

PROPOSED BALMEANACH WIND FARM

Environmental Impact Assessment Scoping Report

Prepared for: **Balmeanach Wind Farm Limited**

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1.0 Introduction

1.1 Overview

Balmeanach Wind Farm Limited intends to apply to The Highland Council (THC) for planning permission to develop a wind farm (the proposed development) sited primarily on the Bracadale Estate, on the Balmeanach and Caroy Common Grazings, and partly on the Coishletter Estate approximately 3km to the south of Edinbane¹, and approximately 6.5km to the east of Dunvegan on the Isle of Skye. The centre of the Site is at NGR 133515, 846005 (Figure 1).

It is anticipated that the proposed development would comprise up to 10 wind turbines (Figure 2a-b) with associated infrastructure including transformers, crane hardstands, access tracks, cabling, borrow pits and a single substation including control building and battery storage. It is proposed that the blade tip height of the turbines would be up to 149.9m.

It is the intention to submit an application for planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended). It is anticipated that the proposed development would have a generation capacity exceeding 20MW but less than 50MW and therefore would be classed as a Major development² under the Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009.

SLR Consulting Limited (SLR) has been appointed to undertake a Scoping study and prepare this Scoping Report to accompany a request to THC to adopt a Scoping Opinion under Regulation 17 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations).

A pre-application advice meeting was held with THC and NatureScot (formerly SNH) on 10 March 2021 to discuss the proposed development and anticipated planning application submission. A pre-application advice pack (ref: 21/00638/PREMAJ) was received on 06 April 2021. Further to the pre-application advice, a design workshop was held with THC planners and landscape architect on 22 July 2021 to discuss the various layout options for the scheme. This was followed up by some additional comments received by email from THC on 08 September 2021. The feedback provided during both processes has been used to inform this Scoping Report.

The findings of the Environmental Impact Assessment (EIA) process will be used to inform the final design of the proposed development and assess its predicted environmental effects. The results of the EIA will be presented in an Environmental Impact Assessment Report (EIA Report) that will be submitted with the application for planning permission to THC.

1.2 Purpose of the Scoping Report

Undertaking an EIA Scoping Study is regarded as good practice³ and is considered to be an important step in EIA as it allows all parties involved in the process to agree on key environmental issues relevant to the proposed development and to agree on the methodology used for their assessment. The scoping stage seeks to engage the planning authority and other stakeholders at an early stage in the planning process; and ensures that key opinions, based on local understanding, are identified.

The specific aims of this Scoping Report are to:

- identify the technical subject areas that may be subject to significant environmental effects as a result of the proposed development proceeding and therefore require further study;

¹ Distance measured from the centre of Edinbane to the Site boundary and consistently referred to throughout this document

² Regulation 2(1) – 4 Electrical Generation of the Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009

³ SNH and HES (2018) A Handbook on Environmental Impact Assessment 5th Edition

- identify the technical subject areas that are unlikely to be subject to significant environmental effects and can be scoped out from further study;
- provide a basis for a consultation process to agree the scope and content of the EIA with THC;
- provide a basis for agreeing methodologies for undertaking required studies with THC, based upon currently available baseline data, Site characteristics and best practice in individual technical disciplines; and
- provide all statutory consultees and stakeholders with an opportunity to comment on the proposed development at an early stage.

In making its formal Scoping Opinion, under Regulation 17(4)(a) of the EIA Regulations, THC must consult with a number of consultees and incorporate their views within the Scoping Opinion.

Upon receipt of the Scoping Opinion, the EIA process will continue and will lead to the preparation of an EIA Report which will accompany a planning application, paying due cognisance to the findings and responses received during the Scoping Study.

1.3 Notice of Intention

Balmeanach Wind Farm Limited hereby gives THC notice in writing that it intends to make a planning application (as detailed above), and to accompany such an application with an EIA Report.

This notice, made pursuant to Regulation 17 of the EIA Regulations, includes information necessary to identify the location, the nature and purpose of the proposed development, and indicates the main environmental consequences to which the prospective applicant proposes to refer to in its EIA.

1.4 The Applicant

The applicant for the Balmeanach Wind Farm will be Balmeanach Wind Farm Limited. The project is being developed by Wind 2 Ltd (Wind2) on behalf of EDP Renewables (EDPR).

Wind2 is a specialist onshore wind farm developer which was formed in 2016. Its directors have considerable experience in the development of onshore wind farms, particularly in the Highlands, being responsible for some 700MW of the current operating capacity in the UK. Wind2 with EDPR recently consented the nearby Ben Sca Wind Farm and its Extension.

EDPR is a global leader in the renewable energy sector and the world's fourth-largest renewable energy producer. EDPR is currently present in the United Kingdom and internationally in other 27 markets (Belgium, Brazil, Cambodia, Canada, Chile, China, Colombia, France, Greece, Germany, Hungary, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, Poland, Portugal, Romania, Singapore, Spain, Taiwan, Thailand, United Kingdom, United States and Vietnam).

Further information on EDPR and Wind2 can be found on the individual corporate websites at www.edpr.com/en and www.wind2.co.uk respectively.

1.5 SLR Consulting Limited

SLR is a Registered Environmental Impact Assessor and Member of the Institute of Environmental Management and Assessment (IEMA) and holder of the EIA Quality Mark (<http://www.iema.net/qmark>). SLR is also a Registered Organisation validated by the Institute for Archaeologists (IfA), a member of the Association of Geotechnical and Geoenvironmental Specialists, and a Landscape Institute (LI) Registered Practice.

The company has significant experience and expertise in the preparation of planning applications and undertaking EIA for a wide variety of projects. SLR's environmental specialists, have the skills and relevant competency, expertise and qualifications to undertake EIA for the proposed development.

Further information on SLR can be found on the corporate website at www.slrconsulting.com

1.6 Report Structure

Following this introductory section, the remainder of this Scoping Report comprises the following sections:

- Section 2.0: Site and Surroundings
 - describes the location, setting and physical characteristics of the Site and describes baseline features in and around the Site;
- Section 3.0: Proposed Development
 - provides an outline of the proposed development;
- Section 4.0: Scoping the EIA
 - provides detail on the approach to scoping the EIA, sets out the process of Scoping consultation and describes the specialist studies that will be undertaken to assess the impact of the proposed development on the environment, and a reasoning why certain aspects have been scoped out of the EIA;
- Section 5.0: Planning Policy and Guidance
 - refers to the policy and guidance to be considered;
- Section 6.0 - 13.0: Specialist environmental studies that are proposed to be undertaken
 - describes the specialist environmental studies that are proposed to be undertaken to assess the potential significant impacts of the proposed development on the environment and where relevant notes those aspects to be scoped out of assessment;
- Section 14.0: Other Environmental Issues
 - describes the environmental topics which are considered not likely to experience significant effects and are therefore proposed to be scoped out of the EIA; and
- Section 15.0: Invitation to Comment
 - provides contact details for responding to or discussing any matters contained within this Scoping Report in greater detail prior to responding to the Scoping exercise.

2.0 Site Context

2.1 Site Location and Surroundings

The Site, centred on NGR 133515, 846005, is located in the north west of the Isle of Skye, on the Balmeanach and Caroy Grazings within THC administrative boundary (Figure 1). The Site of approximately 680ha⁴ is located on moorland and grazing land approximately 3km to the south of the settlement of Edinbane and approximately 6.5km east of the settlement of Dunvegan.

It is proposed that access to the Site would be via the existing Ben Aketil Wind Farm access track from the A850, and then via the proposed Ben Sca Wind Farm Site access track; and this is included within the proposed red line boundary (Figure 2c). The current red line boundary also includes additional ground to the northwest outwith the proposed turbine envelope to allow for flexibility for carrying out habitat management if required.

The proposed Site lies within an upland landscape that is characterised by a series of smooth moorland slopes incised by small watercourses. The land is grazed by sheep and deer. To the south, an area of forestry covers the lower slopes of Beinn a' Chleirich, to the east of the crofting township of Balmeanach.

Topography ranges from approximately 155m above ordnance datum (AOD) to 283m AOD with the northern extent of the proposed Site forming the most elevated part along the ridge between Ben Aketil (266m AOD) and Ben Sca (283m AOD).

The An Cleireach Site of Special Scientific Interest (SSSI) is located directly to the southeast of the Site boundary and is cited due to its geological importance. No infrastructure is proposed within the SSSI. There are no environmental or landscape designations identified within the Site (Figures 3 and 5).

The surrounding area is rural in nature, with land predominantly used for grazing and forestry. There are several residential properties and crofts located to the south and south west of the Site which extend down to the A863 and Loch Caroy; the closest being approximately 1.5km from the nearest proposed turbine.

There are two nearby operational wind farms, Ben Aketil and Edinbane Wind Farms, the nearest turbines of which are approximately 750m to the north west and 70m to the east of the Balmeanach Site boundary respectively.

2.2 Cumulative Context

The following operational and consented are located within 5km of the proposed development as shown on Figure 4:

- Edinbane Wind Farm⁵ – operational (18 turbines at 100m to blade tip height);
- Ben Aketil Wind Farm⁶ – operational (12 turbines at 100m to blade tip height);
- Ben Sca Wind Farm and Extension⁷ – consented (nine turbines in total; seven at 135m to blade tip height and two at 149.9m to blade tip height); and
- Glen Ullinish Wind Farm⁸ – consented (11 wind turbines at 149.9m to blade tip height). Glen Ullinish II Wind Farm (which would replace Glen Ullinish) is currently being scoped with ECU, with 59 turbines up to 200m to blade tip height.

⁴ Total Site boundary area

⁵ Edinbane Wind Farm became operational in 2010.

⁶ Ben Aketil Wind Farm was developed in two phases: Phase 1 became operational in 2007 and Phase 2 became operational in 2010.

⁷ Ben Sca Wind Farm was consented in November 2020. Ben Sca Wind Farm Extension was consented in April 2022.

⁸ Taller turbines of 149.9m consented in October 2020.

3.0 Proposed Development

3.1 Design Development

A considerable amount of design work has already been undertaken for the proposed development. A landscape and visual feasibility study was completed, which informed the design presented during the pre-application consultation undertaken with THC in March 2021.

Different layouts were examined from key design viewpoints to assess and optimise the number, size and layout of the proposed turbines in relation to the landform of the Site and surrounds as well as adjacent wind farm development. In response to this, turbines that were initially proposed in more elevated parts of the Site were removed.

The proposals presented at the pre-application meeting comprised an irregular layout that was broadly consistent with the southern part of Edinbane Wind Farm. THC expressed reservations about this layout rationale in the pre-application advice received since the general wind turbine development pattern in the area follows a linear form along ridgelines.

Subsequently, various layout options were discussed with THC at a design workshop in July 2021 and comments received in response to this have been taken into account. The feedback received included a shift in the core turbine envelope to the north/north east, utilising available land to the north and removing turbines in the south westerly part of the Site.

Consequently, the current proposed layout comprises up to 10 turbines, which has been determined by taking into consideration the feedback received through the pre-application consultation process, maximising project benefits and efficiencies consistent with the grid capacity available, increasing renewable energy generation and offsetting of CO₂ carbon emissions. The design objectives for the Site will be refined and used to evaluate further layout iterations which will continue to take account a range of environmental and technical considerations to create a final optimised layout for the planning submission.

Work is ongoing in relation to the Site design and layout, however, this is not expected to alter the scope of or approach to the assessment and therefore the scoping process is taking place in parallel to the further design review. The design optimisation and iteration process from initial feasibility through to the final design will be reported and illustrated in the EIA Report and Design and Access Statement.

3.2 Proposed Development

It is currently anticipated that the proposed development would consist of up to 10 wind turbines with a tip height of up to 149.9m (Figure 2a and 2b). The key elements of the proposed development are summarised as follows:

- a network of on Site access tracks and associated watercourse crossings and drainage;
- crane hardstands adjacent to each turbine and associated drainage;
- foundations supporting each turbine location;
- power cables linking the turbines laid in trenches underground;
- one permanent and one temporary anemometry mast, including associated foundations and hardstandings;
- borrow pit search areas;
- a substation compound including a control building;
- a Site construction compound (with potential for possible battery storage), laydown areas and car park.

Based upon the proposed maximum turbine tip height it is anticipated that the installed nominal capacity of each turbine will be approximately 4.5MW, giving an estimated total generation capacity of up to 45MW.

3.2.1 Wind Turbines

An indicative layout of 10 turbines is shown on Figure 2a with proposed coordinates provided in Table A1, Appendix A. Each wind turbine would be served by its own electrical transformer. A candidate turbine manufacturer and 'worst case' model will be selected for each technical and environmental discipline for the purposes of the EIA. A competitive procurement process would be undertaken, should consent be forthcoming and prior to construction, to select the final turbine that would be installed on Site. The final wind turbine selected would have a tip height of up to 149.9m.

The specification of the wind turbine would be a typical horizontal axis design, comprising of three rotor blades, a hub and a nacelle. The tower would be tubular and tapered in design and finished in a light grey semi-matt colour.

3.2.2 Grid Connection

Initially a connection point at Dunvegan was proposed, however it is now anticipated that connection can be made at a new substation Edinbane Grid Supply Point (GSP), proposed to the south east of the Site. Edinbane Grid Supply Point (GSP) is anticipated to be delivered as part of upgrade works to the electricity grid from Fort Augustus to the Isle of Skye, currently in progress. The works are expected to be completed in 2025, allowing the project connection to the grid in 2026/2027.

The precise route of cabling from the on Site substation to the connection point has not yet been determined and would be subject to a separate application. A new grid application would be required to determine current viable options which will be made during the EIA process. The likely options will be considered whilst the EIA is being undertaken. Assessment of the route of the grid connection is, however, outwith the remit of this Scoping Report.

The proposed development would be connected to the electricity network via an on Site substation and control building. This is likely to be located on the approach to the turbine area in the north of the Site; and would be a single storey building with a pitched roof housing switchgear and metering, protection and control equipment.

3.2.3 Battery Storage

Energy storage such as batteries is being considered for inclusion as part of the proposed development. Battery storage would comprise a number of units with ancillary equipment such as inverters. The batteries would store excess power generated by the proposed development and release the power to the grid when the output from the proposed development falls due to decreased wind speed.

The applicant will consider the prospective long-term use of the energy produced, in order to accommodate the requirements of a decarbonised energy provision. The application will include detail on how the development is likely to contribute to the Scottish Government Energy Efficient Scotland roadmap, including providing clean and secure electricity to the Highlands. In addition to considering battery storage, the potential for generation of alternative fuels, including hydrogen, will be explored.

3.2.4 Access

It is anticipated that wind turbine components would be delivered to the Site using the existing public road network, delivered from the port of Kyle of Lochalsh. The approach to the Site for wind turbine components would be via the existing Ben Aketil Wind Farm access track from the A850, and then via the proposed Ben Sca Wind Farm Site access track.

A new spur would be created from the proposed Ben Sca Wind Farm access track, around the northern edge of Ben Sca (or to the western side of Ben Sca) to where turbines would be located (Figure 2c).

Alternative access options are also being explored which would allow access from the wider public road network to the south west of the site.

3.3 Construction Works

Commencement of construction of the proposed development would coincide with grid availability, with significant upgrades to the electricity grid between the Isle of Skye and Fort Augustus expected to be completed by 2025 to allow connection by 2026/2027. The duration of the construction works for the proposed development would be approximately 18 months.

3.4 Wind Farm Lifecycle and Decommissioning

Once constructed it is anticipated that the proposed development will have an operational life of up to 30 years.

At the end of the operational life, the proposed development will either be decommissioned or an application may be submitted to repower the Site. The decommissioning period will likely take up to one year. Decommissioning effects will likely be similar to those to be assessed during construction.

The final decommissioning approach will be agreed with THC and other appropriate regulatory authorities in line with best practice guidance and requirements of the time. This would be completed through the preparation and agreement of a Decommission and Restoration Plan (DRP). Financial provision for the decommissioning would be provided for.

Over the period of operation of the wind farm it is recognised that there are likely to be changes in legislation and guidance, environmental designations, the status/condition of sensitive environmental receptors and stakeholder objectives that may affect decommissioning and restoration methodologies. The detailed DRP would reflect the scientific ideas and best practice current at the time of decommissioning and restoration.

Therefore, an assessment of the decommissioning of the proposed development will not be undertaken as part of the EIA, as at this stage the future baseline conditions cannot be predicted accurately and both the proposals for refurbishment/decommissioning and the future regulatory context are unknown. Decommissioning is, therefore, scoped out for all environmental topics and is not discussed further.

4.0 Scoping the EIA

4.1 Introduction

The EIA Directive (2014/52/EU) was transposed into the current EIA Regulations on 16 May 2017. The EIA will be undertaken in accordance with the EIA Regulations, Circular 01/2017 (Scottish Government, 2017), the best practice guidelines of the Institute of Environmental Management and Assessment (Guidelines for Environmental Impact Assessment) published in 2004 and the SNH (now NatureScot) Handbook on EIA 2013 (updated 2018).

The principal purpose of the EIA will be to assess in a systematic manner the potential significant environmental effects of the proposed development. Throughout the process of undertaking the EIA, the results obtained will be used in an iterative manner to influence the design of the proposed development, in order that any significant, detrimental environmental effects can be designed out (embedded mitigation), minimised or negated completely through the careful design and approach to mitigation.

4.2 Approach to Scoping

This Scoping Study has mainly been based upon a desk-based appraisal, consideration of datasets from a variety of sources including Ordnance Survey mapping, Development Plans, information on the proposed development supplied by Wind2 and application documents (including environmental assessments) submitted for nearby wind farm schemes including Ben Sca, Ben Aketil, Edinbane and Glen Ullinish Wind Farms. The desk-based appraisal has been complemented by the use of Geographic Information System (GIS) technology to collate and identify potential environmental receptors and environmental designations that may be affected by the development. The GIS datasets comprise details of ecologically important sites, sites of archaeological and/or cultural heritage importance, landscape designations and other important receptors (houses, watercourses etc). The potential receptors and designated site that have been identified are shown on Figures 3, 5 and 13.

The findings of the desk-based work and the GIS work have been augmented by some Site reconnaissance and survey work, as well as discussion with consultees (including pre-application advice). Site work to date has included a Phase 1 habitat and National Vegetation Classification (NVC) Survey, protected mammal survey, fish habitat survey, bat activity surveys, bird surveys, archaeological survey, initial peat depth survey and landscape design visit to key receptors.

4.3 Potential Environmental Effects

The EIA Regulations (Regulation 4 (2), (3) and (4)) specify that the EIA must:

“(2) identify, describe and assess in an appropriate manner, in light of the circumstances relating to the proposed development, the direct and indirect significant effects of the proposed development (including, where the proposed development will have operational effects, such operational effects) on the factors specified in paragraph (3) and the interaction between those factors.

(3) The factors are —

(a) population and human health;

(b) biodiversity, and in particular species and habitats protected under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora(a) and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds;

(c) land, soil, water, air and climate; and

(d) material assets, cultural heritage and the landscape.

(4) The effects to be identified, described and assessed under paragraph (2) include the expected effects deriving from the vulnerability of the development to risks, so far as relevant to the development, of major accidents and disasters.”

