practice;
- Review of Pollution Prevention Guidelines;
- Identification of surface water features, catchments and GWDTEs;
- Collation of up-to-date flood risk information, water quality data and groundwater vulnerability information;
- Preparation of figures including water environment receptors, geology, drainage and elevation and hydrological and hydrogeological constraints;
- Update data on public and private abstractions and supplies, and a preliminary risk assessment of these; and
- Identification of other similar developments within 10 km to identify potential cumulative effects.

10.35. The Revised Consented Development EIA Report Chapter will present the assessment of potential effects from the revised design on geology, hydrology and hydrogeology resources, including:

- Details of consultation undertaken;
- Assessment methodologies;
- Phase 2 peat survey results;
- Updated GWDTE assessment;
- An initial flood risk assessment included within the EIA Report chapter;
- Assessment of the different phases of the development to establish the effect on hydrological receptors;
- Identify mitigation measures, where necessary;
- Identify any residual effects following mitigation;
- Cumulative assessment with other developments within 10 km of the Revised Consented Development; and
- Statement of significance in accordance with the Environmental Impact Assessment Regulations 2017[31].

Key Sensitivities

10.36. The Revised Consented Development is unlikely to cause any increased significant effects on the key sensitivities that were assessed in the 2012 and 2016 ESs. The key sensitivities identified were, namely, the Reay and Achvaradal Burn and tributaries, the PWS at Loancorribest, the proximity of sensitive habitats to the site, groundwater (where moderately productive aquifers are present) and the hydrological function of GWDTEs.

10.37. The main change noted from previous assessments, is an increase in flood risk identified from up-to-date flood risk mapping. The area which is potentially at risk of this increased flood risk is located downstream of the site in the area between Loancorrisbest and Milton.

10.38. The EIA will consider the impacts of the Revised Consented Development and how those differ from those previously identified in the previous ESs.

[31] The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. http://www.legislation.gov.uk/ssi/2017/101/contents/made (Accessed 25/01/2018)

11. NOISE

Introduction

11.1. This chapter discusses the approach to scoping noise in relation to the Revised Consented Development.

Baseline noise conditions

11.2. The data sources most relevant to the assessment of noise from the Revised Consented Development are those detailed within the 2012 and 2016 ES.

11.3. Reviewing the latest aerial imagery of the Development Site has identified that there are no known new noise sensitive receptors to those considered in the 2016 ES. The baseline is still considered representative of the noise environment without wind farm noise and will be used to inform the criteria in accordance with *'ETSU-R-97: The Assessment and Rating of Noise from Wind Farms'*, (ETSU-R-97) (1996).

Scope

11.4. The 2016 ES outlined that due to the distance between construction and decommissioning works and the sensitive receptors, a significant effect from construction and decommissioning noise is unlikely. Given that there are no notable differences in the works since the 2016 ES, an assessment of construction and decommissioning is scoped out of the EIA for the Revised Consented Development.

11.5. The traffic for maintenance and operation of the wind farm would be minimal and the resulting impacts of noise negligible. Noise results from traffic relating to maintenance and operation of the wind farm has been scoped out of the EIA on this basis.

11.6. The 2016 ES assessed operational noise in accordance with ETSU-R-97 guidance. It was found that, based upon an assessment of a candidate turbine, worst-case predictions of operational noise levels (including predictions of possible cumulative effects with Baillie Hill windfarm) lay within noise limits derived from measurements taken at surrounding receptors and it was concluded that the Consented Development would have no significant effects in relation to noise.

11.7. Operational noise modelling has been recently undertaken for the Revised Consented Development as part of a cumulative noise assessment carried out for the Limekiln Extension Public Local Inquiry (PLI). This model accounted for all the latest cumulative turbines related to a 10 ms^{-1} wind speed. It has been confirmed that there were no new receptors that were not accounted for in the noise model for the Limekiln Extension PLI. The results of this noise modelling indicated that the predicted cumulative noise levels are lower than 35 dB at all identified residential receptors surrounding the Revised Consented Development at a wind speed of 10 m/s-1. As per ETSU-R-97

methodology this is sufficient to indicate that there would not be a significant noise effect. Therefore noise has been scoped out of the proposed scope of works for the Revised Consented Development. Plate 1 and Plate 2 display the noise model results using Vestas V117 and Nordex N133 respectively with a 10 ms^{-1} wind speed. It should be noted that this model also includes the five turbines of the proposed Limekiln Extension.