Previous experience of other wind farm development sites, combined with the EIA requirements, pre-scoping consultation, the knowledge of the Site and possible effects of the proposed development, has led to the identification of the following topics for consideration in the EIA. A summary of known baseline conditions of relevance, predicted effects, any outline mitigation measures that can be recommended at this stage and the proposed scope for the EIA is provided for each of the following topic areas in Sections 6.0 to 14.0 of this Scoping Report:

- Landscape and Visual;
- Ecology;
- Ornithology;
- Hydrology and Soils;
- Archaeology and Cultural Heritage;
- Noise and Vibration;
- Site Access, Traffic and Transport;
- Socio-economics, Tourism, Recreation and Land Use; and
- Other Environmental Issues.

For each topic that is identified as requiring further study, a detailed technical assessment will be carried out in accordance with the scope and methodology agreed with relevant consultees. Each technical assessment will be carried out by an appropriately qualified consultant to prevailing technical and professional standards and reported in a dedicated EIA Report Chapter.

The technical assessments will provide a detailed assessment of potential impacts, identification of mitigation measures and description of the significance of residual effects (those remaining after the mitigation measures have been implemented). The EIA will identify direct and indirect effects, positive (beneficial) and negative (adverse) effects, and seek to identify, as far as possible, the duration of such effects, whether short term, long term, permanent, temporary, periodic, etc. during the construction and operational phases of the proposed development. The results of each technical assessment will be reported in the EIA Report and will be accompanied by technical appendices and illustrative material where reasonable. A Non-Technical Summary will be produced.

4.4 Consultation

4.4.1 Pre-Scoping Consultation

Wind2 and SLR attended a virtual pre-application advice meeting with THC and NatureScot on 10 March 2021 to discuss the proposed development and anticipated application for consent. A pre-application advice pack (ref: 21/00638/PREMAJ) was received from THC on 06 April 2021. This information has been used to inform the Scoping Report.

Key issues raised by THC and other key stakeholders, as a result of the pre-application meeting, for consideration in the design and scope of the EIA are included under each of the topics in Sections 6.0 to 14.0 as appropriate.

4.4.2 Design Workshop

A design workshop was held with THC planners and landscape architect on 22 July 2021 to discuss various turbine layout options for the scheme. This was followed up by some further layout options being explored and additional comments were received by email from THC on 08 September 2021 in response to the various options at that time. The feedback provided has been used to inform the current turbine layout and will be further considered as the design of the project evolves.

It should be noted that since the pre-application consultation the proposed turbine envelope has been moved northwards in response to design advice and constraints.

4.4.3 Scoping Consultation

This Scoping Report is issued to THC, who will then consult with key consultees and stakeholders before forming their Scoping Opinion.

The purpose of the consultation is to identify:

- key local issues and concerns;
- issues of environmental importance that may be affected by the proposed development and need to be considered in an EIA;
- existing information that will be of assistance in the assessment of the environmental effects; and
- the need for further consultation.

4.4.4 Public Consultation

Consultation on the project will be a mix of online/virtual and in-person, commencing in the Summer of 2022. In line with current Scottish Government guidance, a first virtual public exhibition event is planned for Autumn 2022 (the current guidance states that this may either be virtual or in person with adequate precautions) and a further second public exhibition event planned for the latter part of 2022. The first exhibition will be an opportunity for the public to learn about the proposed development through online information panels and visualisations. Feedback on the proposed development will be encouraged; and where received, will be taken into account in development of the design and EIA. The second exhibition will provide the public with an update on progress and provide further details about the proposed conceptual design of the wind farm, an update on the EIA, and further information on community benefits and submission timescales.

Initial informal discussion with the community councils and Development Trusts in the vicinity of the project will be undertaken in the coming weeks, prior to any public exhibition event.

A proposal of application notice (PAN) will be submitted to THC to confirm the details of the proposed public consultation activities.

4.4.5 Scottish Government Consultation

The Scottish Government, as a major landowner on the island are keen to coordinate the wind farm development in the northwest of the Isle of Skye in order to discuss options for the effective distribution of community benefit. The Scottish Government has initiated a collaborative working group made up of the wind farm developers in the area; and Wind2 are actively involved in these discussions.

5.0 Planning Policy and Guidance

The Town and Country Planning (Scotland) Act 1997, as amended, requires that in determining applications for planning permission a Planning Authority must determine in accordance with the development plan, unless material considerations indicate otherwise. In the EIA Report, a planning policy chapter will set out the policy context. The pre-application consultation confirmed the relevant planning policy context and, therefore, this has not been set out in detail again here.

It is worth noting that since the pre-application consultation, Draft NPF4 has been published setting out an overarching spatial strategy for Scotland until the period to 2045. It is based upon two previous rounds of consultation which identified as a key theme the need for a rebalancing of the planning system so that climate change is a guiding principle for all future plans and decisions. As expected, the urgency of the need to tackle climate change and the fundamental role of the planning system in delivering the radical change required to tackle and adapt to climate change is therefore a central focus for much of the draft NPF4.

Within the spatial strategy, the draft NPF4 identifies that there will be significant climate challenges for the North and West Coastal Area (which includes the Isle of Skye), stating that the *“island and coastal ecosystems, and the communities they support, are naturally more vulnerable to the effects of climate change, sea levels rise and extreme events”*. If action is not taken, it concludes that these *“island and coastal communities could suffer disproportionately from the impacts of climate change.”*

Whilst being more vulnerable to climate change, the draft NPF4 identifies that North and West Coastal Area has significant opportunities to capitalise on its natural assets to significantly reduce greenhouse gas emissions through increased renewable energy generation. In addition to tackling climate change, the draft NPF4 identifies that such development also has the potential to bring opportunities to strengthen local communities, build community wealth and secure long-term sustainability.

Under national development 12, which identifies that renewable energy generation developments of or exceeding 50MW capacity are now proposed to be national developments, the draft NPF states that *“a large increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets.”* Although the proposed development will be less than 50MW and will therefore not meet the generational criteria for being a national development, the inclusion of renewable energy projects as a national development nonetheless clearly establishes beyond any reasonable doubt the strengthened need case for their continued development. With regard to the wide range of renewable energy technologies available to contribute towards meeting targets, the draft NPF4 identifies that *“it is likely that the onshore wind sector will play the greatest role in the coming years.”*

In terms of national planning policy, a key new policy is Policy 2: Climate Emergency. This draft policy requires that *“significant weight should be given to the Global Climate Emergency”* when considering all development proposals. The addition of this policy is reflective of the increased prominence and weight which the Scottish Government now expect to be given to the climate emergency in all planning decisions.

With specific regard to onshore wind, draft Policy 19: Green Energy provides that development proposals outwith National Parks and National Scenic Areas should be supported *“unless the impacts identified (including cumulative effects) are unacceptable.”* When determining the acceptability or otherwise of wind farm proposals, draft Policy 19 retains the criteria from paragraph 169 of the current SPP for assessing individual proposals on a case-by-case basis.

A Planning Statement will accompany the planning application and will provide an assessment of the extent to which the proposed development accords with THC’s adopted Local Development Plan and material considerations.

6.0 Landscape and Visual

This section considers the scope of work required to assess potential significant effects on landscape fabric, landscape character and visual amenity during the construction and operational phases of the proposed development. These will be assessed as part of the Landscape and Visual Impact Assessment (LVIA).

6.1 Consultation

Comments raised in the pre-application consultation with regards to potential landscape and visual issues are as follows:

- the potential landscape and visual impact and in particular how the development relates to the numerous operational and consented wind farms in the locality. In this regard the proposed 'organic layout' is considered to dilute the design mitigation which has been consistently sought by THC within the adjacent operational and consented schemes;
- in its present form the proposed development is likely to result in significant and adverse cumulative impacts on perception of landscape character and visual resource which THC may not be able to support;
- the design layout should adhere to HwLDP Policy 61 (Landscape) which requires new development to reflect the landscape characteristics and special qualities of the LCAs;
- identification of visual receptors and landscape impacts and how they relate is important;
- sensitive receptors should include residents and visitors to the area, with receptor locations particularly including areas of settlement, transport routes and visitor and recreational attractions and routes;
- pages 18-20 of the Onshore Wind Energy Supplementary Guidance (OWESG) list ten landscape and visual criteria that THC will use as a framework for assessing proposals and of particular note are criterion 6,7 and 9 relating to cumulative design and effects. Currently THC do not believe the proposed development complies well with these criteria;
- it is highly recommended that a new design approach be sought, with close attention paid to the criteria within the OWESG;
- a clear design iteration log is recommended to understand the development of the design rationale;
- opportunities to share existing infrastructure should be explored and where opportunities are not taken, a reasoned justification should be provided;
- THC intend to produce a Landscape Sensitivity Appraisal for the Isle of Skye in due course although work is not anticipated to start on this until late 2021 or in 2022; and
- the location and number of the viewpoints presented was generally supported, however, it was recommended to include a viewpoint on the ferry route as well as at the terminal.

Supplementing the pre-application consultation, further consultation has been and will continue to be undertaken with THC and NatureScot in order to identify and agree the key matters to be addressed in the LVIA and the proposed approach to design development and mitigation will be explained.

Further consultations will be carried out with THC to agree the scope of the cumulative assessment and identify wind farms that are relevant to the identification of significant cumulative effects from the proposed development. The viewpoint selection was discussed as part of the initial pre-application consultation and during the design workshop and evolved to take account of the comments received. It is therefore suggested that the viewpoints detailed below comprises the final selection for inclusion in the LVIA.

6.2 Environmental Baseline and Potential Sources of Impact

6.2.1 Baseline

The site is located on hilly ground between the settlements of Edinbane and Dunvegan in the north west of Skye. The site lies on the moorland slopes to the south east of the ridge that comprises Ben Sca and Ben Aketil. The site forms part of the hill backcloth that surrounds lower-lying, coastal and settled landscapes to the north, west and south.

The proposed development would be located between two existing wind farms: Edinbane to the east and Ben Aketil to the north west. Edinbane Wind Farm comprises 18 wind turbines at 100m to tip which are arranged in an irregular layout and at different elevations within an area of variable slopes. Ben Aketil Wind Farm, in contrast, comprises a simple line of 12 wind turbines that run along a ridge north west to south east. Its wind turbines are the same height as those of Edinbane Wind Farm. It also lies to the south of the consented Ben Sca Wind Farm (seven wind turbines, 135m to tip) and the associated two turbine extension (149.9m to tip) which comprises a line of turbines to the north west of the Ben Sca summit.

Landscape baseline conditions comprise the NatureScot Landscape Character Types (LCT)⁹. Taking these LCTs as a starting point, the LVIA would focus on the key landscape characteristics that are relevant to the proposed development and upon which there are most likely to be significant landscape effects. There are no landscape designations within the Site but the proposed development would be visible from several designated areas, including National Scenic Areas (NSAs), Special Landscape Areas (SLAs) and Wild Land Areas. The key LCTs and designations in the context of the Site and their likely relevance to the LVIA are outlined in the Method of Assessment and Reporting Section below.

Key visual receptors (people) in the landscape surrounding the Site comprise the residents of settlements and dispersed properties, road users, people walking through the landscape (using footpaths, Core Paths and visiting summits) and recreational visitors to attractions in the surrounding area. These are described in the Method of Assessment and Reporting Section below, which also identifies the viewpoints that are proposed to be included in the LVIA.

6.2.2 Potential Sources of Impact

The proposed development would have a direct impact on the landscape fabric or physical elements of the landscape on the Site due to the removal or alteration to the vegetation and other land cover to accommodate the various components of the proposed development. The main source of landscape and visual impacts from the proposed development would be the appearance of the turbines from the surrounding landscape resource and in views obtained by people in the surrounding area. The effect of other elements of the proposed development which may be visible from the surrounding area, such as the access tracks, borrow pits and substation will be assessed.

The following identifies potential effects of the proposed development which will be assessed in detail in the EIA Report:

- effects of the proposed development in relation to the landscape features and elements within the Site;
- the effects of ancillary elements including access roads, crane hardstands, substation and borrow pits;
- effects of the proposed development on the key characteristics of Landscape Character Types (LCTs) located within the study area;

⁹ Scotland Digital National Landscape Character Assessment, SNH (2019)

- effects upon the special qualities of the national, regional and local landscape designations within the study area;
- effects upon the Duirinish and Cuillin Hills Wild Land Areas;
- effects on views and visual amenity of residents of the nearby settlements, including Balmeanach, Edinbane, Greshornish, Flashader and Roag;
- effects on views from public roads such as the A850, A863 and A87; and
- effects upon views from long-distance footpaths as well as Core Paths and summits within the Cuillins, Trotternish and Duirinish hill ranges.

The potential effects will be considered in the context of those arising from the proposed development on its own, where only Balmeanach would be visible, as well as cumulatively. The cumulative LVIA will be carried out in the context of firstly, Balmeanach in addition to existing and consented wind energy developments within the study area, and, secondly, Balmeanach with existing and consented turbines as well as proposed wind energy developments within the same study area.

6.3 Method of Assessment and Reporting

6.3.1 LVIA Methodology

The LVIA will be prepared by experienced landscape architects in accordance with current guidance. The LVIA will concentrate on the potential effects that the proposed development may have on the landscape and visual resources of the study area during the operational stage. Construction will also be considered, but it is expected that the assessment of this will be more limited. The LVIA will focus on the potentially significant effects and accordingly, non-significant effects which it is proposed to scope out of the detailed LVIA are identified in this Scoping Report. The LVIA will outline the approach taken to the design of the proposed development as well as mitigation measures that will be implemented to prevent, reduce, or offset potential adverse landscape and visual effects.

The LVIA will be undertaken to assess the potential effects of the proposed development on the landscape resource and visual amenity within a 40km radius study area and to identify significant effects. The assessment will address potential cumulative landscape and visual effects.

Wherever possible, identified effects will be quantified, but the nature of landscape and visual assessment requires interpretation by professional judgement. In order to provide a level of consistency to the assessment, landscape sensitivity to change, the prediction of magnitude of impact and assessment of significance of the residual effects will be based on pre-defined criteria identified in guidance provided in the *Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3)*. These criteria have been refined for the purposes of wind farm assessment and taking account of NatureScot guidance listed in Section 6.6.

Landscape sensitivity will be assessed by combining the value of the landscape as recognised through designation or by consideration of a range of other criteria (landscape quality, scenic quality, rarity, representativeness, conservation interest, recreational value, perceptual aspects and associations), with its susceptibility to change of the nature envisaged from wind farm development. Landscape susceptibility can be defined by consideration of landscape character, quality or condition, aesthetic and perceptual aspects as well as planning policies and strategies. Sensitivity will be defined as high, medium or low based on professional interpretation of a combination of parameters.

Viewpoint sensitivity will be assessed by combining the value of a particular view with susceptibility of the visual receptor(s) to change envisaged from the proposed development, which is a function of the occupation or activity of people at any particular location. Sensitivity will be defined as high, medium or low based on interpretation of a combination of parameters.

The magnitude of change arising from the proposed development will be described as substantial, moderate, slight or negligible based on interpretation of a number of largely quantifiable parameters, such as size or scale of change, geographical extent as well as duration and reversibility.

Landscape and visual effects will be assessed as major, major / moderate, moderate, moderate / minor, minor and negligible with effects identified as major, and major / moderate being considered significant effects in terms of the EIA Regulations. Those effects falling outside the major or major/moderate categories are generally considered to be not significant. In certain instances, e.g. where several moderate effects are assessed as occurring over a large geographic extent, these effects may be considered to be significant. Should such instances occur, these would be identified clearly and explained in the LVIA.

6.3.2 Study Areas

The proposed turbines would be up to 149.9m to blade tip height. Consequently, in accordance with Scottish Natural Heritage¹⁰ (SNH) guidance (2017¹¹), the study area will be 40km radius from the outer edges of the proposed turbines.

In accordance with Nature Scot's cumulative guidance (SNH 2012¹²) a plan showing wind farms within 60km will be prepared identifying the location and status of these developments. However, in relation to this proposed development key cumulative wind energy developments occur within 40km of the Site. It is proposed that the study area for the cumulative assessment will focus on the potential effects of the proposed development in addition to those wind farms in close proximity with which it has potential to result in cumulative landscape and visual effects.

6.3.3 Zones of Theoretical Visibility

Computer generated Zones of Theoretical Visibility (ZTVs) will form a starting point for the LVIA as they will identify the landscape and visual receptors within the study area which will have potential visibility of the proposed development (see Figures 5 to 7).

In addition to blade and hub height ZTVs, cumulative ZTVs for the wind farm developments agreed to be included in the assessment will be prepared. Analysis of the cumulative ZTVs will inform the selection of sequential routes through the landscape to be assessed. As well as a ZTV for the proposed development alone (see Figure 7a), a cumulative ZTV to illustrate the theoretical pattern of visibility in conjunction with that resulting from the existing and consented cumulative wind farms located close to the Site, is included on Figure 7b. This initial cumulative ZTV demonstrates that the proposed development would almost always be seen in conjunction with these existing and consented wind farms. The main areas where this cumulative ZTV shows that the Balmeanach Wind Farm would be seen on its own (within the 40km study area) are locations at sea to the north west of the Site.

6.3.4 Baseline Conditions

The establishment of baseline conditions relating to the landscape and visual resource will involve a combination of desk study, preparation and review of ZTV maps and visualisations as well as field work. A baseline description

¹⁰ Scottish Natural Heritage (SNH) was rebranded NatureScot in August 2020. Where publications pre-date the rebranding, SNH has been included in the document referencing.

¹¹ Scottish Natural Heritage. 2017. Visual Representation of Windfarms Good Practice Guidance, Version 2.2. SNH, Battleby.

¹² Scottish Natural Heritage. 2012. Guidance – Assessing the Cumulative Impact of Onshore Wind Energy Developments. Scottish Natural Heritage. Battleby

of the existing LCTs, landscape designations and visual amenity receptors within the proposed 40km radius study area anticipated to incur significant effects will be assembled in the Baseline Assessment.

6.3.5 Landscape Character

Landscape Character information will be informed by the NatureScot landscape assessment¹³ and verified on Site. The LCTs and related Landscape Character Areas identified in the NatureScot classification that occur within the study area are shown on Figure 6 which is overlain with the blade tip ZTV for the scoping layout. The majority of the Site is located in the Upland Sloping Moorland (LCT 359), with part of Site located within a small, isolated occurrence of the Stepped Moorland (LCT 360).

The LVIAs for the nearby consented Ben Sca Wind Farm¹⁴ and Extension¹⁵ also divided the landscape into seven Landscape Character Areas, which grouped together smaller LCTs. Based on these divisions, the Site is placed in the Interior Hills Landscape Character Area. This approach to the landscape assessments for the consented Ben Sca Wind Farm and Extension was agreed through consultation. It is intended to apply the same approach in relation to the LVIA for the proposed development. Specific feedback on this would be welcomed.

The LVIA will focus on assessment of the LCTs or Landscape Character Areas predicted to receive theoretical visibility and potentially incur significant effects. It will include a description of their value, susceptibility to change as well as their overall sensitivity to change. Table 6.1 identifies the LCTs, identified by NatureScot in the National Landscape Character Assessment, predicted to receive theoretical visibility of the proposed development and includes analysis of the ZTV to identify which of the LCTs would be affected and subsequently assessed in the LVIA.

Table 6.1: Landscape Character Types (NatureScot National Landscape Character Assessment) to be included in detailed assessment

LCT Ref No.	LCT Name	Potential for visibility of the proposed development (based on the ZTV)	Approx. distance* from the nearest turbine (km)	Inclusion in the assessment
359	Upland Sloping Moorland	Widespread theoretical visibility within 5km of the proposed development and covering more elevated areas between 5km and 10km.	Proposed development located within LCT.	Yes – the proposed development is located within the LCT and may result in direct and indirect effects.
360	Stepped Moorland	LCT covers a relatively large proportion of the land within approximately 20km of the Site. Theoretical visibility is potentially limited but will occur from elevated areas and particularly within the area up to 10km from the Site.	Proposed development located within one occurrence of this LCT.	Yes – the proposed development is located within the LCT and may result in direct and indirect effects.

¹³ Scotland Digital National Landscape Character Assessment, SNH (2019)

¹⁴ SLR Consulting for Ben Sca Wind Farm Limited (January 2020) Ben Sca Wind Farm EIA Report Volume 2, Chapter 7: Landscape and Visual

¹⁵ SLR Consulting for Ben Sca Wind Farm Limited (November 2021) Ben Sca Wind Farm Extension EIA Report Volume 2, Chapter 2: Landscape and Visual

LCT Ref No.	LCT Name	Potential for visibility of the proposed development (based on the ZTV)	Approx. distance* from the nearest turbine (km)	Inclusion in the assessment
357	Farmed and Settled Lowlands – Skye and Lochalsh	Variable theoretical visibility limited but includes occurrences of this LCT associated with Balmeanach to the south, Edinbane to the north, Roskhill, Roag and Harlosh to the west, and around the south western shoreline of Loch Harport.	Variable, with the closest occurrence immediately to the south of the Site boundary.	Yes – there is potential for significant effects due to the close proximity of the proposed development and extent of visibility experienced.
358	Low Smooth Moorland	Variable theoretical visibility, but this includes the occurrences of the LCT north west of Edinbane and south of Dunvegan within 5km of the Site.	4.0	Yes – potential for significant effects due to the close proximity of the LCT.
361	Stepped Hills	Theoretical visibility from the east facing slopes and summits, including Macleods’s Tables. More limited theoretical visibility from the western part of the LCT.	7.5	Yes – within a SLA and also partially a Wild Land Area with theoretical visibility of the proposed development.
364	Rocky Moorland – Skye and Lochalsh	Theoretical visibility from the elevated land on the Isle of Raasay.	20.5	Yes – partially within a SLA with theoretical visibility of the proposed development.
366	Landslide Edge and Undulating Ridge	Theoretical visibility from the west facing slopes. Potential visibility from the eastern part of the LCT truncated by the Trotternish Ridge.	9.0	Yes – partially within a SLA with theoretical visibility of the proposed development.
367	Smooth Mountain Range	Limited and fragmented theoretical visibility from upper slopes.	21.5	Yes – limited theoretical visibility, but located within a National Scenic Area.
368	Angular Mountain Range – Skye and Lochalsh	Limited to the north west facing slopes of the Cuillin Hills.	21.0	Yes – relatively limited theoretical visibility, but within National Scenic Area with elevated views towards the proposed development.

* Distances noted to nearest 0.5km

6.3.6 Landscape Designations

No international, national or regional landscape designations occur within the Site boundary.

The qualifying elements of the designated landscapes outside the Site which are within the ZTV and anticipated to incur potentially significant effects will be identified where possible from published sources and the LVIA will assess the effects of the proposed development against their key qualities. This will have regard to likely actual visibility taking account of local landform and vegetation, and the designated landscapes considered likely to incur significant effects will be included in the assessment.

There are two Gardens and Designed Landscapes within the study area. However, the ZTV (Figure 5) demonstrates no theoretical visibility associated with either of these designations and it is proposed that they are scoped out of the LVIA. These are discussed in more detail in Section 6.4.

The landscape designations which occur within the study area are shown overlain with the blade tip ZTV on Figure 5. Table 6.2 identifies the landscape designations within the 40km study area which will be assessed in the LVIA.

Table 6.2: Landscape Designations to be included in detailed assessment

Landscape Designation	Potential for Visibility of the proposed development (based on the ZTV)	Approx. distance* and direction from the nearest turbine (km)	Inclusion in the assessment
Trotternish National Scenic Area (NSA)	Very limited theoretical visibility along the western boundary of the NSA.	18.0 North East	Yes – there is the potential for significant effects due to the elevated views obtained from this national designation towards the proposed development.
The Cuillin Hills NSA	Theoretical visibility limited to the summits and north western slopes of the Cuillin Hills.	20.0 South East	Yes - there is the potential for significant effects due to the elevated views obtained from this national designation towards the proposed development.
North West Skye Special Landscape Area (SLA)	Theoretical visibility would be widespread to the south west of the proposed development.	3.5 South to North West	Yes - there is the potential for significant effects due to the close proximity of the designation and the elevated views experienced towards the proposed development.
Greshornish SLA	Theoretical visibility would be widespread within the SLA.	5.5 North	Yes - there is the potential for significant effects due to the close proximity of the designation to the proposed development.
Trotternish & Tianavaig SLA	Theoretical visibility would be limited to the west facing slopes of elevated parts of the SLA.	14.0 East to North	Yes - there is the potential for significant effects due to the elevated views obtained from this regional designation towards the proposed development.

* Distances noted to nearest 0.5km

6.3.7 Wild Land

The Duirinish Wild Land Area (WLA) (SNH,2017¹⁶) lies approximately 8.7km to the south west of the Site, and the Cuillin WLA approximately 17.8km to the south east of the Site, as shown on Figure 5. Applecross WLA is over 30km to the east of the proposed development with limited theoretical visibility and as it is considered unlikely to incur significant effects, it is proposed to scope this WLA out of the LVIA.

The LVIA will provide an assessment of the effects of the proposed development on the wild land areas as set out in NatureScot's Technical Guidance (September 2020)¹⁷.

6.3.8 Visual Amenity

The range of visual receptors within the study area will be identified in the EIA Report. It is anticipated to include the following:

- residential properties within 2km of the turbines will be the subject of a Residential Visual Amenity Survey (RVAS) which will be a Technical Appendix of the EIA Report;
- settlements including Balmeanach, Edinbane, Flashader, Roag, and Greshornish;
- road users including on the A850 (Borve - Dunvegan), A87 (Portree – Uig), A863 (Dunvegan – A87), B886, and B885 minor roads;
- users of Scotways long distance footpaths as well as Core Paths and nearby recreational routes; and walkers on the many summits within the Cuillins, Trotternish and Duirinish hill ranges; and
- recreational visitors to attractions and visitors to outdoor pursuits within the Cuillin Hills, Trotternish Peninsula, Duirinish Hills and wider area.

Viewpoints

Initial ZTV analysis has been carried out based on the scoping layout for the proposed development in order to identify a list of suggested viewpoints representative of the main landscape and visual receptors within the study area, and at varying distances, directions and elevations from the proposed development (see Figure 7a). Viewpoints have been selected to represent a range of views and viewer types; including settlements, transport routes, recreational routes, main visitor locations, LCTs and landscape designations. The context of views currently experienced by visual receptor locations will be described in the viewpoint assessment.

The proposed viewpoints reflect the locations put forward during initial pre-application consultation, with minor adjustments (e.g. to viewpoints 8 and 9) to ensure they are located when potential visibility is more likely. In response to the pre-application a viewpoint has been included for the ferry route between Uig and Lochmaddy. As described above, the viewpoints have been discussed with THC as part of the initial pre-application consultation and subsequent design workshop and the following tables include the proposed final selection of viewpoints for inclusion in the LVIA.

In order to keep the LVIA focussed and to ensure a proportionate approach is taken to the scope of the assessment and associated figures, two lists of viewpoints have been prepared and identified in Table 6.3 and Table 6.4:

- Table 6.3: viewpoints to be illustrated by visualisations and included in the detailed assessment; and
- Table 6.4: viewpoints to be scoped out of the detailed assessment as a result of being unlikely to incur significant effects, as shown on Figure 7a. Wirelines for all suggested viewpoints are presented on Figures 8a – 8t.

¹⁶ Buchan, N., Stanton, C. 2017. Description of Wild Land Area. Scottish Natural Heritage. Battleby

¹⁷ NatureScot (September 2020) Assessing Impacts on Wild Land Areas – Technical Guidance.

Table 6.3: Viewpoints to be included in detailed assessment

VP and Fig. Nos.	Viewpoint Location	Approx Grid Ref	LCT / Landscape Designation	Visual Receptor Type	Approx Elevation (m AOD)	Approx distance* to the nearest turbine (km)	Direction of view to proposed development	Rationale for selection in detailed assessment
VP1 Fig. 8a	A863 at the junction with the road to Feorlig	129981, 843932	Farmed and Settled Lowlands LCT / North West Skye SLA	Road users	27	4.0	North east	Potential for significant effects related to views of turbines in conjunction with existing and consented wind farms.
VP2 Fig 8b	Edinbane (Top Road)	135090, 850631	Farmed and Settled Lowlands LCT	Residential	64	3.5	South west	The proposed turbines would be seen in conjunction with existing and consented wind farms extending between the Edinbane, Ben Aketil and Ben Sca developments, from one of the closest settlements to the Site.
VP3 Fig. 8c	A863 Road	132419, 839863	Stepped Moorland LCT / North West Skye SLA	Road users	42	6.0	North	Potential cumulative effects with Ben Aketil, Edinbane, Ben Sca and Glen Ullinish wind farms.
VP4 Fig. 8d	Roag	127193, 844432	Farmed and Settled Lowlands LCT / North West Skye SLA	Residential Road users	35	6.5	North west	Potential cumulative effects with Ben Aketil, Edinbane, Ben Sca and Glen Ullinish wind farms.

VP and Fig. Nos.	Viewpoint Location	Approx Grid Ref	LCT / Landscape Designation	Visual Receptor Type	Approx Elevation (m AOD)	Approx distance* to the nearest turbine (km)	Direction of view to proposed development	Rationale for selection in detailed assessment
VP5 Fig. 8e	A850	129700, 850652	Upland Sloping Moorland LCT	Road users	166	5.5	South east	Potential cumulative sequential effects with existing and consented wind farms when travelling towards them along the A850.
VP6 Fig. 8f	B884 nr Lonmore	126142, 845921	Low Smooth Moorland LCT /	Residential Road users	27	7.0	North east	Potential cumulative effects with existing and consented wind farms, with the proposed development lying between the baseline wind farms.
VP7 Fig. 8.g	Minor Road to Greshornish	134012, 853583	Farmed and Settled Lowlands LCT / Greshornish SLA	Road users	17	6.5	South	Potential visibility of the proposed development from the Greshornish SLA, with the Balmeanach Site lying between the existing and consented wind farms.
VP9 Fig. 8i	Kingsburgh	140106, 855151	Farmed and Settled Lowlands LCT	Residential Road users	65	9.5	South west	Potential effects due to introduction of turbines on skyline.
VP11 Fig. 8k	Macleod's Table North / Healabhal Mhor	122193, 844507	Stepped Hills LCT / North West Skye SLA / Duirinish WLA	Walkers	468	11.0	North east	Selected to evaluate the potential cumulative effects in views from the Duirinish WLA and North West Skye SLA.

VP and Fig. Nos.	Viewpoint Location	Approx Grid Ref	LCT / Landscape Designation	Visual Receptor Type	Approx Elevation (m AOD)	Approx distance* to the nearest turbine (km)	Direction of view to proposed development	Rationale for selection in detailed assessment
VP12 Fig. 8l	Fiskavaig	133335, 834341	Farmed and Settled Lowlands LCT / North West Skye SLA	Road users	30	11.5	South west	Potential cumulative effects, in conjunction with existing and consented wind farms in views across Fiskavaig Bay.
VP14 Fig. 8n	Totaig	119923, 850878	Farmed and Settled Lowlands LCT / North West Skye SLA	Road users	60	14.5	East	Potential cumulative effects with existing and consented wind farms, with the proposed development lying between the baseline wind farms.
VP15 Fig. 8o	The Storr	149540, 854035	Landslide Edge and Undulating Ridge LCT / Trotternish & Tianavaig SLA	Walkers	719	16.5	South west	Included to assess potential effects from the Trotternish & Tianavaig SLA.
VP16 Fig. 8p	Ben Tianavaig	151185, 840977	Smooth Moorland LCT / Tianavaig & Trotternish SLA	Walkers	413	17.5	South west	In order to assess potential effects from the Trotternish & Tianavaig SLA.
VP17 Fig. 8q	Uig (Idrigill)	138855, 864240	Farmed and Settled Lowlands LCT / Tianavaig & Trotternish SLA	Residents Road users	48	17.5	South	Potential cumulative effects with existing and consented wind farms, with the proposed development lying between the baseline wind farms.

VP and Fig. Nos.	Viewpoint Location	Approx Grid Ref	LCT / Landscape Designation	Visual Receptor Type	Approx Elevation (m AOD)	Approx distance* to the nearest turbine (km)	Direction of view to proposed development	Rationale for selection in detailed assessment
VP18 Fig. 8r	Uig – Lochmaddy Ferry Route	134781, 864669	N/A	Ferry passengers	0	17.5	South	In order to assess potential effects on views obtained by ferry passengers. Note: it is intended to illustrate the view from the ferry route with a wireline only.
VP19 Fig. 8s	Beinn Edra	145574, 862670	Landslide Edge and Undulating Ridge LCT / Trotternish NSA	Walkers	609	19.0	South west	In order to assess potential effects from the Trotternish NSA and Trotternish & Tianavaig SLA.

* Distances noted to nearest 0.5km

Table 6.4: Viewpoints to be illustrated by wireline and scoped out of the detailed assessment

VP and Fig. Nos.	Viewpoint Location	Approx Grid Ref	LCT / Landscape Designation	Visual Receptor Type	Approx Elevation (m AOD)	Approx distance* to the nearest turbine (km)	Direction of view to proposed development	Rationale for selection in detailed assessment
VP8 Fig. 8h	B885 Road	143232, 845001	Smooth Moorland LCT	Road users	108	9.0	North west	Effects potentially limited due to partial screening by landform and being seen in conjunction with Edinbane and Ben Sca.

VP and Fig. Nos.	Viewpoint Location	Approx Grid Ref	LCT / Landscape Designation	Visual Receptor Type	Approx Elevation (m AOD)	Approx distance* to the nearest turbine (km)	Direction of view to proposed development	Rationale for selection in detailed assessment
VP10 Fig. 8j	A850 / A87 (West of Borve)	144292, 848129	Scattered Crofting LCT	Road users	65	10.0	West	No significant effects predicted due to partial screening by landform and being seen in conjunction with Edinbane and Ben Sca as well as being a transitory view.
VP13 Fig. 8m	A87 Road	138963, 858495	Smooth Moorland LCT	Road users	50	12.0	North west	Relatively limited effects due to the proposed turbines being less prominent than the existing and consented wind farms, as well as being a transitory view.
VP20 Fig. 8t	Bruach na Frithe	146094, 825192	Angular Mountain Range LCT / The Cuillin Hills NSA / Cuillin WLA	Walkers	958	23.5	North west	Included as wireline to illustrate predicted view from the Cuillins NSA and WLA, but no significant effects predicted due to intervening distance and baseline context of operational wind farms.

* Distances noted to nearest 0.5km

6.3.9 Residential Visual Amenity

The appraisal of effects on residential visual amenity of dwellings in the locality of the proposed development will be based on published Landscape Institute guidance¹⁸. The Residential Visual Amenity Survey (RVAS) will be based on SLR's previous experience of undertaking such studies with the conclusions based on professional judgement, underpinned by the visual information including wirelines, photography, aerial photos and Site visits from publicly accessible locations.

A detailed assessment of potential visual effects on residential properties within a study area extending to 2km (measured from the nearest proposed turbines) will be undertaken as follows:

- a ZTV based on DTM data will be produced for the study area and the locations of all residential properties within the ZTV will be identified and allocated a reference number;
- photography/wirelines and detailed description of existing and proposed views from outside residential properties or groups of properties with similar views within the ZTV will be prepared. (Note: this will be undertaken based on field survey from publicly accessible land and will not include views from within properties or photomontages); and
- where possible, objective data will be used, e.g. distance and direction of view to turbines from residential properties, or groups of properties and percentage of available view occupied by proposed development to assess the nature of the anticipated change to residential visual amenity.

6.3.10 Cumulative Development

The approach used to determine cumulative effects will draw on guidance on cumulative impact assessment published by SNH¹⁹ (2012).

The list of wind farms to be included in the assessment will be compiled from information in the public domain or held on SLR's database, regarding existing and consented wind farms, as well as information held by THC relating to wind farm developments within the 40km study area. The initial review of cumulative sites considered an area extending to 60km from the proposed development including all wind turbine developments that are operational, under construction, consented, or planning applications and are over 50m to tip height. Developments at Scoping stage will not be included, except where they are within 10km of the proposed development, and/or are included at the request of THC. A cut-off date for the inclusion of cumulative sites will be agreed with THC and NatureScot.

Whilst the initial review of cumulative sites will extend to 60km, the study area for cumulative assessment will focus on a 40km radius from the outer boundary of the proposed turbines.

The analysis of the cumulative ZTVs will establish the general patterns of theoretical cumulative visibility within the study area.

Operational wind farms are a key component within the vicinity of the Site and include the operational Ben Aketil Wind Farm (12 turbines, 100.5m high) to the north west of the proposed Site, Edinbane Wind Farm (18 turbines, 99.5m high) to the east of the proposed development. The consented Ben Sca Wind Farm and Ben Sca Wind Farm Extension (7 turbines, 135m high; 2 turbines, 149.9m high) are located to the north west of the Site. The consented Glen Ullinish Wind Farm (14 turbines, 149.9m high) is located approximately 2km to the south of the Site. Two proposed developments to the north west, Gleann Eoghainn and Ben Crokaig, are at scoping stage. There are further wind farm developments (operational or consented) within 15km of the Site but no further

¹⁸ Residential Visual Amenity Assessment (RVAA), Technical Guidance Note 2/19, Landscape Institute (March 2019)

¹⁹ Scottish Natural Heritage. 2012. Guidance – Assessing the Cumulative Impact of Onshore Wind Energy Developments. Scottish Natural Heritage. Battleby

wind farms beyond these, within the 40km study area. The current cumulative context within 15km of the Site, based on publicly available data, is shown on Figure 4.

6.3.11 Wind Farm Design Considerations

As noted in Section 3.1, potential landscape and visual effects arising from the proposed development have been considered from an early stage in the design process and will continue to be instrumental in how the design evolves to create a final optimised layout for planning submission. The evaluation to date has focused on potential views from a number of viewpoints to inform judgements around the layout of turbines within the Site and how these relate to the existing and consented wind farm in the immediate vicinity of the Site. Key viewpoints considered as part of this evaluation have comprised publicly accessible locations closer to the Site, particularly where these relate to settlements such as Edinbane and Roag. In addition, views from local roads such as the A850 and A863.

The key landscape and visual design criteria to date has included:

- avoiding positioning turbines on upper slopes towards the Ben Sca – Ben Aketil ridgeline as far as possible;
- maintaining separation from the Balmeanach settlement to the south;
- focusing the development within the lower parts of the Site to reduce overall predicted visibility;
- avoiding positioning turbines to the west of the ridge formed by Ben Aketil and An Clèirich;
- exploring all available land within the Site boundary to create a layout that responds to the landform where possible; and
- considering the appearance of the proposed development in relation to the existing and consented wind farms local to the Site.

In addition to the above criteria the Site design process has taken into account a range of other environmental and technical factor and constraints, as outlined in Section 3.1. Work is ongoing in relation to the Site design and layout, however, this is not expected to alter the scope of or approach to the assessment and therefore the scoping process is taking place in parallel to further design review.