Summary of Effects

11.8. The Revised Consented Development is unlikely to result in significant effects from construction and decommissioning works, operational traffic or operational noise and therefore these elements are scoped out of the EIA.

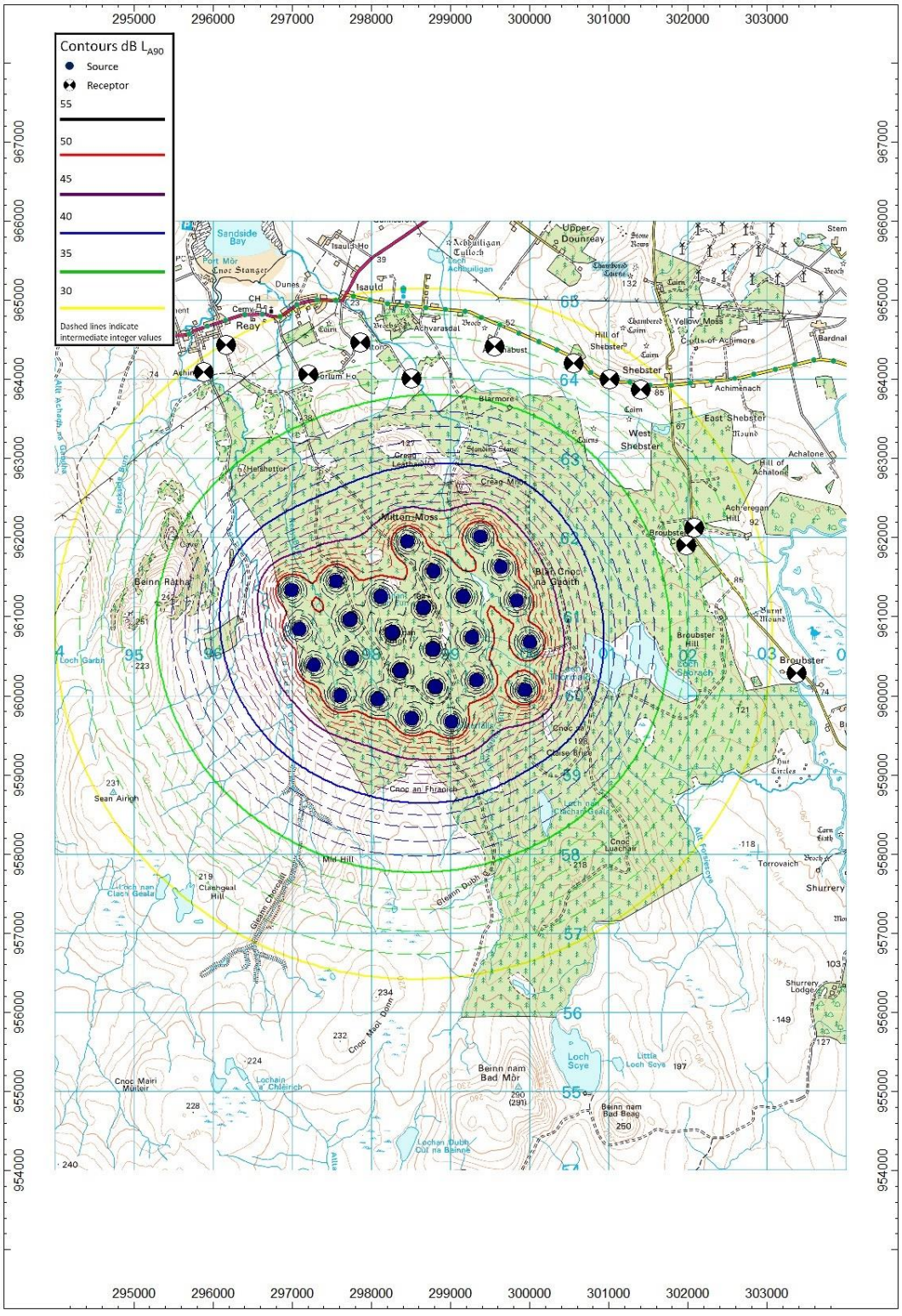

Plate 1 - Vestas V117 Noise Model Results*

*The model also includes the five turbines of the proposed Limekiln Extension

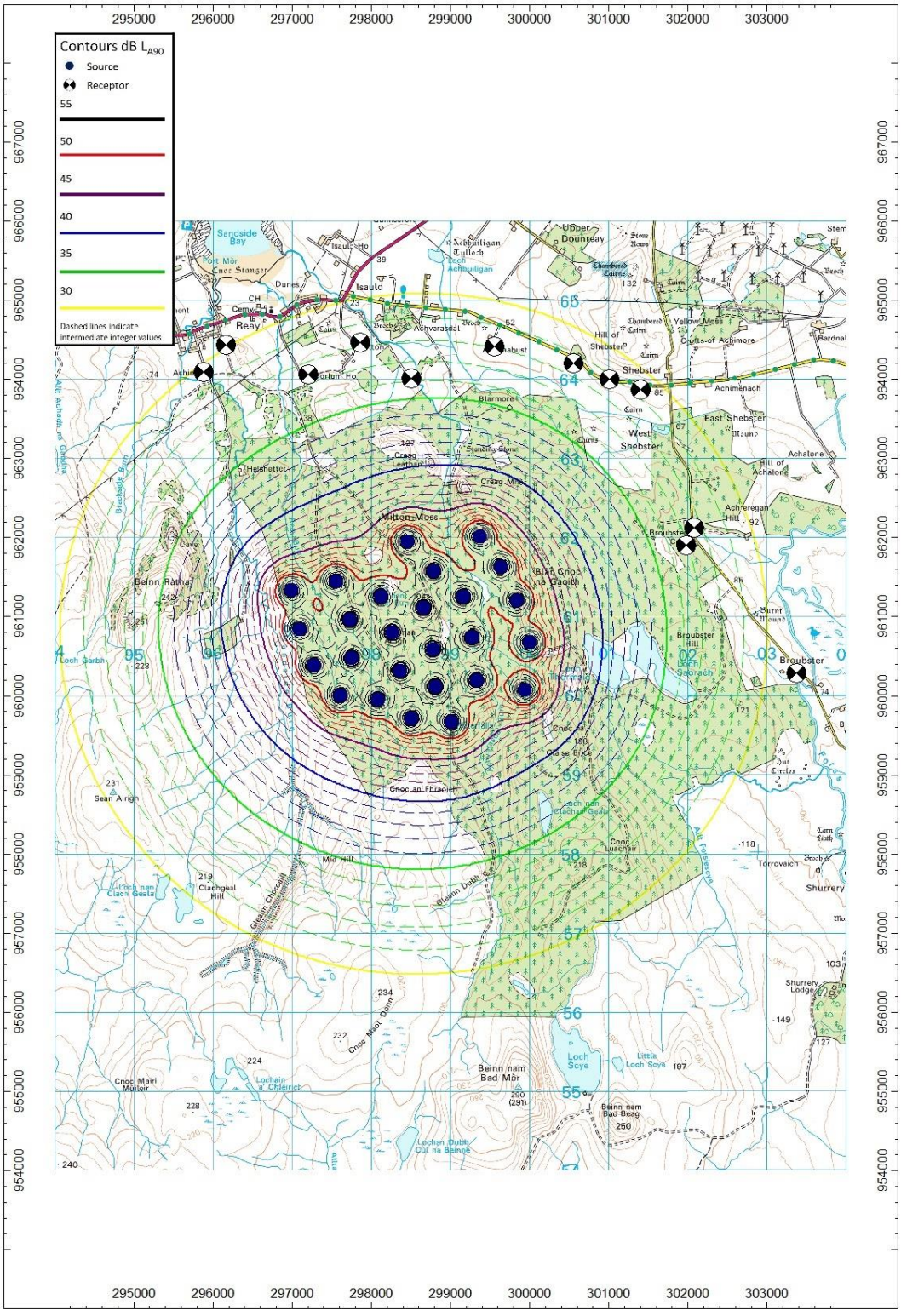

Plate 1 - Nordex N133 Noise Model Results**

**The model also includes the five turbines of the proposed Limekiln Extension

12. TRAFFIC AND TRANSPORT

Initial Access Considerations

12.1. An initial access review has been undertaken which confirms that the previously assessed access route from the Port of Scrabster to the Development Site via the A9, A825 and the unclassified road network (at the site access) is suitable for the transport of the proposed larger turbine loads.