6.3.12 Assessment

Once the baseline landscape and visual context has been established and following completion of the design optimisation process, the detailed LVIA will be undertaken.

The assessment will be carried out in accordance with the agreed methodology to identify the susceptibility and overall sensitivity of the landscape and visual receptors in the study area, as well as the magnitude of change, including cumulative change and related effects on these receptors caused by the proposed development.

An assessment of the potential effects on both landscape character and visual amenity arising from the proposed development at each of the agreed viewpoints will be carried out. This assessment will involve the production of computer-generated wirelines and photomontages to predict the views of the proposed turbines from each of the agreed viewpoints as set out in Tables 6.3 and 6.4. The existing and predicted views from each of these viewpoints will be analysed to identify the magnitude of change and the residual effects on landscape character and visual amenity based on field work as well as desk-based assessment.

The findings of the LVIA will draw on the viewpoint assessment as well as desk study and field work to identify potentially significant effects on landscape character, landscape designations and visual amenity receptors in the study area.

It is proposed that the LVIA input to the EIA Report will include the following:

- LVIA Chapter;
- Technical Appendix 1: LVIA Methodology;
- Technical Appendix 2: Viewpoint Assessment;
- Technical Appendix 3: Residential Visual Amenity Survey; and
- Figures: to include ZTVs, LCT and landscape designations plans, visualisations and cumulative drawings.

6.4 Matters Scoped Out

The following landscape receptors have been identified as receptors that are unlikely to experience significant effects as a result of the proposed development and are therefore proposed to be scoped out.

Table 6.5: Landscape Character Types and Landscape Designations to be scoped out of detailed assessment

LCT Ref No.	LCT Name / Landscape Designation	Potential for Visibility of the proposed development (based on the ZTV)	Approx. distance* from the nearest turbine (km)	Inclusion in the assessment
362	Cnocan – Skye and Lochalsh	No theoretical visibility	24.0	No – there is no potential for a significant effect due to screening by landform.
	Raasay & Rona SLA	Limited theoretical visibility within the southern part of the designation.	22.0	No – there is no potential for a significant effect due to visibility being restricted and the distance from the proposed development.
	Dunvegan Castle Garden and Designed Landscape (GDL)	No theoretical visibility predicted.	9.0	No – there is no potential for a significant effect due to screening by landform.
	Raasay House (GDL)	No theoretical visibility predicted.	21.5	No – there is no potential for a significant effect due to screening by landform.

* Distances noted to nearest 0.5km

It is also proposed that certain viewpoints will be scoped out of the detailed LVIA and will be illustrated by wireline only. An analysis of these viewpoints is included in Table 6.4 and they are summarised as follows:

- VP8 – B885 Road;
- VP11 – A850 / A87 (West of Borve);
- VP13 – A87 Road; and
- VP20 – Sgurr na Banachaich.

Wirelines for these locations are included as Figures 8h, 8j, 8m and 8t respectively.

A night-time assessment is scoped out as the proposed turbines will be less than 150m to tip height and will not therefore require visible aviation lighting.

6.5 Questions for Consultees

In summary, consultee agreement is sought for the following aspects of the landscape and visual impact assessment, as set out above:

- methodology to be used for the LVIA;
- the approach to landscape character assessment i.e. following NatureScot Digital National Landscape Character Assessment or the potential grouping of smaller LCTs as undertaken in respect of the Ben Sca Wind Farm and Ben Sca Wind Farm Extension LVIAs;
- methodology to be used for the assessment of the WLAs and the particular qualities to be assessed;
- study area(s) for the LVIA;
- the proposed final viewpoint locations;
- scope of the cumulative assessment and associated study area; and
- any additional matters arising.

6.6 References and Standard Guidance

The LVIA will be prepared in accordance with GLVIA3. The assessment will also take account of the following²⁰:

- HwLDP, THC (adopted 2012);
- West Highland and Islands Local Plan (WestPlan) (adopted 2019);
- Onshore Wind Energy Supplementary Guidance, THC (Nov 2016, with addendum, Dec 2017);
- Assessment of Highland Special Landscape Areas, THC (2011);
- Siting and Designing Wind farms in the Landscape Version 3, SNH (February 2017);
- Visualisation Standards for Wind Energy Developments, THC (July 2016);
- Visual Representation of Wind farms - Good Practice Guidance, Version 2.2, SNH (February 2017);
- Visual Representation of Development Proposals, Landscape Institute Technical Guidance Note 06/19 (September 2019);
- Assessing the Cumulative Impact of Onshore Developments, SNH, March (2012);
- Landscape Character Assessment, The Countryside Agency and Scottish Natural Heritage (SNH) 2002;
- Scotland Digital National Landscape Character Assessment, SNH (2019);
- SNH Commissioned Report No. 374: The Special Qualities of the National Scenic Areas, Scottish Natural Heritage (2010);
- Description of Wild Land Areas, SNH (2017);
- Assessing Impacts on Wild Land Areas – Technical Guidance, NatureScot (September 2020); and
- Residential Visual Amenity Assessment (RVAA), Landscape Institute Technical Guidance Note 2/19 (March 2019).

The assessment will take cognisance of relevant national and local landscape planning policy.

²⁰ Scottish Natural Heritage (SNH) was rebranded NatureScot in August 2020, where publications pre-date the rebranding, SNH has been included in the document referencing.

7.0 Ecology

This section considers the scope of work required to assess potential significant effects associated with ecology during the construction and operational phases of the proposed development. This section considers habitats and non-avian animal species. Potential effects on birds are considered separately in Section 8.0. Together Sections 7.0 and 8.0 consider the scope of work required to assess potential significant effects on biodiversity.

7.1 Consultation

Key issues and comments raised in the pre-application consultation with regards to ecology was as follows:

- surveys and assessment should include phase 1, NVC, protected species and deer;
- notes on the condition of peatland on the Site taken during the NVC survey will be helpful; and
- the application should include proposals for habitat improvement or creation to mitigate any loss of Ground Water Dependant Terrestrial Ecosystems (GWDTE).

Further consultation will be undertaken with NatureScot and other relevant organisations, as required, following receipt of the Scoping Opinion.

7.2 Environmental Baseline and Potential Sources of Impact

7.2.1 Scope of Study

Desk Study

Desk study data were obtained most recently in 2019 for the consented Ben Sca Wind Farm which also covers the Balmeanach Site. As described in the Ben Sca EIA Report (SLR 2019), data identified by the Ben Sca ecology desk study included:

- a previous desk study for the Site compiled by Atmos Consulting in 2017 (referenced in SLR, 2019), which included a review of publicly available online resources to identify the presence of designated Sites within 10km of the Ben Sca Site and recent records of legally protected or otherwise notable species within 5km of the Ben Sca Site;
- Highland Biological Recording Group (HBRG) was commissioned in July 2019 to provide data relating to non-statutory Sites and records of protected and notable species within the Ben Sca Site plus a 5km radius of the Site. Non-statutory Site information provided included Scottish Wildlife Trust (SWT) reserves, Royal Society for the Protection of Birds (RSPB) Reserves, National Trust for Scotland (NTS) Reserves, The Highland Council (THC) Local Nature Reserves (LNRs) and THC Sites of Local Nature Conservation Interest (SLNCIs);
- the NBN Atlas was searched for bat records within 10km of the Ben Sca Site. There is no bat group for the Isle of Skye;
- the relevant Geographic Information System (GIS) databases were searched for woodland recorded on the Ancient Woodland Inventory (AWI) (<https://magic.defra.gov.uk/>) within a 2km radius of the Ben Sca Site;
- NatureScot Carbon and Peatland 2016 Map (SNH, 2016c) was reviewed, which gives a value to indicate the likely presence of carbon-rich soils, deep peat and priority peatland habitat for each individually-mapped area, at a coarse scale across Scotland; and
- a search through THC Planning Portal for relevant reports submitted as part of the applications for other nearby developments was undertaken. The following Environmental Statements (ESs), which relate to

proposed wind farm developments within 10km of the Ben Sca site (where information could be obtained), were reviewed for relevant ecological information:

- Ben Aketil Wind Farm ES (operational) (West Coast Energy, 2002) – located north west of Balmeanach;
- Ben Aketil Wind Farm Extension ES (operational) (Atmos Consulting, 2009) – located north west of Balmeanach; and
- Glenn Ullinish Wind Farm ES (consented) (Green Cat Renewables, 2014) – located south east of Balmeanach.

These data, as reported in the EIA Report for Ben Sca, have been reviewed to inform this scoping study for Balmeanach. In addition, freely available aerial photographs of the Balmeanach Site, other web-based sources and field survey data collected for the consented Ben Sca (SLR, 2019) and the consented Ben Sca Extension (SLR, 2021), were examined.

Field Surveys

Site walkover

A brief Site visit was undertaken by a professionally qualified ecologist on 21 May 2019. The Site visit was restricted to an area within which the proposed turbines would likely be located. The Site visit consisted of a high-level walkover survey only to inform feasibility. No habitat mapping was undertaken at that point, however the habitat types were appraised and photographs were taken.

Habitat surveys

A UK Habitat Classification (UKHab) survey was undertaken concurrently with a National Vegetation Classification (NVC) survey by Nicola Faulks between 20 and 22 September 2020. The survey area included all land within what was considered the maximum likely developable area at that time of conducting the survey plus a 250m buffer (Figure 9). The UKHab system has been designed to build on existing systems, so it integrates with European Union and other UK classification systems, such as Phase 1, NVC and the European Nature Information System (EUNIS). For this survey, the UK Habitat Classification – Professional Edition was consulted as this document includes all Annex 1 habitat and the habitats and the habitat are listed in EUNIS. This allows for a conversion between UKHab, NVC and EUNIS.

The UKHab methodology used was based on the UK Habitat Classification User Manual (Butcher, 2020). The NVC survey undertaken using the NVC system (Rodwell, 1991 *et seq*, 5 volumes) and in accordance with NVC survey guidelines (Rodwell, 2006).

The most northern part of the Site was incorporated within the Site boundary following the NVC / P1 surveys completed in September 2021. However, this area was surveyed during June 2018 and May 2019 when habitat data (in accordance with Phase 1 Habitat and NVC guidance at that time²¹) was collected for the consented Ben Sca Wind Farm. This data will be used to supplement the data gathered in September 2020. In addition, it is proposed that a supplementary survey is undertaken in August 2022 to refresh and check the current vegetation status within that area of the Site.

Following a large fire in 2018 (across the majority of the Site), the vegetation was still some way short of a full recovery, however by combining general knowledge of the area (including Ben Sca wind farm surveys), the refresh surveys planned for 2022 and the surveyor's ten years of upland NVC survey experience, the habitat

²¹ Standard Joint Nature Conservation Committee methodology - JNCC (2010). Handbook for Phase 1 Habitat Survey. A technique for environmental audit. Revised re-print. JNCC, Peterborough; and NVC system - Rodwell J.S (Editor) (1991 *et seq*) British Plant Communities. Cambridge University Press.) and in accordance with NVC survey guidelines - Rodwell, J.S, (2006), NVC Users' Handbook, 68 pages, ISBN 978 1 86107 574 1

mapping provides a well-informed inventory of the habitat types present on the Site, despite the damage that the fire caused.

7.2.2 Baseline Conditions

Desk Study Data

Designated Sites

There are no ecologically designated sites within the Site boundary. There are three statutory designated sites within 10km of the Site boundary, as shown on Figure 3 and detailed in Table 7.1.

Table 7.1: Statutory Designated Sites within 10km

Site Name	Designation	Approximate Distance and Direction from Site Boundary	Reasons for Designation
An Cleireach	Site of Special Scientific Interest (SSSI)	Adjacent, south east	Geological (tertiary igneous intrusion)
Inner Hebrides and the Minches	Site of Community Importance (SCI) (adopted candidate Special Area of Conservation (cSAC))	2.8km west (at its closest point)	Harbour porpoise (<i>Phocoena phocoena</i>)
Ascrib, Isay and Dunvegan	Special Area of Conservation (SAC)	8.2km west north west (at its closest point)	Harbour seal (<i>Phoca vitulina</i>)

Protected and Otherwise Notable Species

Existing records of protected and notable species in the vicinity of the Site, collected for the Ben Sca desk study, (excluding marine species) are listed in Table 7.2. Table 7.2 also indicates whether the relevant species were recorded during surveys undertaken to inform the Ben Sca EIA (as reported in SLR, 2019).

Table 7.2: Existing records of protected and notable species

Species	Status*	Notes	Recorded during Ben Sca field surveys
Lichen			
Lichen (<i>Stricta fuliginosa</i>)	SBL	Single record within 5km of Ben Sca (per HBRG).	No survey
Insect			
Small heath (<i>Coenonympha pamphilus</i>)	SBL	Records within 5km of Ben Sca (per HBRG).	No survey
Large heath (<i>Coenonympha tullia</i>)	WCA Sch5 (in respect of Section 9(5) only), SBL	Single record within 5km of Ben Sca (per HBRG).	No survey
Moss carder bee (<i>Bombus muscorum</i>)	SBL	Single record within 5km of Ben Sca (per HBRG).	No survey
Broom moth (<i>Ceramica pisi</i>)	SBL	Single record within 5km of Ben Sca (per HBRG).	No survey

Species	Status*	Notes	Recorded during Ben Sca field surveys
Fish			
European eel (<i>Anguilla Anguilla</i>)	SBL	Records within 5km of Ben Sca dating from 1990 (per NBN).	Low to moderate habitat suitability
Atlantic salmon (<i>Salmo salar</i>)	SBL, LBAP, SFF	Records within 5km of Ben Sca dating from 1985 and 1990 (per NBN).	Low to moderate habitat suitability, possible sighting of parr
Brown/ sea trout (<i>Salmo trutta</i>)	SBL, LBAP	Records within 5km of Ben Sca dating from 1980, 1990 and 2012 (per NBN), nine records within 5km of Ben Sca dating from 2012 (per HBRG), including two trout records from the Abhainn Choisleadar, the upper reaches of which form the eastern boundary of Ben Sca.	Low to moderate habitat suitability, possible sighting of parr
Herpetofauna			
Palmate newt (<i>Lissotriton helveticus</i>)	WCA Sch5 (in respect of Section 9(5) only), LBAP	Records within 5km of Ben Sca (per NBN/ HBRG).	No survey
Common toad (<i>Rana temporaria</i>)	WCA Sch5 (in respect of Section 9(5) only), SBL, LBAP	Single record within 5km of Ben Sca (HBRG).	No survey
Common frog (<i>Rana temporaria</i>)	WCA Sch5 (in respect of Section 9(5) only), LBAP	Records within 5km of Ben Sca (per NBN/ HBRG).	No survey
Common lizard (<i>Zootoca vivipara</i>)	WCA Sch5 (in respect of Section 9(1) and 9(5) only), SBL, LBAP	Single record located approximately 2.9km west of Ben Sca (dating from 2016) (per NBN/ HBRG).	No survey
Mammal			
Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	HR Sch2, WCA Sch5, SBL, LBAP	Low numbers recorded during surveys for Glen Ullinish Wind Farm (4-5km to south of Ben Sca). One record within 5km and 12 further records within 10km (from NBN), dating from between 1980 and 2018. Also, six records of unspecified <i>Pipistrellus</i> and Chiroptera bats between 5 and 10km from Ben Sca (NBN).	Yes: recorded at the Site during static detector surveys conducted in spring, summer and autumn 2019, with an average (mean) of 0.31 passes per night recorded.

Species	Status*	Notes	Recorded during Ben Sca field surveys
Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	HR Sch2, WCA Sch5, SBL, LBAP	One record (from NBN) between 5 and 10km from Ben Sca, dating from 2013.	No
Natterer's bat (<i>Myotis nattereri</i>)	HR Sch2, WCA Sch5, SBL, LBAP	Summer roost identified at the south end of Edinbane Wind Farm (record reported by SNH in their scoping response, the precise location is unknown as the Edinbane ES could not be obtained, however from review of OS mapping and aerial images, this is considered most likely to be from buildings located approximately 3km south east of Ben Sca).	No
Otter (<i>Lutra lutra</i>)	HR Sch2, WCA Sch5, SBL, LBAP	Records within 5km of Ben Sca (per NBN/ HBRG), relating to lochs north of Ben Sca or road casualties at Edinbane; several spraint records during surveys for Ben Aketil, Ben Aketil Extension and Glen Ullinish Wind Farms. An otter resting Site was recorded 0.3km west of Ben Sca during Ben Aketil surveys, and an otter couch was recorded 1.3km west of Ben Sca during Ben Aketil Wind Farm Extension surveys.	No
Hedgehog (<i>Erinaceus europaeus</i>)	SBL	Records within 5km of Ben Sca (per HBRG).	No
Brown hare (<i>Lepus europaeus</i>)	SBL	Records within 5km of Ben Sca (per HBRG).	No
Red deer			Yes
Roe deer			Yes (reported by game keeper)

***Table Key: Status**

HR Sch2 = Included on Schedule 2 of the Conservation (Natural Habitats &c) Regulations 1994 (as amended in Scotland)

WCA Sch5 = Listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended in Scotland)

SFF = Salmon spawning beds protected under the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003

SBL = listed on Scottish Biodiversity List (SBL) (Scottish Government, 2013)

LBAP = Skye and Lochalsh Biodiversity Action Plan Local Priority Species (Skye and Lochalsh Biodiversity Group, 2003)

There are no records of water vole (*Arvicola amphibius*), red squirrel (*Sciurus vulgaris*) or wildcat (*Felis sylvestris*) on Skye and only sporadic records of badger (*Meles meles*), with no records within 5km of the Site. Pine marten (*Martes martes*) was considered absent from the Isle of Skye until the opening of the Skye Bridge which has

allowed the species to spread onto the island. Although there are no existing records within 5km of the Site, the presence of this species cannot be ruled out at this stage.

Field Surveys

Habitats

The vegetation survey results show that the Site mainly comprises blanket bog and wet heath habitats typical for this area of Skye. Prior to the fire of March 2018, it is considered likely that the bog habitats were all in good condition as the Site showed limited signs of man-made drainage and cutting. However, since the fire, signs of recovery were noted for all but the pleurocarp mosses. So, while the peatland habitats could be described as being in a poor condition due to the fire, it is considered likely that without intervention they will recover to a more favourable status in the next five to ten years.

Table 7.3 lists the habitats and NVC communities recorded during the vegetation survey. The NVC communities are also shown on Figure 9. Table 7.3 also shows which of the habitats and NVC communities identified within the Site boundary may be classified as Annex 1 Habitats (in bold) and habitats listed on the Scottish Biodiversity List²² (SBL) are also highlighted (underlined). Habitats with Groundwater Dependant Terrestrial Ecosystem (GWDTE) potential (based on SEPA, 2017 guidance) are indicated in red (high potential) and orange (moderate potential).