12.2. The access route will be used for the delivery of construction materials, abnormal loads and staff engaged with the constriction phase of the Revised Consented Development.

12.3. A detailed abnormal load route survey report will be presented as part of the application. The existing access junction layout on the A835 will be subject to minor upgrades to accommodate the larger turbine components. A revised design will be prepared and will feature appropriate visibility arrangements.

Survey and Assessment Methodology

12.4. The following policy and guidance documents will be used to inform the Traffic & Transport Chapter:

- Transport Assessment Guidance (Transport Scotland, 2012);
- The Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (IEA), 1993);
- SPP (Scottish Government, 2014); and
- The Highland Council Local Transport Strategy and Local Development Plan (THC).

12.5. The Guidelines for the Environmental Assessment of Road Traffic (IEMA 1993) sets out a methodology for assessing potentially significant environmental effects. In accordance with this guidance, the scope of assessment will focus on:

- Potential impacts (of changes in traffic flows) on local roads and the users of those roads; and
- Potential impacts (of changes in traffic flows) on land uses and environmental resources fronting these roads, including the relevant occupiers and users.

12.6. The main transport impacts will be associated with the movement of general HGV traffic travelling to and from the site during the construction phase of the development.

12.7. The Traffic and Transport Chapter of the Revised Consented Development EIAR will summarise the transport matters associated with the revised

application. The Revised Consented Development will result in changes to the number of vehicles arriving at site as a result of the changes in materials required to construct the wind farm.

12.8. Modifications to track lengths, turbine foundations and other site layout alterations will result in changes in traffic flows during the construction phase and these will be detailed in the chapter, with a new impact assessment of these trips on the network undertaken.

12.9. Each turbine is likely to require between 11 and 13 abnormal loads to deliver the components to site. The components will be delivered on extendable trailers which will then be retracted to the size of a standard HGV for the return journey.

12.10. Detailed swept path analysis will be undertaken for the main constraint points on the route from the port of entry (Scrabster Harbour) through to the site access junction to demonstrate that the turbine components can be delivered to site and to identify any temporary road works which may be necessary.

12.11. Once operational, it is envisaged that the level of traffic associated with the Revised Consented Development would be minimal. Regular monthly or weekly visits would be made to the wind farm for maintenance checks. The vehicles used for these visits are likely to be 4x4 vehicles and there may also be the occasional need for an HGV to access the wind farm for specific maintenance and/or repairs. It is considered that the effects of operational traffic would be negligible and therefore no detailed assessment of the operational phase of the development is proposed.

12.12. The traffic generation levels associated with the decommissioning phase will be less than those associated with the development phase as some elements such as access roads would be left in place on the site. As such, the construction phase is considered the worst-case assessment to review the impact on the study area. An assessment of the decommissioning phase would therefore not be undertaken, although a commitment to reviewing the impact of this phase would be made immediately prior to decommissioning works proceeding.

12.13. The following rules taken from the guidance would be used as a screening process to define the scale and extent of the assessment:

- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and

- Rule 2: Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

12.14. Increases below these thresholds are generally considered to be insignificant given that daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flow below this level predicted as a consequence of the Revised Consented Development will therefore be assumed to result in no discernible environmental impact and as such no further consideration will be given to the associated environment effects.

12.15. The estimated traffic generation of the Revised Consented Development during the construction phase will be compared with baseline traffic flows, obtained from publicly available traffic flow sources for the A9 and A835.

12.16. Sources for this information will include the UK Department for Transport database, Traffic Scotland database and traffic survey data from submitted schemes in the vicinity of the site. The change in traffic volume from the baseline to the construction phase will be used to determine the percentage increase in traffic.

12.17. Traffic accident data would be obtained from Crashmap UK for the study network to inform the accident review for the road study area from the A9 to site for the preceding 3 year period.

12.18. A review between the changes in traffic flow between the Consented Development and the Revised Consented Development will also be undertaken to illustrate the change in impact between the two applications.