Table 7.3: Vegetation Communities

UKHab Category	UKHab Habitat Name	NVC Category	NVC Community Name
f1a5	Blanket bog	<u>M1</u>	<i>Sphagnum denticulatum</i> Bog Pool Community
f1a5	Blanket bog	<u>M3</u>	<i>Eriophorum angustifolium</i> Bog Pool Community
f1a5	Blanket bog	<u>M17</u>	<i>Scirpus cespitosus</i> – <i>Eriophorum vaginatum</i> blanket mire
f1a5	Blanket bog	<u>M19</u>	<i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire
f2b	Purple moor grass and rush pasture	<u>M23</u>	<i>Juncus effusus/ acutiflorus</i> – <i>Galium palustre</i> rush-pasture
f2c	Upland flushes, fens and swamps	<u>M6</u>	<i>Carex echinata</i> – <i>Sphagnum fallax/ denticulatum</i> mire
f2f	Other swamps	<u>M32</u>	<i>Philonotis fontana</i> – <i>Saxifraga stellaris</i> spring
g1b6	Other upland acid grasslands	U4	<i>Festuca ovina</i> – <i>Agrostis capillaris</i> – <i>Galium saxatile</i> grassland
g1b6	Other upland acid grasslands	<u>U5</u>	<i>Nardus stricta</i> – <i>Galium saxatile</i> grassland
g1b6	Other upland acid grasslands	<u>U6</u>	<i>Juncus squarrosus</i> – <i>Festuca ovina</i> grassland

²² SBL (2013) Updated Scottish Biodiversity List [online] Available at: <http://www.biodiversityscotland.gov.uk> [Accessed 15 March 2021]

h1b	Upland heathland	M15 ²³	<i>Trichophorum cespitosum-Erica tetralix</i> wet heath
h1b	Upland heathland	H12	<i>Calluna vulgaris – Vaccinium myrtillus</i> heath

The results of the September 2020 survey will be reported in full within a Botanical Survey Report, which will be a Technical Appendix to the EIA Report. The report will transpose habitat data into the EUNIS classification as well as UK Hab and NVC. Where relevant, data collected during the Ben Sca EIA will also be presented.

7.2.3 Potential Sources of Impact

Construction

During construction of the proposed development, in the absence of mitigation, it is anticipated that impacts may arise from:

- habitat loss or damage (permanent and temporary) due to construction of wind farm infrastructure, including drainage impacts to bog habitats;
- possible changes to groundwater flows affecting groundwater dependent terrestrial ecosystems (GWDTEs);
- inadvertent killing or injuring of fauna during construction;
- disturbance to fauna due to vehicular traffic, plant and the presence of construction workers; and
- sedimentation or other pollution of watercourses from construction activities and vehicular traffic.

Operation

During operation of the proposed development, in the absence of mitigation, it is anticipated that impacts may arise from:

- vehicular traffic causing disturbance to fauna;
- environmental incidents and accidents (e.g. spillages); and
- moving turbine blades leading to mortality due to collision or barotrauma (bats only).

Cumulative Impacts

The potential for cumulative impacts with other wind farm proposals will be assessed. For (non-avian) ecological receptors potential cumulative impacts are only likely to be significant for other developments within the same hydrological catchment(s) or located within the regular range of more mobile species, e.g. bats. As such the cumulative assessment will be restricted to other wind farms within 10km. Assessment will include operational projects; projects under construction; consented projects which are not yet under construction and projects for which valid planning applications have been submitted.

7.3 Method of Assessment and Reporting

7.3.1 Additional Field Surveys

The following field surveys were undertaken in 2021:

- Otter and other protected mammals survey;
- Fish habitat assessment; and
- Bat activity survey.

²³ Not all types of M15 are Annex 1.

Further details regarding each survey are provided below. The results of each survey will be reported in full within baseline survey reports, which will be included as Technical Appendices within the EIA Report.

Otter and Other Protected Mammal Survey

The survey took place during the spring of 2021 and followed standard guidance, e.g. Ward *et al.* (1994). The survey covered all land within the maximum likely developable area at the time of survey plus a 250m buffer. The main target species was otter, although evidence of other protected mammal species which could potentially be present, e.g. pine marten, was also searched for.

No signs of protected mammals were observed.

Fish Habitat Assessment

A fish habitat assessment was undertaken in conjunction with the otter survey and covered the same survey area. It followed modified protocols based on the standard Scottish Fisheries Coordination Centre (SFCC) guidelines (SFCC, 2007).

Bat Survey

Bat activity at Balmeanach is expected to be similar to that recorded at the adjacent Ben Sca Site. At Ben Sca only one bat species, common pipistrelle, was recorded at the Site during static detector surveys conducted in spring, summer and autumn 2019, with an average (mean) of 0.31 passes per night recorded (SLR, 2019).

Full spectrum, static bat detectors were placed near each of the ten potential turbine locations to cover the full range of habitat in which turbines are likely to be positioned within the Site. Detectors were set to record for a minimum of 15 nights per season (spring, summer and autumn 2021) in order to attempt to capture 10 nights of data in suitable weather conditions each season, as per SNH *et al.* (2019) guidelines. Temperature and wind speed data will be available from a met mast installed at the adjacent Ben Sca Site, which takes readings every 10 minutes. The lowest met mast sample point is at 40m height. A conversion will be used to convert the wind speed data at 40m to 10m (this is likely to be similar but marginally higher than wind speed at ground level). Rainfall data will be obtained from a weather station at Herebost, Dunvegan (located approximately 5km west of the Site). It is not possible to obtain night-time only rainfall data, and therefore a worst-case scenario of rain falling during the full 24-hour period will be used.

Data will be analysed using Kaleidoscope Pro or Sonobat software with manual checking by an experienced bat ecologist. In addition, analysis of data against data for other sites will be undertaken, using the online *Ecobat* tool, as recommended by current SNH *et al.* guidelines.

7.3.2 Assessment of Effects

The ecological impact assessment will be based on current Chartered Institute of Ecological and Environmental Management (CIEEM) guidelines (CIEEM, 2018). It will also draw on other, more specific guidance as appropriate (Section 7.6). Liaison with other technical specialists (e.g. with hydrogeologists with respect to GWDTEs and geologists with respect to peat) will be carried out as required.

The impact assessment process will involve the following steps:

- identifying important ecological features, i.e. features of sufficient value and/ or features subject to legal protection, for which detailed assessment is necessary. From information obtained to date these are expected to include:
 - Annex 1 bog habitats;
 - Annex 1 wet heath habitats;
 - potential GWDTEs;
 - reptiles (common lizard);

- otter; and
- bats.
- identifying and characterising potential impacts on important features;
- assessment of the significance of effects would be based on the assumption that standard mitigation measures, in line with standard wind farm construction good practice, would be embedded as part of the scheme;
- incorporating additional measures to avoid and mitigate (reduce) potentially significant effects (if required);
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects (if required);
- identifying opportunities for ecological enhancement; and
- cumulative impact assessment along with other wind farm developments (operational and planned).

With respect to the assessment of effects on habitats, despite the fire damage in 2018, in practice the majority of active blanket bog and wet heath habitats represent Annex 1 habitats and they will be assessed as such.

With respect to the identification of GWDTEs and the assessment of effects on them, a precautionary approach will be adopted whereby any habitats which could potentially represent GWDTEs (see Table 7.3) will be subject to further assessment. These areas will be investigated by a hydrogeologist to assess whether they are sustained by groundwater as part of the proposed hydrological field work (see Section 9.0). The assessment of effects on any GWDTE identified will be undertaken as part of the hydrological assessment, with the key findings summarised within the Ecology Chapter of the EIA Report.

Mitigation, compensation and enhancement measures will be developed as appropriate and details will be provided in the Ecology Chapter of the EIA Report. The primary form of mitigation will be avoidance by design, e.g. the avoidance, where possible, of less common bog habitats on Site such as bog-pool communities and habitats located on the deepest areas of peat. Complete avoidance of Annex 1 habitats is likely to be impractical given that they cover the majority of the Site. A range of 'standard' good practice measures would be implemented during construction to avoid and reduce impacts. An Outline Construction Environmental Management Plan (CEMP) will be included in the EIA Report, to form the basis of the final CEMP which would be produced and agreed with THC post consent. Outline details of compensation for significant residual ecological effects, notably the unavoidable loss of bog or wet heath habitats and details of proposed biodiversity enhancements, will be provided in an Outline Habitat Management Plan (HMP) to be included as part of the EIA Report. Opportunities for habitat enhancement both onsite and in the wider area will be explored. A detailed HMP would subsequently be produced and agreed with THC post consent.

Given the relative abundance of red deer in the vicinity of the Site a simple assessment of the potential impacts on deer welfare, habitats, neighbouring and other interests (e.g. access and recreation, road safety, etc.) will be provided within the EIA Report, as was done for the consented Ben Sca development.

7.4 Matters Scoped Out

Matters to be scoped out of the EIA with respect to ecology include:

- further desk study is not considered to be needed as the Ben Sca desk study and survey data cover the Balmeanach Site and are from within the past two years and it is unlikely that significant other, more recent relevant data are available from desk-based sources.
- impacts on designated sites. The only designated sites within 10km are designated either for their geological interest or for marine features. There are therefore unlikely to be any impacts on features for

which these sites are designated and it is proposed that impacts on designated sites are scoped out of the EIA.

- in accordance with current NatureScot (2020) guidance, surveys for invertebrates, reptiles and amphibians are not considered necessary to inform the EIA. Instead, a habitat-based assessment will be undertaken to inform the assessment of potential impacts and the need for mitigation measures during construction.
- no at-height bat detector surveys are proposed. Excluding at-height surveys is considered to be appropriate in this situation, as none of the turbine locations are situated within woodland and the current NatureScot guidelines, state that except in woodland, monitoring at height is unlikely to detect the presence of any species not already recorded using detectors at ground level. There is also no supporting evidence (i.e. from the desk study or results of bat surveys from nearby wind farms) that suggest a high level of bat activity is likely and therefore surveys at height cannot be justified.
- a separate deer management statement is not considered necessary, based on the findings of the Ben Sca EIA Report, and will not be provided.

7.5 Questions for Consultees

- Are consultees happy with the surveys undertaken and subsequent proposed methodology for ecological impact assessment?

7.6 References and Standard Guidance

The following list includes all documents referenced within this section of the scoping report along with any other standard guidance which is applicable to ecology surveys and assessment for onshore wind farm developments in Scotland and will be referred to as part of the EIA:

- Atmos Consulting (2009) Ben Aketil Wind Farm Extension Environmental Statement, March 2009;
- Butcher B., Carey P., Edmonds R., Norton L and Treweek J. (2020) The UK Habitat Classification User Manual Version 1.1 [Online] Available at: www.ukhab.org [Accessed 02 September 2020];
- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester;
- Green Cat Renewables (2014) *Glen Ullinish Wind Farm Environmental Statement*, October 2014;
- NatureScot (2020) *General pre-application and scoping advice for onshore wind farms*, September 2020;
- Rodwell J.S (Editor) (1991 *et seq*) *British Plant Communities*. Cambridge University Press;
- Rodwell, J.S, (2006), *NVC Users' Handbook*, 68 pages, ISBN 978 1 86107 574 1;
- Scottish Renewables, SNH, SEPA, Forestry Commission Scotland, HES, Marine Scotland Science, AECOW (2019) *Good Practice During Wind farm Construction*, 4th Edition, 2019;
- SEPA (2017) *Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems*. Land Use Planning System SEPA Guidance Note 31 (LUPS – GN31). Version 3 Issued 11 September 2017;
- SFCC. (2007). *Habitat Surveys Training Course Manual*, Revised August 2007. Available online at: <http://www.sfcc.co.uk>;
- SLR Consulting. (2019). *Ben Sca Wind Farm Environmental Impact Assessment Report*.
- SNH (2012) *Assessing the Cumulative Impact of Onshore Wind Energy Developments*;

- SNH (2016) Planning for development: What to consider and include in deer assessments and management at development sites. Version 2, March 2016;
- SNH (2016b) Carbon and Peatland 2016 Map: [Carbon and peatland 2016 map | Scotland's soils \(environment.gov.scot\)](https://www.environment.gov.scot)
- SNH, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, The University of Exeter, and The Bat Conservation Trust 2019. *Bats and onshore wind turbines: survey, assessment and mitigation*. <https://www.nature.scot/sites/default/files/2019-01/Bats%20and%20onshore%20wind%20turbines%20-%20survey%2C%20assessment%20and%20mitigation.pdf>;
- Ward D., Holmes N. and José P. (1994) *The New Rivers and Wildlife Handbook*, RSPB, Bedfordshire; and
- West Coast Energy (2002) *Ben Aketil Wind Farm Environmental Statement*, August 2002.

Additional reference material which is relevant to the assessment will also be referred to in the Ecology Chapter of the EIA Report, as required.

8.0 Ornithology

This section considers the scope of work required to assess potential significant effects associated with ornithology during the construction and operational phases of the proposed development.

8.1 Consultation

Key issues and comments raised in the pre-application consultation with regards to ornithology was as follows:

- NatureScot agreed that only one year of bird surveys were required at the Site; and
- the only significant ornithological interests that might be impacted by this proposal are golden and white-tailed eagles in the wider countryside.

NatureScot have been consulted with respect to the duration of ornithological surveys and it has been agreed that a single year of survey is appropriate at this Site. This was confirmed in the pre-application scoping advice from NatureScot (pre-application advice pack ref: 21/00638/PREMAJ) which states that:

“The applicant has already been in contact with us regarding the length of survey work required for this. We have confirmed that due to the available information provided by survey work on adjacent sites, one full year of bird survey work is sufficient to give an informed view of bird use on the site. In this case there are no designated sites for birds with connectivity to the proposed wind farm. The only significant ornithological interests that might be impacted by this proposal are golden and white-tailed eagles in the wider countryside.”

Given the importance of white-tailed eagle and golden eagle populations in this area, a more focused consultation exercise has been initiated with NatureScot to discuss the importance of these species and the potential for effects from the proposed development. This process is ongoing and will be running in parallel with the Scoping consultation period. It should be noted that as part of the ongoing discussions, the client has opted to undertake some additional vantage point surveys focused on eagle activity from October 2021 and these will continue until September 2022.

Further consultation will be undertaken with NatureScot, RSPB and other organisations as required following receipt of Scoping Opinion.

8.2 Environmental Baseline and Potential Sources of Impact

8.2.1 Scope of Study

Desk Studies

A desk search was carried out via the NatureScot SiteLink webSite to identify statutorily designated Sites within 10km of the Site which are designated for their avian interest (including Special Protection Areas (SPAs) and SSSIs).

The 10km range is based on the potential connectivity with golden eagle *Aquila chrysaetos* territories breeding in designated sites (maximum foraging range of 9km, (SNH 2016)). Further information on the interest features of sites was obtained through the JNCC and NatureScot websites.

In addition, the desk study considers data collected during ornithology surveys at the Ben Sca site during 2018 (SLR 2019) as well as post construction monitoring (PCM) data for the Edinbane (Haworth Conservation 2015) and Ben Aketil (Atmos 2017), wind farms collected between 2007 and 2017. This Scoping Report contains a summary of these desk study data, full details can be found in the Balmeanach Ornithology Review (SLR 2021).

Field Surveys

The first year of ornithology surveys undertaken from February 2020 to March 2021 is summarised in Tables 8.1 and 8.2 with survey areas shown on Figure 10. This scope is based on consideration of current NatureScot guidance on bird survey methods for onshore wind farms. It should be noted however, a review of the extensive available ornithology data for the Site and surrounding area was undertaken to inform consultation with NatureScot on the survey effort required for the Site (see SLR 2021). On the basis of this data review NatureScot confirmed that a single year of data was sufficient to inform the EIA. As noted in Section 8.1, the importance of white-tailed eagle and golden eagle populations in this area has been given some further consideration through development of the design and the client has opted to voluntarily undertake some additional vantage point surveys focused on white-tailed eagle and golden eagle activity, the scope of which is detailed in Table 8.1, with hours noted in Table 8.3.

Table 8.1: Site specific ornithology data available for 2020 - 2022

Survey Type	Methodology
Vantage Point (VP) Surveys	<p>Standard VP surveys from February 2020 to March 2021 from each of two VPs covering the Site and a 500m buffer. Target species included:</p> <ul style="list-style-type: none"> All raptors and owls listed on Annex I of the Birds Directive or Schedule 1 of the Wildlife and Countryside Act 1981 All wader species All diver species <p>All wild goose, swan and duck species, with the exception of Canada goose and mallard.</p> <p>As of end March 2021 there have been 115 hours of survey at VP1 & 111 hours at VP2. This includes additional double survey effort from the standard in June, July and August 2020.</p>
Additional VP Surveys	VP surveys from October 2021 to September 2022 from each of two VPs covering the Site and a 500m buffer, focusing on white-tailed eagle and golden eagle activity in particular.
Moorland Breeding Wader Surveys	Four surveys between April and July 2020 using Brown & Shepherd methodology covering the Site development area plus a 500m buffer (Brown & Shepherd 1993).
Breeding Raptor Survey	Four surveys of suitable habitat within 2km (up to 6km for eagles) between April and July 2020 and 2022. Methods following Hardey <i>et al</i> (2013).
Diver Lochan Surveys	Three visits to small pools/ lochans within 1km of the development area to assess suitability and occupancy. Methods based on Gilbert <i>et al</i> . (1998). The visits were in April, May and July 2020.

Table 8.2: VP Survey Hours, February 2020 – March 2021

VP ID	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	12	6	6	6	18	12	13	6	6	3	9	6	6	6
2	12	6	6	6	12	15	12	6	6	0	12	6	6	6

Table 8.3: VP Survey Hours, October 2021 – September 2022

VP ID	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	6	6	3	6	9	6	6	6	6	6	6	6
2	6	6	3	6	9	6	6	6	6	6	6	6

8.2.2 Baseline Conditions

Desk Study - Designated Sites

There are no statutory designated Sites within 10km, which are designated in full or in part for their ornithological interest.

Desk Study - Existing Wind Farms

Historic data from the combined flight activity monitoring at Ben Sca, Ben Aketil and Edinbane suggest that the Balmeanach area has had a concentrated amount of raptor flight activity in the past and that recent monitoring in 2017 has shown that golden eagle and white-tailed eagle are still using the Balmeanach area. 2018 data although only concentrated on the Ben Sca project area has shown very little flight activity data for raptors.

This historic data does show that golden eagle and white-tailed eagle flights have been displaced from the area of the operational Ben Aketil Wind Farm and that such displacement may well occur in future if the proposed development is progressed. This would potentially remove this area of habitat from the home ranges of eagles in the area but would also preclude them from collision risk.

Field Surveys

Ornithological field surveys have been underway since February 2020 as detailed in Table 8.1.

Flight activity at the Balmeanach Site was dominated by transitory white-tailed and golden eagles, with most of these flights associated with the areas of higher ground to the edge of the Site and outside the Site boundary i.e. away from the proposed turbine locations. There were a few occasional flights by other raptors i.e. hen harrier and merlin. White-tailed eagle flights were assessed as being commuting flights associated with a nearby breeding territory (centred c. 2km to the south). Golden eagle flights were most likely to be commuting flights by non-territorial sub-adult birds. The number of target species flights recorded during VP surveys are summarised in Tables 8.4 and 8.5 with summary species accounts below. More detail and flight line maps are provided in SLR 2021.

Table 8.4: Number of target species flights, February 2020 to March 2021

Species	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
White-tailed eagle	1	7	7	1	8	9	1	7	0	0	2	2	0	0
Golden eagle	2	3	2	2	2	6	0	0	1	0	4	0	0	0
Hen harrier	0	0	1	0	0	0	1	0	1	0	0	0	0	0
Merlin	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Golden plover	0	2	1	0	1	1	1	0	2	0	0	0	0	3
Red-throated diver	0	0	0	0	4	0	0	0	0	0	0	0	0	0

Table 8.5: Number of target species flights, October 2021 to June 2022

Species	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
White-tailed eagle	4	0	0	0	2	0	2	1	0
Golden eagle	2	1	0	0	2	3	1	2	0
Golden plover	0	4	0	1	1	1	0	0	2

White-tailed Eagle

Throughout the 2020-2021 year of survey the 45 flights were either of a pair of adult birds (n=3), pairs of sub-adults (n=2), single adults (n=18), or single sub-adults (n=19). One flight was of an unaged bird. In total the 43 flights involved 48 birds for a total of 8,746 seconds. Flights are focussed south of Ben Aketil, around the ridge line of Edinbane Wind Farm, and over the ridge line of An Clèireach. All these flights were non foraging, transitory flights that were passing through the Balmeanach area.