12.19. Potentially significant environmental effects will then be assessed where the thresholds as defined above are exceeded. Suitable mitigation measures will be proposed, where appropriate.

Potential Significant Effects

12.20. The assessment will consider the potential effects associated with construction and operation of the Revised Consented Development as detailed below.

12.21. The key issues for consideration as part of the assessment will be:

- The temporary change in traffic flows and the resultant, temporary effects on the study network during the construction phase;
- The physical mitigation associated with the delivery of abnormal loads;
- The design of new access infrastructure; and
- The consideration of appropriate and practical mitigation measures to offset any temporary effects.

12.22. The potential effects of these will be examined in detail. The decommissioning phase of the Revised Consented Development is proposed to be screened out from the assessment.

Approach to Mitigation

12.23. Standard mitigation measures that are likely to be included in the assessment are:

- Production of a revised Construction Traffic Management Plan;

- The design of suitable access arrangements with full consideration given to the road safety of all road users;
- A Staff Sustainable Access Plan; and
- A Framework Abnormal Load Transport Management Plan.

Consultation Proposals

12.24. Consultation with the following stakeholders will be undertaken:

- The Highland Council Transport officers;
- Transport Scotland; and
- Various consultees responsible for reviewing the possible effects of abnormal loads on road structures, including Network Rail and the trunk road agents. These consultations will be undertaken using Highways England ESDAL consultation system.

Key Questions

12.25. The following are what are thought to be the key issues which require consideration by the consultees:

- That the proposed methodology is acceptable?
- That the methods proposed for obtaining traffic flow data are acceptable?
- That the use of Low National Road Traffic Forecasts (NRTF) is acceptable for the whole of the study area to allow the derivation of future baseline conditions?
- What developments should be included as committed developments within the baseline traffic flows in the assessment, noting that these should have planning consent at the time of scoping?
- Details of any upgrades or network changes that may be undertaken to the study area network within the next five years?
- Contact details for roads officers dealing with the application during potential lockdown restrictions.

13. AVIATION, SHADOW FLICKER, INFRASTRUCTURE, TELECOMMUNICATIONS, MAJOR ACCIDENTS AND DISASTERS

Aviation

Baseline Conditions

13.1. Wind turbines reflect radio waves and can therefore interfere with radar. The reflections from the turbines show up on radar as 'clutter' and radar operators are often concerned that wind farm clutter might affect aviation safety. Due to their height, wind turbines could also potentially present a collision risk to low flying aircraft, interfering with military low-level training flights.

13.2. The Defence Infrastructure Organisation (DIO) are responsible for safeguarding Ministry of Defence (MoD) radar, airfields, communications and low flying zones. Consultation will be undertaken with the MoD, however, they raised no objection to the Consented Development.

13.3. Statutory consultees and other relevant non-statutory organisations were consulted as part of the Consented Development 2016 EIA process to identify the baseline conditions and any matters of concern in relation to the Consented Development. No objections to the Consented Development were identified by any of the consultees.

Potential Mitigation

13.4. If an objection is raised by consultees, Infinergy will consult with the operator directly to work towards a mitigation solution agreeable to both parties.

Assessment Methodology

13.5. As the turbine tip heights are proposed to be increased to up to 149.9m, consultation with relevant stakeholders, including the CAA, MoD and NATS Safeguarding will be undertaken regarding lighting requirements and to identify any potential effects.

13.6. If any significant impacts are expected, further studies such as radar impact assessments will be carried out, if required.

Shadow Flicker

Baseline Conditions

13.7. Shadow Flicker is an effect that can occur in sunny weather when the blade of a moving wind turbine cuts through the sunlight passing into a small opening (window) of a property. This effect briefly reduces/blocks the intensity of light within a room and causes a flickering to be perceived.

13.8. Shadow flicker is generally not a disturbance in the open, as light outdoors is reflected in all directions. For shadow flicker to occur, the receptor must be directly in line with a wind turbine when the sun is low in the sky.

13.9. THC's adopted Onshore Wind Supplementary Guidance (November 2016)29 states that a shadow flicker assessment is only required when regularly occupied buildings are located within 11 rotor diameters.

Potential Impacts

13.10. A desk-based mapping exercise has been completed assuming a worst-case rotor diameter of 133 m with a maximum tip height of 149.9 m. This assessment confirmed that no properties would be located within 11 rotor diameters of the turbines and therefore shadow flicker can be scoped out of the EIAR.

Potential Mitigation

13.11. As turbine positions are not to be changed in the Revised Consented Development and the distance to the nearest property is over 11 rotor diameters, no mitigation will be required.

Assessment Methodology

13.12. A detailed shadow flicker assessment will not be required as the separation distances between properties and the proposed wind turbines will eliminate the possibility of any potential impact.

Telecommunications

Baseline Conditions

13.13. The rotating blades of wind turbines have the potential to cause interference and reflectance impacts to microwave links (i.e. mobile telephones) and UHF scanning telemetry communications and television broadcasting.

13.14. In order to establish a detailed baseline, the Office of Communications (Ofcom); the independent regulator and competition authority for the UK communications industries, was consulted in relation to the original proposal. An initial screening exercise did not find any microwave links that end within the proposal site and no links pass over the site area. Four links were identified that end close to the site boundary.

Potential Impacts

13.15. Based on the existing baseline, there are no perceived impacts from the proposal on telecommunications.

Major Accidents and Disasters

13.16. Due to its location, the Revised Consented Development is not prone to natural disasters. Whilst adverse weather conditions, most notably high windstorms, ice producing conditions and lightning strikes, do occur within Scotland, wind turbines are designed to withstand extreme weather conditions. Brake mechanisms, vibration sensors and lightning protection measures for example are installed on turbines allowing them to be operated under optimal conditions and inhibited during extreme weather events.

13.17. The risk of construction accidents as they relate to human health and safety would be detailed and managed through the CDM Regulations and in the CEMP through construction method statements, which will be prepared as a condition of the Revised Consented Development.

13.18. Therefore, the overall risk of health and safety including major accidents and disasters is considered negligible and not significant in terms of the EIA Regulations.

Television Reception

13.19. Digital transmitter powers increase to around ten times previous levels at digital switchover. At the same time, digital signals will have been added to the relay transmitter network. These improvements greatly increase the availability and robustness of digital terrestrial reception. To date, there are no known cases of wind turbine interference with digital television reception post digital switchover.

13.20. Digital UK is the independent, not-for-profit organisation leading the process of digital TV switchover in the UK and provides coverage predictions for digital television. A general rule of thumb indicates that the better the predicted reception, the better the protection against interference. This is currently the most reliable information on signal strength, and hence vulnerability to interference.

13.21. Given the strength of the digital signal in the area and the inherently resilient nature of digital television reception, we consider there is a low risk of any interference from a wind energy development at this location on domestic television reception.

13.22. Due to the low risk of interference with television reception, and as the requirement to address any reception issues once the Proposed Development were operational could be conditioned in planning consent it is not proposed to carry out a detailed assessment of potential effects on television reception.

14. SOCIO ECONOMICS

Introduction

14.1. Wind farms have the potential to have both beneficial and negative effects on socio-economics, tourism and recreation. The 2012 and 2016 Environmental Statements (ES) and 2017 Supplementary Information (SI) did not identify any significant effects for socio-economics, tourism and recreation as a result of the Consented Development.

14.2. This scoping report chapter identifies the potential for significant effects as a result of the Revised Consented Development, considering the receptors as considered in the 2012 and 2016 ES and 2017 SI. Overall, it is anticipated that the effects of the Revised Consented Development would be similar to the effects of the Consented Development.

Site Context

14.3. The Revised Consented Development Site is located 2 km to the south of the Village of Reay and 3 km south/south west of the Dounreay Nuclear Power Station, in Caithness, Highland. The Development Site largely comprises of a commercial coniferous woodland plantation.

Potential Impacts

14.4. Wind farms have the potential to have both beneficial and negative effects on socio-economics, health, tourism and recreation, and land use. Potential beneficial effects include:

- Generation of local jobs through use of local contractors for construction and maintenance;
- Increased spend in the local community during the construction stage and to a lesser degree during the operational stage with workers staying in the area and using local facilities; and
- Community benefits, for example a community benefit fund, or improvements to recreational access for turbine tracks.