From October 2021 to June 2022, nine flights were recorded in total. These flights were of birds circling and crossing the Site between ridge lines.

Golden Eagle

Throughout the 2020-2021 year of survey the 22 flights were predominantly of sub-adult birds (n=13) with unaged birds (n=5) and adult birds (n=4) also recorded. In total the 22 flights involved 26 birds for a total of 3,495 seconds. The pattern of flights is similar to that of white-tailed eagle and follow the areas of high ground around the Site, with occasional territorial/ antagonistic interactions between the two species recorded.

From October 2021 to June 2022, 11 flights have been recorded. One of these birds was of an adult eagle foraging near the Edinbane wind turbines, otherwise flights were of birds circling and crossing the area between ridge lines.

Hen Harrier

Only three flights were recorded: in April, August and October 2020. These flights are assumed to be transitory, and although breeding occurred just over 2km away, the Site does not appear to be important for foraging hen harriers.

Merlin

A single record of bird in April 2020 was most likely a bird just passing through as there were no birds breeding on or near the Site. A second passage bird was recorded in September 2020.

Golden Plover

In 2020, Golden plover were breeding within 500m of the Site boundary to the north, and there were some short breeding season flights around VP2 that were likely to involve locally breeding birds. In addition, flights in March, August and October 2020 are considered to involve passage birds, including a flock of 45 birds on 27 March 2020. Three flights of three, four and five birds were also recorded in March 2021. An additional nine flights have been recorded during the 2021/2022 surveys.

Red-throated Diver

Adults were recorded flying in and out of Loch Cnoc a' Chrochaire on 11 and 27 June 2020 (n=4 flights). These birds were not breeding on Site and did not cross the development area.

8.2.3 Potential Sources of Impact

The key ornithological issues relating to the proposed development are the potential for it to adversely affect the conservation status of bird species with statutory protection (through inclusion in Annex I of the EU Birds Directive or Schedule 1 of the Wildlife & Countryside Act, as amended) or otherwise those of high conservation concern, through habitat loss, disturbance, displacement, barrier effects and collisions with the proposed turbines. Potential negative impacts (direct or indirect) on ornithology could arise during the construction and operation stages. These are defined as follows:

Land take Impacts

Direct land take for the installation of the proposed development infrastructure (turbine bases, substation, access tracks etc.) could result in the long-term or permanent loss of habitat for birds within the Site, albeit such losses would be relatively small in the context of the Site as a whole.

Construction Impacts

Disturbance caused by construction could directly displace birds from breeding Sites, directly affecting breeding success, or may temporarily displace birds from foraging areas, affecting their breeding success and winter survival.

In addition to these possible impacts on individuals and populations, any wind farm construction work undertaken during the bird breeding season (March to July/ August, inclusive) carries a risk of illegal destruction, damage or disturbance to occupied bird nests. The EIA Report will address and propose measures to reduce or eliminate this impact through mitigation such as seasonal timing of construction works, preconstruction surveys and the employment of an Ecological Clerk of Works (ECoW) during construction.

Operational Impacts

Disturbance/Displacement and Barrier Effects

The operation and maintenance of turbines has the potential to cause disturbance and displace certain bird species from the Site. During the lifetime of the proposed development, birds of some species may habituate to the presence of turbines, and so this impact may decline in the long-term.

Collision

The EIA will consider the potential collision risk from the proposed turbines on the primary target species that have been identified as using the Site. The impact of potential collision mortality on a species population is influenced by several characteristics of the affected population, notably its size, density, recruitment rate (additions to the population through reproduction), mortality rate in the absence of collision mortality, and immigration and emigration rates to and from the population. These will be considered in the EIA.

In general, the impact of an individual (of breeding age) being lost from the population will be greater for species that occur at low density, are relatively long-lived and have low annual reproductive rates. Such species include wildfowl, waders and the larger raptors. Conversely, the impact will often be insignificant for short-lived species with high reproductive rates, including most passerines (e.g. skylark). Collision risk is perceived to be higher in species that spend much of their time in the air, such as foraging raptors and those that have regular flight paths between feeding and breeding/roosting grounds (e.g. geese). Vulnerability to collision is also influenced by factors such as the flight manoeuvrability of a species and its tendency to fly in conditions of reduced visibility (e.g. at night or in fog). These variances will be considered in the EIA as relevant to the identified species.

Cumulative Impacts

It is also important to assess the cumulative impacts of this and other operational and consented wind farms that may affect the broader populations of birds identified as target species in the survey area. NatureScot guidance (SNH 2012) states that the concept of Favourable Conservation Status (FCS) should be used outside designated Sites to determine whether an impact on a sensitive species is likely to be significant. A species' conservation status is favourable where:

- a species' population dynamics indicate that the species is maintaining itself on a long-term basis as a viable component of its habitats;
- a species' natural range is not being reduced, nor is it likely to be reduced for the foreseeable future; and
- there is (and will probably continue to be) a sufficiently large habitat to maintain its population(s) on a long-term basis.

A cumulative effect will be judged as significant where it would negatively affect the FCS of a sensitive species, whether exacerbating an existing decline or preventing a sensitive species that is recovering from reaching favourable conservation status. The premise here is that impacts from a number of developments, when assessed cumulatively, may exceed some threshold value (e.g. for loss of habitat or loss of breeding birds from collision), beyond which the impact becomes unacceptable.

8.3 Method of Assessment and Reporting

8.3.1 Ornithology data to be considered in the assessment

It is proposed that the data sets that will be used in the ornithology impact assessment for Balmeanach are as follows:

- Balmeanach ornithology data 2020-2022 including:
 - Flight activity data for golden eagle, white tailed eagle, hen harrier and merlin.
 - Flight activity data for red throated diver and golden plover.
 - Flight activity data for important secondary species where recorded such as: buzzard, sparrowhawk, kestrel, raven and waterfowl.
 - Breeding wader records i.e. golden plover.
- Ben Sca wind farm ornithology data 2018 as above including:
 - Flight activity data for golden eagle, white tailed eagle, hen harrier and merlin.
 - Flight activity data for red throated diver and golden plover.
 - Flight activity data for important secondary species where recorded such as: buzzard, sparrowhawk, kestrel, raven and waterfowl.
 - Breeding wader records i.e. golden plover.
- Ben Aketil wind farm post consent monitoring data 2017 where viewsheds overlap with Ben Sca:
 - All flight activity data for white tailed eagle.
 - All flight activity data for golden eagle.
 - All flight activity data for hen harrier.

8.3.2 Assessment of Effects

The assessment and reporting process will follow CIEEM (2018) with reference to relevant NatureScot guidance as appropriate. The intended process is set out below:

- further detailed desk studies and collation of existing material, including all baseline survey data collected for the project, raptor study group data and information from other wind farm developments;
- identification of the Valued Ornithological Receptors (VORs) at the Site; from survey work completed to date these will likely include:
 - white-tailed eagle *Haliaeetus albicilla*;
 - hen harrier *Circus cyaneus*;
 - golden eagle;
 - golden plover *Pluvialis apricaria* and other waders;

- Merlin *Falco columbarius*; and
 - Red throated diver *Gavia stellata*.
- evaluation of the potential impacts of the proposed development during construction and operation and the effects these could have on the VORs;
 - analysis of data including collision mortality modelling, if required, for those VORs with sufficient flight activity within the collision risk zone (Band, 2007), and assessing the potential displacement of VORs with significant populations within the Site;
 - evaluation of the significance of effects by considering the impacts on the VORs by employing appropriate guidance and professional judgement. When describing impacts, in accordance with CIEEM guidelines, reference will be made to the following: magnitude (area or number of individuals to be impacted); extent; duration; and reversibility, i.e. will the impact be permanent or reversible over a given timescale;
 - incorporating measures to avoid and mitigate (reduce) potentially significant effects;
 - assessing the significance of any residual effects after mitigation;
 - identifying appropriate compensation measures to offset significant residual effects (if required);
 - identifying opportunities for ecological enhancement; and
 - cumulative effects assessment along with other developments.

8.3.3 Mitigation

Mitigation, compensation and enhancement measures are dependent on the assessment of impacts in the EIA Report. Outline details will be provided in the EIA Report with further details provided in an outline Habitat Management Plan, the detail of which would be agreed with THC post-consent.

8.3.4 Cumulative Assessment

Cumulative assessment will be undertaken for each of the VORs identified within the EIA Report. The assessment will include operational projects, projects under construction, consented projects which are not yet under construction and projects for which valid planning applications have been submitted.

With regard to the scale of the cumulative assessment, NatureScot (SNH, 2012) guidance indicates that the default approach should be to assess cumulative effects at the Natural Heritage Zone (NHZ) scale, unless there is a reasonable alternative. The Site is located within NHZ 6 (Western Seaboard) and consideration of all other projects in this area would entail assessment of six other wind farms on Skye (Ben Sca and its Extension, Ben Aketil and its Extension, Edinbane, Glen Ullinish, Woodend Farm and Beinn Mheadhonach).

8.4 Matters Scoped Out

Matters to be scoped out of the EIA with respect to ornithology include:

- impacts on designated sites. Considering the distance between the Cuillins SPA and the Balmeanach Wind Farm site boundary (14.24km), and maximum foraging range of the designated feature (golden eagle - 9km), there are unlikely to be any impacts on any species for which the SPA is designated.
- impacts on species which do not represent VORs at the Site. In accordance with CIEEM guidelines detailed assessment is only required for VORs. A list of VORs, based on survey work completed to date, is included in Section 8.3.2. Whilst this list will be subject to review following completion of outstanding survey work, at this stage it is proposed that impacts on all other species not listed in Section 8.3.2 will be scoped out of the EIA.

8.5 Questions for Consultees

- Do consultees agree with the scope of surveys and ornithological impact assessment methodology?

8.6 References and Standard Guidance

The following legislation and guidance is applicable to ornithology surveys and assessment for onshore wind farm developments in Scotland and will be referred to as part of the assessment:

- Atmos. 2017. Atmos (2018) Ben Aketil Wind Farm (Skye): Post Construction Monitoring Report 2017.
- Band et al. (2007) Developing field and analytical methods to assess avian collision risk at wind farms.
- Brown, A. F & Shepherd, K. B. (1993). A method for censusing upland breeding waders. *Bird Study* 40: 189-195.
- CIEEM. 2018. Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.
- Council Directive 79/409/EEC on the conservation of wild birds (EU Birds Directive) as amended by Directive 2009/147/EC.
- Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 108, 708–746
- Fielding, A., Haworth, P., Whitfield, P., McLeod, D. & Riley, H. 2011. A Conservation Framework for Hen Harriers in the United Kingdom. JNCC Report 441. Joint Nature Conservation Committee, Peterborough.
- Gilbert, G., Gibbons, D.W. & Evans, J. 1998. *Bird Monitoring Methods*. RSPB, Sandy.
- Hardey, J., Crick, H.Q.P., Wernham, C., Riley, H., Etheridge, B., Thompson, D. 2013. *Raptors a field guide for surveys and monitoring (3rd Edition)*. The Stationery Office Edinburgh.
- Haworth Conservation. 2015. Edinbane Wind Farm: Ornithological Monitoring 2007 – 2014. A review of the spatial use of the area by birds of prey.
- Ruddock, M. and Whitfield, D.P. (2007). A Review of Disturbance Distances in Selected Bird Species. A report from Natural Research (Projects) Ltd to SNH
- SLR. 2021. Balmeanach Wind Farm. Review of 2020 ornithology data.
- SLR. 2019. Ben Sca Wind Farm: Review of Ornithology Data. Report to Wind 2 Ltd.
- SNH. 2000. Wind farms and birds: calculating a theoretical collision risk assuming no avoidance action.
- SNH. 2009. Environmental Statements and Annexes of Environmentally Sensitive Bird Information.
- SNH. 2012. Assessing the Cumulative Impact of Onshore Wind Energy Developments.
- SNH. 2016. Assessing Connectivity with Special Protection Areas (SPAs) – Guidance.
- SNH. 2017. Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms v2.
- SNH. 2018. Assessing Significance of Impacts from Onshore Wind Farms Outwith Designated Areas
- The Nature Conservation (Scotland) Act 2004.
- Wildlife and Countryside Act 1981 (as amended in Scotland).

- Whitfield, D P, Fielding, A H, McLeod, D R A and Haworth, P F (2008). A conservation framework for golden eagles: implications for their conservation and management in Scotland. Scottish Natural Heritage Commissioned Report No.193 (ROAME No. F05AC306).
- Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504. pp72.

Additional reference material which is relevant to the assessment will also be referred to as required.

9.0 Hydrology and Soils

This section considers the scope of work required to assess potential significant effects associated with hydrology and soils during the construction and operational phases of the proposed development.

9.1 Consultation

Key issues and comments raised in the pre-application consultation with regards to hydrology and peat was as follows:

- the proposed development Site includes areas of carbon rich soils, deep peat and priority peatland habitat, the importance of which has been identified in Scottish Planning Policy (SPP);
- a peat depth survey and peat stability assessment is required to determine the location of infrastructure;
- detailed assessment is required which considers and if necessary quantifies any loss of peat resource and any impacts on the functioning of the habitats associated with it;
- an assessment of the impacts should be made using a carbon calculator;
- details should be provided of excavation and reinstatement of peat including descriptions of the quantities of acrotelmic, catotelmic and amorphous peat which will be excavated and where it will be re-used;
- a peat management plan is required in accordance with SEPA guidance; and
- the application should include proposals for peatland restoration and other enhancement opportunities across this extensive Site.

Further consultation and data requests will be conducted with the following bodies:

- THC;
- SEPA;
- NatureScot;
- Scottish Water;
- Skye District Salmon Fisheries Board; and
- Skye and Wester Ross Fisheries Trust.

9.2 Environmental Baseline and Potential Sources of Impact

9.2.1 Baseline Conditions

The British Geological Survey (BGS) record the solid geology underlying the proposed development to comprise of igneous rocks (basalt, microgabbro, hawaiite and mugearite) of the Skye Lava Group. The BGS record bedrock as being at or near the surface on higher parts of the Site.

A Phase 1 peat probing exercise was completed in October 2020 (and has been augmented with data collected for the consented Ben Sca Wind Farm in May 2018/April 2019) and it has been confirmed that the depth of peat within the Site is highly variable, with only limited discrete areas more than 2m deep (Figure 11). The majority of the Site has a confirmed peat depth of <1m. The area is classed by NatureScot (Carbon and Peatland Map, SNH 2016) as a priority peatland habitat, however the peat is highly variable in depth, and the land is managed and used for grazing. The Site is generally degraded from a peat quality perspective.

The National Soil Map of Scotland (Scottish Government) classifies these peat areas as peaty gleys with some blanket peat with a high conservation value (Class 1). It is likely that the deeper areas can be avoided through design.

Published mapping confirms there is no underground or surface opencast mining.

The Site lies within three principle river catchments: Aketil Burn, Allt Bhaile Mheadhonaich and Allt Ruairidh.

The indicative River, Surface and Coastal Flood Map (Scotland) produced by SEPA shows that the Site is considered to lie in an area not considered at flood risk. Small, discrete areas of surface water flooding are indicated within the Site, but these are isolated and not connected and do not pose a development constraint.

The receiving coastal waters for the watercourses draining the Site are designated as SACs with regards to Harbour Porpoise. Coastal waters of Skye are included within the SAC Inner Hebrides and The Minches. Loch Snizort is designated as a shellfish water protected area with its water quality being impacted by diffuse source from rural activities. The SEPA water environment hub indicates that water quality is currently not at its target objective but aims to rectify this by 2027.

There are no other designated sites (SSSIs, RAMSARs, SPAs etc.) in direct hydraulic continuity with the Site.

9.2.2 Potential Sources of Impact

Without mitigation or adherence to best practice, impacts on soils, geology, hydrology and hydrogeology could occur during the two main stages of development (construction and operation). A summary of the potential effects on ground conditions and the water environment resulting from construction and operation of a wind farm is provided below. These will be considered in the EIA Report.

Potential Impacts During Construction:

- disturbance and loss of deposits of peat;
- disturbance of any residual ground contamination which might be associated with historic land use;
- ground instability (including peat slide risk);
- impacts on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances;
- discharge of sediment-laden runoff to drainage system and watercourses;
- increased flood risk to areas downstream of the Site during construction through increased surface runoff;
- changes in groundwater levels from dewatering excavations;
- potential change of groundwater flow paths and contribution to areas of peat and GWDTEs;
- disturbance of watercourse bed and banks from the construction of culverts; and
- potential pollution impacts to public and private water supplies.

Potential Impacts During Operation:

- increased runoff rates and flood risks, resulting from increases in areas of tracks and hardstand at turbines;
- changes in natural surface water drainage patterns (which may affect water contribution to areas of peat and GWDTE);
- changes to groundwater levels and groundwater movement;

- longer term impacts on abstraction for water supplies, particularly any supplies dependent on groundwater; and
- pollution impacts on surface water quality from maintenance work.

9.3 Method of Assessment and Reporting

The potential effects from the proposed development on soils and the water environment will be assessed by completing a desk study and further field investigation followed by an impact assessment, the processes of which are detailed as follows.

Desk Study

An initial desk study will be undertaken to determine and confirm the baseline characteristics by reviewing available information relating to soils, geology, hydrology, and hydrogeology such as groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and private water supplies, surface water flows, flooding, rainfall data, water quality and soil data. This will include review of published geological maps, OS maps, aerial photographs and any Site-specific data such as Site investigation data, geological and hydrogeological reports, digital terrain models (slope plans) and geological literature.

The desk study will identify sensitive features which may potentially be affected by the proposed development and will confirm the geological, hydrogeological and hydrological environment.

Field Surveys

The hydrological assessment specialists will liaise closely with the project ecology and geology / geotechnical specialists to ensure that appropriate information is gathered to allow a comprehensive impact assessment to be completed.

A detailed Site visit and walkover survey will be undertaken to:

- verify the information collected during the desk and baseline study;
- undertake a visual assessment of the main surface waters and identify private water supplies (as requested in the pre-application advice issued by THC);
- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;
- visit any identified GWDTEs (in consultation with the project ecologists);
- prepare a schedule of potential watercourse crossings; and
- inspect rock exposures, establish by probing an estimate overburden thicknesses (a probe is pushed vertically into the ground to refusal and the depth is recorded).

The desk study and field surveys will be used to identify potential development constraints and be used as part of the Site design.

As noted above, a Phase 1 peat probing exercise has been completed and it has been confirmed that the peat depth at Site is highly variable, with only a few areas of peat greater than 2m (Figure 11).

The peat probing completed as part of the initial field surveys will be developed further and a Phase 2 peat probing exercise will be undertaken and the following works will be completed:

- peat depths within the development area will be obtained using a 50m grid where access is possible (the probing will also provide information of the substrate below the peat);
- a limited (in terms of aerial extent) geomorphological mapping exercise will be undertaken to link the topographic features with the underlying geology and to visit those areas of the Site that may be identified as potentially 'at risk from peat slide';

- the thickness of the peat will be established by probing and the underlying sub-strata confirmed by inspection of watercourses;
- the investigation will assess turbine locations, access routes and borrow pits for signs of existing or potential peat instability; and
- output from the field survey will comprise a record of investigation locations and summary of peat depths recorded.