14.5. Negative effects of wind farms are often linked to perceptions and attitudes towards wind energy development. There could also be negative impacts on health facilities through an influx of construction workers to the local area and on land use if existing land uses on the Development Site were displaced by the Revised Consented Development.

Potential Mitigation

14.6. Typical mitigation measures are likely to include rerouting of public rights of way or provision of alternative rights of way, done in conjunction with the Highland Council's (THC) rights of way department; timing of public rights of way and/or other recreation closures to avoid holiday periods; public information boards displayed around the Revised Consented Development

outlining the development and access restrictions; micro-siting discussions with landowners, occupiers and local communities. Mitigation can also be linked to that proposed for other disciplines, for example landscape and visual, noise or historic environment to minimise effects during the iterative design phase.

Scope of Assessment

14.7. The scope of the proposed assessment is cognisant of The Electricity Works (Environmental Impact Assessment) (Scotland) Amendment Regulations December 2017 which make it clear that for a variation application relating to an EIA development, further assessment required to inform the application should only consider the impacts of the proposed variation itself and how those differ from those previously identified in the relevant EIA report or ES.

14.8. The assessment will draw upon the baseline information and assessment findings from the 2012 and 2016 applications and updated information where relevant. It is anticipated that the effects of the Revised Consented Development would be similar to the effects of the Consented Development.

The Economy

14.9. It is anticipated that the Revised Consented Development would result in a similar positive effect in terms of direct capital expenditure and employment opportunities during the construction phase to that of the Consented Development. Overall, it is considered likely that the economic and employment effects which are predicted to occur through the Revised Consented Development would result in a not significant effect similar to that of the Consented Development.

14.10. An updated economic assessment would be undertaken. This would include an assessment against the phases of the Revised Consented Development including job creation during the construction phase. Indirect effects (the economic activity generated as a result of purchases in the supply chain) and the induced effects (the effects of spending by households in the local economy as a result of direct and indirect effects from the wind farm activity) would also be assessed.

14.11. Other potential effects to be considered would include the effects of the community benefit fund.

Health

14.12. The chapter would include an assessment of the impacts of a temporary influx of construction workers on local health facilities.

Tourism and Recreation

14.13. The previous assessment concluded that landscape and visual effects would not change tourist activity to a degree that significant effects in respect of visitor numbers or visitor spending would occur.

14.14. An updated assessment of the landscape and visual effects of the Revised Consented Development will be undertaken (see **Chapter 7, Landscape and Visual** for further details). If the conclusions of the landscape and visual chapter suggest that the proposed variation to the Consented Development would result in a significant increase in the magnitude of change experienced by tourism and recreation receptors, further socio-economic assessment relating to these receptors will be undertaken.

Public Access

14.15. There would be a minor improvement in relation to public access as it is no longer intended to close Core Path CA11.03 Limekiln Forest for use as the main access track. This improvement would be highlighted as a beneficial effect from the Revised Consented Development in the assessment.

14.16. All other effects on public access are proposed to be scoped out on the basis that the turbine locations would remain the same as those for the Consented Development and therefore there would be no additional effects on public access beyond those previously considered.

Land Use

14.17. There would be a minor improvement in relation to public access as it is no longer intended to close Core Path CA11.03 Limekiln Forest for use as the main access track. This improvement would be highlighted as a beneficial effect from the Revised Consented Development in the assessment.

14.18. All other effects on land use are proposed to be scoped out on the basis that the turbine locations would remain the same as those for the Consented Development and therefore there would be no additional effects on land use beyond those previously considered.

15. CONSULTATION

15.1. The process of identifying environmental effects is both iterative and cyclical, running in tandem with the iterative design process. Consultation forms an integral role throughout the EIA process.

Scoping Consultation

15.2. The Applicant is fully committed to a thorough engagement process aiming to ensure that communities are consulted and informed of developments during, and beyond, the EIA process on all projects. This is achieved by a variety of methods as appropriate including online communication, meetings and circulars. Public consultation will be incorporated into the iterative design process and recorded in appropriate sections of the Revised Consented Development EIAR. Planning Advice Note (PAN) 81 on Community Engagement provides advice on how communities should be properly engaged in the planning process and forms a basis for potential activities.