Once the desk and field surveys are completed and sensitive soil, geological and water features identified, an impact assessment will be undertaken to assess the potential effects on soils, geology and the water environment as a result of the construction and operation of the proposed development.

Assessment of Effects

As requested by the pre application advice issued by THC, the purpose of this assessment will be to:

- identify any areas susceptible to peat slide, using peat thickness and DTM data to analyse slopes;
- assist in the micro-siting of turbines and tracks in areas of no peat or shallow peat;
- assess potential effects on soils, peat and geology;
- determine what the likely effects of the proposed development are on the hydrological regime, including water quality, flow and drainage;
- allow an assessment of potential effects on identified licensed and private water supplies;
- assess potential effects on water (including groundwater) dependent habitats;
- determine suitable mitigation measures to prevent significant geological, hydrological and hydrogeological effects;
- assist in the micro-siting of turbines in the least hydrogeologically and hydrologically sensitive areas by applying buffer zones around watercourses and other hydrological features; and
- develop an acceptable code for working on the Site that will adopt best practice procedures, effective management and control of onsite activities to reduce or offset any detrimental effects on the geological, hydrogeological and hydrological environment.

A qualitative risk assessment methodology will be used to assess the significance of the potential effects. Two factors will be considered: the sensitivity of the receiving environment and the potential magnitude should that potential impact occur.

This approach provides a mechanism for identifying the areas where mitigation measures are required, and for identifying mitigation measures appropriate to the risk presented by the proposed development. This approach also allows effort to be focused on reducing risk where the greatest benefit may result.

The sensitivity of the receiving environment (i.e. the baseline quality of the receiving environment as well as its ability to absorb the effect without perceptible change) and the magnitude of impacts will each be considered through a set of pre-defined criteria.

The sensitivity of the receiving environment together with the magnitude of the effect defines the significance of the effect, which will be categorised into level of significance.

A review of other existing and planned developments near the proposed development will be undertaken and potential impacts on hydrology, hydrogeology and geology will be assessed to identify cumulative impacts.

Peat Management Plan & Peat Landslide Hazard and Risk Assessment

A draft Peat Management Plan will be prepared, as requested in the pre application advice issued by THC, as a supporting Technical Appendix in line with the SEPA Regulatory Position Statement: Developments on Peat (2012). The Waste Framework Directive (WFD) 2008/98/EC, transposed into National Law under The Waste Management Licensing (Scotland) Regulations 2011, sets out a requirement to apply a waste hierarchy. In terms of this project, this hierarchy will be considered as follows:

- prevent excavation;
- reduce volumes of peat excavated; and
- reuse excavated peat in a manner to which it is suited.

The peat probing completed as part of the initial field surveys will be developed further as part of the assessment of effects. If significant peat deposits are proven a Peat Landslide Hazard and Risk Assessment will be completed using the Site survey data and slope analysis (using DTM data), highlighting areas that may be impacted by a peat slide so that appropriate mitigation measures and can be identified.

9.4 Matters Scoped Out

At this stage, it is proposed that the following can be scoped out of detailed assessment:

- Detailed Flood Risk Assessment: Published mapping confirms that most of the Site is not located in an area identified as being at flood risk. It is proposed, therefore, that a simple screening of potential flooding sources (fluvial, coastal, groundwater, infrastructure etc.) is presented in the EIA Report and measures that would be used to control the rate and quality of runoff will be specified in the EIA Report.
- Drainage Impact Assessment: Principles for the design of any watercourse crossings and for the control of drainage shed from the development will be specified in the EIA Report. It is expected that these would be developed as part of the detailed Site design, should the Site be granted planning permission, and a Site-specific drainage plan would be a pre-development planning condition.
- Water Quality Monitoring: Classification data is available from SEPA for the watercourses at Site and there are no known sources of potential water pollution at Site that might give rise to the need for water quality monitoring.

9.5 Questions for Consultees

- Are consultees aware of any specific Site sensitivities that have not been noted above and should be considered in the EIA Report?
- Do consultees agree the items proposed in Section 9.4 can be scoped out of the assessment?
- It is proposed to assess any properties with a Private Water Supply recorded by THC within 1km of the Site boundary – is this buffer acceptable?

9.6 References and Standard Guidance

The hydrology and soils chapter will be prepared with reference to best practice guidance and legislation, including (but not limited to):

9.6.1 Geology, Peat and Soils

- SEPA Regulatory Position Statement - Developments on Peat, Scottish Environment Protection Agency, 2012;

- Good Practice during Windfarm Construction, Ver4, a joint publication by Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland and AECOW, 2019;
- Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments, Scottish Government, January 2017;
- Developments on Peatland - Guidance on the assessment of peat volumes, re-use of excavated peat and the minimisation of waste -, Scottish Renewables, SEPA, 2012;
- Floating Roads on Peat - Report into Good Practice in Design, Construction and Use of Floating Roads on Peat with particular reference to Wind Farm Developments in Scotland, Forestry Commission Scotland (FCS), Scottish Natural Heritage (SNH), 2010;
- Managing Geotechnical Risk: Improving Productivity in UK Building and Construction, Institution of Civil Engineers, 2001;
- Ground Engineering Spoil: Good Management Practice, CIRIA Report 179, 1997;
- Scottish Roads Network Landslides Study Summary Report, Scottish Executive, 2005; and
- Guidelines for the Risk Management of Peat Slips on the Construction of Low Volume/Low Cost Roads on Peat, Forestry Commission, 2006.

9.6.2 Hydrology and Hydrogeology

- EC Water Framework Directive (2000/60/EC);
- Scottish Planning Policy (SPP), Scottish Government 2014;
- Water Environment and Water Services (Scotland) Act 2003;
- Water Environment (Controlled Activities) Regulations 2011;
- Land Use Planning System – SEPA Guidance Note 31 (Guidance on Assessing Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems), Version 3, SEPA, 11/09/2017;
- Control of Water Pollution from Linear Construction Projects – Technical Guidance, C648, CIRIA, 2006;
- Good Practice during Windfarm Construction, Ver4, a joint publication by Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland and AECOW, 2019;
- The SuDS Manual C753, CIRIA, 2015; and
- Environmental Good Practice on Site C692, CIRIA, 2010.

10.0 Archaeology and Cultural Heritage

This section considers the scope of work required to assess potential significant effects associated with archaeology and cultural heritage during the construction and operational phases of the proposed development. It is supported by Appendix B to provide greater detail on the proposed methodology to be employed.

10.1 Consultation

Key issues and comments raised in the pre-application consultation by HES with regards to archaeology and cultural heritage was as follows:

- there are several assets of historic interest in the vicinity of the Site including but not limited to:
 - SM893- Barpannan, two chambered cairns, Vatten Duirinish;
 - SM13664- Abhainn Bhaile Mheadhonaich, broch and standing stone 145m SE of An Cairidh;
 - SM3494- Dun Feorlig, broch 230m NNE of Feorlig Farm;
 - SM 13662- Dun Arkaig, broch (SM 13662);
 - SM9249- St Mary's Church and Burial Ground, Dunvegan;
 - SM905- Dun Fiadhairt, broch;
 - LB498- Dunvegan Parish Church (Church of Scotland);
 - LB501- Dunvegan Castle, approach causeway and bridge;
 - GDL00164- Dunvegan Castle;
- the assessment should consider all assets up to at least 10km from the proposed development, and should consider the potential for both views to and views from the assets to be affected;
- the scheduled monuments with the greatest potential to be affected appear to be those around Loch Caroy. These lie to the southwest of the proposed development and between around 1.75km to 5km from it;
- the closest monument to the proposed development is Abhainn Bhaile Mheadhonaich, Broch And Standing Stone 145m Se Of An Cairidh (SM13664) which is one of a local group that includes Dun Feorlig, another scheduled monument (SM3494) located to the southwest directly across Loch Caroy from Abhainn Bhaile Mheadhonaich. There is clear inter-visibility between these brochs and over Loch Caroy. Views to Abhainn Bhaile Mheadhonaich from Dun Feorlig and elsewhere around Loch Caroy are important to an understanding, appreciation and experience of its cultural significance. The proposed development has potential to affect these views and to include proposed turbines that would appear behind, or in close proximity, to Abhainn Bhaile Mheadhonaich;
- the proposed development could also have a significant impact on the setting of Barpannan, two chambered cairns, Vatten Duirinish (SM893); and
- cumulative impacts will also be an important consideration.

In response to the pre-application consultation, all assets within 10km of the proposed development have been considered. An appraisal based upon the ZTV, topography and designations data prepared by HES, has been conducted and is set out in Table A2 of Technical Appendix B. This review filters out those assets that will not require further assessment providing focus on the most potentially sensitive assets. Further consultation with HES is welcomed to agree that this appraisal provides the correct focus for the assessment within their remit including: scheduled monuments, category A listed buildings, inventoried gardens and designed landscapes, and

inventoried battlefields. THC will be further consulted for designated heritage assets of regional and local importance, and those undesignated assets locally considered of potential national importance.

10.2 Environmental Baseline and Potential Sources of Impact

10.2.1 Scope of Study

The cultural heritage assessment will identify cultural heritage assets that may be subject to significant effects, both within the limits of the proposed development Site and within an appropriate distance of the proposed turbines only where theoretical visibility is identified. The pre-application advice provided by HES has been taken into account in the preparation of this scope. Typically, assets located within 5km are the focus of the heritage study although it is acknowledged that there is the potential for impact upon assets located further than 5km from the Site. Despite this, it is considered that the 10km study area noted by HES would be disproportionate, given the size of the proposed turbines and the likely extent of any potential impact. Those assets included within the pre-application response within 10km will be included within the scope of the setting assessment assuming they fall within the ZTV, or views which the turbines and asset are considered important to the asset's significance. A full appraisal of the assets to be included in the scope are provided in Table A2, Appendix B.

The assessment will establish the potential for currently unknown archaeological assets that lie within the proposed development; assess the predicted effects on these assets; and propose a programme of mitigation where appropriate. It will consider direct effects (such as physical disturbance), indirect effects (such as caused by change within the settings of assets), and cumulative effects (where changes to an asset's setting which would result from the proposed development are also affected by other developments).

10.2.2 Baseline Conditions

The baseline condition presented is drawn from publicly available information on designated cultural heritage assets available from Historic Environment Scotland (HES), and for undesignated Sites from a search on Past Map (an online Web Map of the historic environment provided by HES).

Assets within the Site

Within the site boundary there are no designated cultural heritage assets such as: Scheduled Monuments; Inventoried Gardens and Designed Landscapes (GDL's); Inventoried Battlefields; World Heritage Sites; or Listed Buildings. A search of Past Map for Historic Environment Records (HER) (which would include non-designated cultural heritage assets) indicates that there are no recorded HER monuments within the red line boundary.

Assets outwith the Site

As noted in Table A2 of Appendix B, within 5km of the proposed turbine locations there are six Scheduled Monuments with potential intervisibility of the Site: an Iron Age broch called Dun Arkaig (SM13662), located approximately 2.8km to the south turbines; two chambered cairns at Barpannan (SM893), located 3.6km to the south west of the turbines; and three brochs, Abhainn Bhaile (SM13664), Dun Flashader (SM911) and Dun Feorlig (SM3494), located 3.8km to the south west, 4km north and 4.4km to the south west of the turbines respectively.

Dun Mor fort (SM918), Ardmore chapel and burial ground (SM3884) and Knock Ullinish souterrain (SM2139) lie within 5km of the proposed turbines but do not fall within the ZTV and are therefore scoped out of the assessment.

Three assets have been identified between 5km and 10km of the proposed development for inclusion in the assessment: Ullinish Lodge, chambered cairn (SM903), 6km to the south of the turbines; Ullinish fort (SM930), 6.5km to the south of the turbines; and Dun Osdale broch (SM3493), 8km to the northeast of the turbines.

There are no Inventoried GDL's; Inventoried Battlefields; World Heritage Sites; or Listed Buildings within 5km of the proposed turbine locations.

10.2.3 Potential Sources of Impact

Potential effects on cultural heritage associated with the construction and / or operation of the proposed development include:

- direct effects through partial or total removal during groundbreaking operations on currently undiscovered buried remains of archaeological interest;
- indirect effects on the settings of heritage assets including those resulting from intervisibility between the asset and the proposed development; and
- cumulative effects on setting with other proposed developments.

10.3 Method of Assessment and Reporting

10.3.1 The Study Area

There is no guidance from HES which defines a required study area for the archaeological and cultural heritage assessment of wind farms. All known heritage assets will be assessed within the proposed development boundary to ascertain their significance and potential for being affected during construction. Assets within 1km will be analysed to inform a level of probability for the potential of unknown buried archaeology within the proposed development boundary.

Within the Study Area, nationally important heritage assets that fall within 5km of the proposed turbine locations; and any additional relevant assets that have been highlighted in the heritage appraisal have been considered in Technical Appendix B and outlined in Section 10.2.2. All nationally important designated heritage assets within the Study Area will be considered for operational impacts upon their setting. Nationally important heritage assets include: World Heritage Sites; Scheduled Monuments; category A Listed Buildings; inventoried GDLs; and inventoried Battlefields. Of these only Scheduled Monuments are located within the Study area. This assessment will take into account particular sensitivity to long-distance visual impact, such as designed views, prospect towers and hill-top Sites.

10.3.2 Desk Study

The baseline assessment provides a synthesis of the historic environment based on layering of the data into a GIS and sorting information into chronological periods. This approach identifies any cultural heritage issues within the study areas using the following sources:

- consultation with the Historic Environment Record (HER) of the THC for the Study Areas, for Site-specific information;
- consultation with HES as appropriate for designated assets;
- consultation of web-based facilities for other information;
- map regression using historic mapping sources to identify changes and development of the historic landscape;
- review of available Historic Landscape Characterisation for the Site boundary;
- a review of aerial photographs of the Site boundary (National Collection of Aerial Photography, Edinburgh);
- review of any appropriate geotechnical data including peat probing and sampling data;
- relevant heritage assessments for any nearby developments;

- synthesis of published sources to establish historic landscape and archaeological context and any cultural heritage associations, including data from Canmore (the HES database);
- on-line data on designated assets including scheduled monuments, listed buildings and gardens and designed landscapes; and
- place-name analysis and assessment of the intangible cultural heritage of the study area.

10.3.3 Field Surveys

A walkover of the Site area in which turbines are likely to be positioned was undertaken on 04 July 2021 to establish the condition of recorded assets and identify the potential for the existence of additional assets not currently identified. An additional Site walkover will be undertaken in Autumn 2022 to cover the areas to the north and south within the current Site boundary not already covered.

In addition, once HES has been consulted and scope agreed, a targeted field inspection will be carried out of the location of the recorded assets likely to be indirectly impacted by the proposed development (as outlined in Table A2, Appendix B). This would be followed by a detailed analysis of those Sites identified as potentially sensitive to impacts from setting change.

Findings of the targeted field survey and Site gazetteer will be provided as technical appendices in the EIA.

10.3.4 Assessment of Impacts

The proposed development has the potential to result in impacts upon the significance of heritage assets where it changes their baseline condition and/or their setting.

In accordance with the EIA Regulations, this assessment will identify any development effects as either direct or indirect, adverse or beneficial, and short-term, long-term or permanent.

Assessment will be undertaken separately for direct impact and indirect impact. Direct impacts are those which would change the heritage significance of an asset through physical alteration; indirect impacts are those which would affect the heritage significance of an asset by causing change within its setting.

Direct impacts upon the significance of heritage assets will take into account the level of their heritage significance (where known) and the magnitude (extent) of the identified impacts.

Indirect impacts on the significance of heritage assets will be identified and assessed with reference to Managing Change in the Historic Environment: Setting (HES 2016b) and the guidance set out in the EIA Handbook (SNH and HES, 2018). Assessment will be carried out in the following stages:

- initial consideration of intervisibility and other factors leading to the identification of potentially affected assets;
- assessment of the heritage significance of potentially affected assets;
- assessment of the contribution of setting to the heritage significance of those assets;
- assessment of the extent to which change to any contributing aspects of the settings of those assets, as a result of the proposed development, would affect their significance (magnitude of impact); and
- determination of the significance of any identified effects.

The settings assessment will be assisted by a ZTV calculation, prepared principally for the LVIA and presented on Figure 12. The ZTV shows the predicted degree of visibility of the proposed development from all points within a proportionate, defined study area around the Site, as would be seen from an observer's eye level (2m above ground level). The ZTV model presented on Figure 12 is based on the maximum height of the blade tips of the proposed development.

In response to previous consultation advice received from HES on other wind farm projects, a more detailed methodology including definitions of significance is provided in Appendix B.

Mitigation

Where adverse effects on cultural heritage are identified, measures to prevent, reduce and/or, where possible, offset these effects, will be proposed. Potential mitigation measures can be discussed in terms of direct and indirect impact.

Suitable measures for mitigating direct impacts might include:

- the siting of proposed development infrastructure away from sensitive locations;
- the fencing off or marking out of heritage assets or features in proximity to construction activity in order to avoid disturbance where possible;
- a programme of archaeological work where required, such as an archaeological watching brief during construction activities in or in proximity to areas of archaeological sensitivity, or excavation and recording where impact is unavoidable; and/or
- a working protocol to be implemented should unrecorded archaeological features be discovered.

Suitable measures for mitigating any indirect impacts might include:

- alteration of the proposed turbine layout;
- reduction of proposed turbine heights; and/or
- changing the proposed colour of select turbines.

10.3.5 Cumulative Impacts

A cumulative effect is considered to occur when there is a combination of:

- an impact on an asset or group of assets due to changes resulting from the development subject of assessment; and
- an impact on the same asset or group of assets resulting from another development (consented or proposed) within the surrounding landscape.

Consideration of the other developments will be limited to:

- wind farm planning applications that have been submitted and have a decision pending; and
- wind farm planning applications which have been granted permission but not yet constructed.

Any impact resulting from operational wind farms would be considered as part of the baseline impact assessment. Cumulative impact would be considered in two stages:

- assessment of the combined impact of the developments, including the proposed development; and
- assessment of the extent to which the proposed development contributes to the combined impact.

10.4 Matters Scoped Out

On the basis of the work undertaken to date, the professional judgement of the cultural heritage team, and experience from other similar projects, it is considered that the following can be scoped out:

- designated assets as identified in Table A2, Appendix B that fall within 10km of the proposed turbine locations and are not considered to be affected by the proposed development; and

- indirect and cumulative impacts of the proposed development on Category C Listed Buildings. Scotland's Listed Buildings by Historic Scotland (2014), described Category C Listed Buildings as of local rather than national or regional importance.

10.5 Questions for Consultees

- Please can HES confirm they are happy with the approach to the assessment, proposed Study Area and list of assets scoped into the assessment?

10.6 References and Standard Guidance

Relevant legislation and policy documents include:

- The Ancient Monuments and Archaeological Areas Act 1979;
- The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997;
- The Historic Environment (Amendment) (Scotland) Act 2011 (this includes amendments to the above);
- Planning Advice Note Planning and Archaeology PAN 2/2011;
- Scottish Planning Policy (Scottish Government 2020);
- Historic Environment Policy for Scotland (HEPS 2019);
- Historic Environment Circular 1, HES 2016;
- Highland-Wide Local Development Plan (2012).