15.3. The scoping consultation list for the Revised Consented Development is provided in Appendix C.

15.4. Comments are specifically invited on:

- The proposed content of the EIAR;
- Assessment methods;
- Additional data sources; and
- Additional consultees.

15.5. In terms of the proposed content of the EIAR it should be emphasised that one of the aims of this scoping report is to scope out any issues which are known not to be significant from further consideration and to highlight and focus on the main issues which should be assessed within the EIAR.

Public Consultation

15.6. Infinergy has been working in the local area developing the original Limekiln Wind Farm and Limekiln Wind Farm Extension and has a well-established relationship with the local community, communicating regularly during these processes. Infinergy will continue to undertake consultation activity which will comply with the requirements of meaningful community engagement as outlined in SG PAN 3/2010. The Highland Council's advice, 'Pre-Application Consultation: A Guide for Communities' will also be used to design the consultation process.

15.7. The purpose of community engagement and consultation is to explain to local people and businesses, elected and community representatives:

- the Wind Farm proposal – number of turbines, size, scale, location;
- the potential benefits of the Revised Consented Development; and

- to gather and consider views and comments of all stakeholders in finalising the design and layout of the Revised Consented Development ahead of the S36C application being submitted.

15.8. Adhering to Scottish Government Guidance: Coronavirus (COVID-19): development planning consultation and engagement advice - May 2020 consultation activity will include:

- Offering to meet with and present to representatives of the Caithness West community council or other appropriate community groups, the proposed changes to the wind farm, whether virtually or in person;
- Email updates and/or virtual meetings with local elected representatives for the local council ward and Scottish Parliament constituency;
- Newsletter distribution in the surrounding area, providing project information, advertising consultation events and providing direction to feedback mechanisms;
- Up to two rounds of public exhibitions (whether virtual or in person), advertised in local papers (commercial and community run) as well as via the newsletters, the project website and via appropriate social media channels;
- Freepost comment cards at all live public events;
- A project website www.limekilnwindfarm.co.uk and email service for enquiries about the proposal and exhibitions, with downloadable PDFs of the exhibition panels and all project documents; and
- Press releases (which will also be posted on the project website) sent to local media at key milestones, such as introducing the project and exhibitions.

15.9. All the feedback received will be considered during the development process and a Statement of Community Consultation Report will be included as part of the full application documentation.

APPENDIX B - TURBINE COORDINATES

Turbine No.	Grid Ref.	Turbine Tip Height (m)
22	NC 98458 61951	149.9
23	NC 98785 61581	149.9
25	NC 96988 61338	149.9
26	NC 97552 61453	149.9
27	NC 98118 61260	149.9
30	NC 99161 61256	149.9
31	NC 97093 60848	149.9
32	NC 97731 60965	149.9
33	NC 98265 60800	149.9
35	NC 98659 61115	149.9
36	NC 99273 60738	149.9
42	NC 97270 60386	149.9
43	NC 97751 60475	149.9
44	NC 98367 60322	149.9
51	NC 98779 60595	149.9
54	NC 97607 60006	149.9
55	NC 98078 59956	149.9
56	NC 98809 60117	149.9
57	NC 99328 60196	149.9
60	NC 98510 59713	149.9
61	NC 99015 59669	149.9

APPENDIX C - CONSULTEE LIST

Competent Authority
The Scottish Government ECU

Statutory Consultees
The Highland Council
SEPA
NatureScot
Historic Environment Scotland

Internal Scottish Government Advisors
Transport Scotland
Marine Scotland
Scottish Forestry

Non-Statutory Consultees
British Horse Society
BT
Caithness DSFB
Civil Aviation Authority - Airspace
Crown Estate Scotland
Defence Infrastructure Organisation
Fisheries Management Scotland
Flow Country Rivers Trust
Health and Safety Executive
Highlands and Islands Airport
John Muir Trust
Joint Radio Company
NATS Safeguarding
Mountaineering Scotland
Nuclear Safety Directorate (HSE)
Office for Nuclear Regulation
RSPB Scotland
Scottish Water
Scottish Rights of Way and Access Society (ScotWays)
Scottish Wild Land Group (SWLG)
Scottish Wildlife Trust
Visit Scotland

Relevant Community Councils, Village Councils, Village Groups
Caithness West Community Council
Reay Area Windfarm Opposition Group