A number of relevant pieces of guidance have been published by the national heritage agency, HES, and the professional archaeological body, the Chartered Institute for Archaeologists (CifA). These publications are:

- HES's Managing Change in the Historic Environment: Setting (HES 2016). This document provides guidance on how to assess what constitutes the setting of historic structures or places. This is the key document available to assist in managing change;
- CifA's Standard and Guidance for Historic Environment Desk Based Assessment (CifA 2014a), which gives best practice for the execution of desk based assessments; and
- CifA's Code of Conduct (CifA 2014b).

Due cognisance will also be given to the EIA Handbook (SNH and HES 2018).

11.0 Noise and Vibration

This section considers the scope of work required to assess potential significant effects associated with noise and vibration during the construction and operational phases of the proposed development.

11.1 Consultation

Key issues and comments raised in the pre-application consultation by THC with regards to noise was as follows:

- it was suggested that new baseline data would be collected and the intention to include up to date baseline noise data was welcomed by THC. If undertaken these should be in accordance with ETSU-R-97 and the Good Practice Guide published by the Institute of Acoustics and it was recommended that monitoring locations be agreed with the Council's Environmental Health Officer (EHO) (please note that further consultation with the EHO has confirmed that new baseline data collection is not required – see below);
- the target noise levels are either a simplified standard of 35dB L_{A90} at wind speeds up to 10m/s or a composite standard of 35dB L_{A90} (daytime) and 38dB L_{A90} (night time) or up to 5dB above background noise levels at up to 12m/s. The night time lower limit of 43dB L_{A90} as suggested in ETSU-R-97 is not considered acceptable in many areas of the Highlands due to very low background levels. The noise limits would apply to cumulative noise levels from more than one development;
- the noise assessment must take into account the potential cumulative effect from any other existing or consented or, in some cases, proposed wind turbine developments. Where applications run concurrently, developers and consultants are advised to consider adopting a joint approach with regard to noise assessments;
- agreement should be sought from Council's Environmental Health Officer (EHO) on appropriate limits;
- the assessment should include a mitigation scheme to be implemented should noise levels from the development be subsequently found to exceed consented levels; and
- construction noise should be considered and it is expected that the developer/contractor will employ the best practicable means to reduce the impact of noise from construction activities. Attention should be given to construction traffic and the use of tonal reversing alarms.
- Consultation was initiated with the Council's EHO in July 2021 to understand the requirements for any new baseline data collection. After a discussion, it was agreed that no new data was required as suitably robust baseline noise data is already available in the Ben Aketil Wind Farm extension of life planning application (Ref: 20/04369/S42) noise assessment report undertaken by TNEI (document reference 14299-006) Rev R0 dated 03 November 2020. The baseline noise data complies with current best practice, IOA Good Practice Guide (IOA GPG), by adequately accounting for wind shear. Collection of further noise data would not be necessary as the baseline has already been determined prior to any wind development and updated measurements are likely to result in background noise levels being elevated by operational wind turbines in the area. This approach is in accordance with ETSU-R-97 and IOA GPG.

For the above reasons, no further baseline noise surveys need to take place for the proposed development and data used for Ben Aketil Wind Farm extension of life will inform the baseline. This is considered standard good practice and compliant with the IOA GPG.

The assessment of the cumulative case is to be in accordance with the IOA GPG and any wind farms producing noise levels 10 dB or more below the cumulative total need not be included in the assessment.

It is understood that the noted exception to the IOA GPG is that THC favour a night-time noise limit (L_{A90}) of 38 dB or 5 dB above background levels rather than 43 dB or 5 dB above background levels.

Further consultation will be undertaken with the EHO at THC throughout the assessment process with respect to their specific requirements for the noise assessment. This process will aim to agree the approach to the assessment of construction, operational and cumulative noise effects, along with the assessment methodologies and limit criteria for both operational and cumulative noise.

11.2 Environmental Baseline and Potential Sources of Impact

11.2.1 Baseline Conditions

The Site is located on moorland and grazing land. The surrounding area is rural in nature and the closest settlement is Edinbane which is approximately 3km to the north.

A number of potential Noise Sensitive Receptors (NSRs) have been identified, as detailed in Table 11.1 and shown on Figure 13. This list is not exhaustive and NSRs may be added to or removed from the list subject to further assessment work.

Table 11.1: Identified Noise Sensitive Receptors (NSRs)

NSR ID	NSR Name	Direction; Approximate Distance from Nearest Turbine	Approximate OS Grid Coordinates (NGR)
NSR01	Upperglen	North, 4.5km	131978, 851178
NSR02	Coishletter Woodland	North, 3.8km	133696, 851068
NSR03	Blackhill	North, 3.1km	134519, 850404
NSR04	Glen Vic Askill	Southeast, 2.2km	135979, 844311
NSR05	9 Balmeanach	South, 2.1km	133132, 843734
NSR06	Allt Ruairidh	South, 2.6km	132485, 843549
NSR07	2 Balmeanach	Southwest, 3.4km	131318, 843153
NSR08	North of 1 Balmeanach	Southwest, 3.5km	130944, 843272
NSR09	1 Caroy Struan	Southwest, 3.6km	130338, 843921
NSR10	12 Feorlig	West, 3.4km	129987, 845192
NSR11	Upper Feorlig	West, 3.5km	129940, 845118
NSR12	11 Upper Feorlig	West, 3.5km	129895, 844969
NSR13	1 Roskhill	West, 5.1km	128254, 845221
NSR14	Roskhill Cottage	West, 5.7km	127638, 845505
NSR15	Horneval	Northwest, 6.1km	127534, 848009

An initial 'screening' exercise will be undertaken, which will be based on a proposed turbine layout and a candidate turbine model. For those NSRs where turbine noise levels are predicted to be above 35dB L_{A90} (at wind speeds up to 10m/s), a further and more detailed assessment (in accordance with ETSU-R-97, 'The Assessment and Rating of Noise from Wind Farms') will be undertaken.

11.2.2 Potential Sources of Impact

The construction of the proposed development would introduce temporary noise sources in the form of plant and construction activities, along with the movement of vehicles. Noise would be generated during the

construction of access tracks, excavation for turbine foundations and as a result of the haulage of materials within the Site.

With respect to operational noise, wind turbines generate noise by two mechanisms; mechanical noise from the gearbox and generator in the nacelle; and aerodynamic noise caused by the noise of wind passing over the turbine blades. Wind turbines are designed to minimise mechanical noise, for example noise sources in the nacelle are contained within insulated enclosures. Aerodynamic noise is minimised by the design of the turbine blades; however, some aerodynamic noise is unavoidable. Aerodynamic noise increases in proportion with the speed of the turbine blade; therefore, noise levels generally increase with wind speed.

11.3 Method of Assessment and Reporting

The assessment will consider the potential effects of the proposed development due to noise associated with both the construction and operational phases, including consideration of the impact of construction traffic. Cumulative operational effects from Edinbane, Ben Aketil (and Extension), Glen Ullinish and Ben Sca Wind Farm and Extension will also be assessed in accordance with the IAO GPG.

11.3.1 Construction Noise

The assessment of temporary construction noise effects will include the calculation of noise levels from the anticipated plant and activities at the identified NSRs. Predictions of construction noise levels will be undertaken in accordance with BS5228-1:2009+A1:2014, *Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise*, (BS5228) using published source noise level data. The calculations will be undertaken in accordance with Annex F2.2, ‘*Method for Activity L_{Aeq}* ’ and Annex F2.4, ‘*Method for Mobile Plant in a Defined Area*’, and will assume a worst case scenario of all plant operating continuously and simultaneously for 10 hours.

The predictions of construction noise levels will be assessed against appropriate threshold values to identify the significance of temporary construction noise effects. In the absence of specific national guidance on noise limits during construction activities, the guideline noise limits in BS5228 will be used.

The impact of any change in road traffic noise associated with the construction phase will be based on the result of the Transport Assessment (detailed in Section 12.0), where consideration will be given to the increase in traffic flows generated on the proposed transport route(s). This will be based on the baseline and predicted flows, the change in noise will be calculated using the Calculation of Road Traffic Noise (CRTN), or for roads subject to a traffic flow the CRTN threshold, BS5228 haul route. Any changes in road traffic noise will be assessed following the guidance detailed within the *Design Manual for Roads and Bridges* (DMRB).

The residual effects of construction noise and construction traffic will be undertaken in accordance with relevant good practice, policy and guidance.

11.3.2 Operational Noise

The overall approach for the operational and cumulative noise assessment will be discussed in detail and agreed with THC. Ultimately, the assessment will be undertaken in accordance with ETSU-R-97, whilst also following the recommendations detailed within the IOA GPG, as recommended by national planning guidance and specifically within THC’s *Onshore Wind Energy Supplementary Guidance* (November 2016).

THC’s specific requirements for wind farm operational noise assessments are outlined in Section 4 of their Supplementary Guidance document. It states (at paragraph 4.53) that “*where noise from more than one wind turbine development may have a cumulative impact at any noise sensitive location, applicants must ensure this is adequately assessed in accordance with best practice, which includes consideration of both predicted and consented levels*”.

In this respect, the cumulative noise assessment will consider other turbines within a distance of 5km from the proposed development, namely Edinbane, Ben Aketil (and Extension), Glen Ullinish and Ben Sca and Extension, which are currently operating or consented. At this time there are no other known wind farms within 5km in the planning system. The assessment will be undertaken with reference to current best practice, noise predictions contained within the noise assessments of the individual applications and consented limits presented in the planning permissions. As per the guidance of ETSU-R-97 and the IOA GPG, daytime and night-time noise limits will be applicable to all wind turbines operating cumulatively. Therefore, the assessment of cumulative noise will be a key consideration with respect to the proposed development in the context of the consented noise limits associated with the operation of the existing wind farms.

In terms of operational turbine noise, noise impact will be considered throughout the design process in the form of changes to the proposed location of the turbines and/or the candidate turbine model. Mitigation, if required, will be based on the results of noise level predictions, assessed against the appropriate daytime and night-time cumulative noise limits.

The residual effects of operational noise will be undertaken in accordance with relevant good practice, policy and guidance.

11.4 Matters Scoped Out

It is anticipated that the following can be scoped out of the assessment:

- low frequency and infrasound, as there is no evidence of health effects as a result of these from wind turbines;
- amplitude modulation, including ‘excess amplitude modulation’ and ‘other amplitude modulation’, in line with the IOA GPG and THC guidance, is not something that can be adequately assessed at the planning stage;
- noise associated with traffic during the operation of the proposed development, as this is likely to be low and not significant in the context of the existing road network; and
- vibration effects as a result of construction and operational activities and associated traffic, considering the distances to the closest NSRs.

11.5 Questions for Consultees

- Is identification of nearby noise-sensitive receptors considered sufficient?
- Is the use of existing baseline noise data acceptable for this assessment?
- Are there any other wind farms within 5km of the Site that need to be included in the cumulative assessment in addition to Edinbane, Ben Aketil (and Extension), Glen Ullinish and Ben Sca and Extension wind farms?

11.6 References and Standard Guidance

The following policy and legislation will be referenced within the assessment:

- Scottish Government (2014), *Scottish Planning Policy*;
- Scottish Government (2011), Planning Advice Note PAN 1/2011, *Planning and Noise*, and the associated *Technical Advice Note*;
- Scottish Government (2013), *Onshore Wind Turbines* (web-based guidance); and

- The Working Group on Noise from Wind Farms (1996), ETSU-R-97, *The Assessment and Rating of Noise from Wind Farms*.

Furthermore, the following good practice and guidance documents will be referred to throughout the assessment:

- British Standards Institute (2014), British Standard BS5228-1:2009+A1:2014, Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise;
- Transport Scotland (2019), Design Manual for Roads and Bridges (LA 111 Noise and vibration);
- The Highland Council (2016), Onshore Wind Energy Supplementary Guidance;
- Institute of Acoustics (2013), A Good Practice Guide of the Application of ETSU-R-97 for the Assessment and Rating of Wind Farm Noise, and Supplementary Guidance Notes;
- International Organisation for Standardisation (1996), ISO 9613-1, Acoustics – Attenuation of Sound during Propagation Outdoors: Part 1 – Method of Calculation for the Attenuation of Sound by Atmospheric Absorption; and
- International Organisation for Standardisation (1996), ISO 9613-1, Acoustics – Attenuation of Sound during Propagation Outdoors: Part 2 – General Method of Calculation.

12.0 Site Access, Traffic and Transport

This section considers the scope of work required to assess potential significant effects associated with Site access, traffic and transport during the construction and operational phases of the proposed development.

12.1 Consultation

Key issues and comments raised in the pre-application consultation with regards to transport and access were as follows:

Transport

- a transport assessment is required to identify all Council maintained roads likely to be affected by the various stages of the development and consider in detail the impact of development traffic on these roads;
- use of on-Site borrow pits and the establishment of an on-Site concrete batching plant could help reduce traffic impact on the road network;
- cumulative impact with any other developments in progress or committed, including other renewable energy projects, should be considered;
- a detailed review of the preferred route to Site for abnormal loads, to include swept path assessment and consideration of any structures along the route, shall be undertaken and reported in an abnormal load route assessment (ALRA). It is likely that a trial run to demonstrate the suitability of the route will also be required;
- early consultation with THC's Structures Department is recommended with regard to affected Council maintained structures;
- the proposed route for general construction traffic should also be identified and reviewed within the assessment, if this is to be different to the preferred route for abnormal loads; and
- a construction traffic management plan to help control and reduce the impact of construction traffic will be required prior to the commencement of development.

Access

- THC's strong preference is for direct access from the A850, preferably via an existing wind farm access;
- details of any new Site access should be clearly set out in accordance with Roads and Transport Guidelines for New Developments, and include confirmation of geometry, construction and drainage as well as junction visibility splays.

The proposed development has been and will continue to be discussed with the following bodies/ organisations:

- THC – consultation to discuss the potential impacts of the development on the local road network and cumulative traffic effects. This will include consultation with the Structures Team, the local roads operations manager and the abnormal loads team;
- Transport Scotland – consultation to discuss the potential impact of the development on the trunk roads used for the transport of abnormal loads; and
- Sustrans – consultation in relation to potential impacts on pedestrians and cyclists.

Consultation will also be undertaken with the local communities in respect of traffic management proposals. The scope of the study and assessment for the proposed development in relation to access, traffic and transport will seek to identify potential issues which may result from the construction of the wind farm.

12.2 Environmental Baseline and Potential Sources of Impact

12.2.1 Baseline Conditions

The port of entry for abnormal indivisible loads (AILs) has been identified as Kyle of Lochalsh with the preferred delivery route to Site for wind farm components via the A87 trunk road and the A850-Dunvegan road:

- From Port Kyle of Lochalsh along Fishery Pier and onto the A87 trunk road heading west;
- Continue for approximately 2.5km;
- Take the 3rd exit at the A87/ Caol Acairn/ Old Kyle Farm Road roundabout to continue along the A87 westbound;
- Continue along the A87 trunk road c.52km;
- Take the 2nd exit on the A87/ Woodpark Road roundabout to continue on the A87 northwest bound;
- Continue along the A87 trunk road c.5.25km;
- Take the slip road to bear left onto the A850;
- Continue along the A850 c.17.75km; and
- Access to Balmeanach is to the left, directly off the A850, along the Ben Aketil access track and then consented Ben Sca access track for approx. 2.2km.

A similar route has previously been employed for construction of the neighbouring Edinbane and Ben Aketil Wind Farms and was assessed within the EIA for the consented Ben Sca Wind Farm; which will be located to the north west of the Site. The proposed turbines for Balmeanach would be of slightly bigger dimensions than those consented for Ben Sca and, therefore, a new Abnormal Load Rote Assessment (ALRA) would need to be undertaken. The ALRA will be appended to the EIA Report.

Traffic survey data will be obtained so that existing traffic flows and vehicle types using the key routes can be understood. Department for Transport (DfT) traffic data is available for the A850 near Edinbane (count 10944) which would provide classified estimated annual average daily flows (AADF). THC will be contacted to determine what additional traffic survey data may be available to inform the assessment.

Injury accident data for the roads within the study area will be obtained from the UK Government website records to ensure any road safety issues are identified.

It is proposed that the existing access track from the A850 which serves the constructed Ben Aketil Wind Farm, will be used to access Balmeanach, once it is upgraded and extended, as required, to serve the Ben Sca Wind Farm; with access onto the Site being taken from a new track which extends the Ben Sca Wind Farm tracks to the south (Figure 2c).

Whilst the above is the preferred route for the transportation of abnormal loads, various alternative options are being considered. The consented Glen Ullinish Wind Farm to the south of Balmeanach proposes accessing land to the south of the Site from the A863. This is also considered to be a feasible route for accessing the proposed development and will be explored further during the EIA.

12.2.2 Potential Sources of Impact

The potential sources of impact have been divided into the two development phases: construction and operation.

Construction Phase

The main potential sources of impact are likely to relate to the transportation of abnormal loads and the impact of construction traffic on the residential properties and areas along the network route. Effects will result from the number of heavy goods vehicles (HGVs), light goods vehicles (LGVs) and abnormal load deliveries required to transport the materials onto Site. In addition to this there will be traffic impacts associated with the community and roads authority to and from Site. Consultation will be undertaken with the community and roads authority to develop an Outline Construction Traffic Management Plan (CTMP) that includes appropriate control measures to manage the level of effects.

Operational Phase

The development, once operational, would have negligible traffic/ transport related impacts, caused by rare maintenance vehicles travelling to the Site. Abnormal load vehicle access is unlikely but may be needed should a turbine component require replacement.

12.2.3 Cumulative Assessment

The cumulative impacts from the other local wind farm developments will be a key consideration for the assessment, particularly in relation to the control of construction traffic in the local area. The cumulative assessment will focus on the construction stage as this will be the most likely period to create significant effects should the construction period of the proposed development overlap with the construction of other local wind farms or occur sequentially to other wind farm construction periods.

The traffic assessments and draft traffic management plans will be reviewed for the other developments (to include other wind farm Sites) identified to be of direct relevance and on a similar construction timeline to the proposed development. The proposed construction timescales for these developments will be carefully considered. Operational Sites are unlikely to create significant traffic effects and will, therefore, not be considered within the cumulative assessment. The assessment will focus on consented schemes and proposed developments at application stage within close proximity to the Site.

12.3 Method of Assessment and Reporting

The assessment to be presented in the EIAR will evaluate the effects on traffic from the proposed development and determine the scale of the impacts on the identified sensitive receptors. The main sensitive receptors to increased traffic levels and environmental impacts are identified within the study area as follows:

- residential properties along the A850;
- non-residential properties along the A87 (Portree High School, Broadford Primary School); and
- residential properties along the A87.

The EIA Chapter will include a detailed assessment of the current conditions and will focus on the potential effects during the construction phase, on the surrounding sensitive receptors. This will include a construction works programme, an assessment of the type of vehicles used during the construction phase and the number of trips anticipated to be generated by HGVs, LGVs and other vehicles. Mitigation measures to deal with the known local traffic issues arising from wind farm construction traffic will be identified, with the aim of reducing the effect of the vehicle movements.

12.3.1 Desk Study

The following data collection and analysis will be undertaken:

- a review of application documents;
- obtain traffic count data and accident data;

- assessment of traffic impacts of surrounding developments to understand potential cumulative effects;
- compile data on the number of construction vehicles and staff vehicle numbers likely to be present on the local highways network during the construction phase;
- review the anticipated construction programme (once available);
- comparison between predicted traffic flows on potentially affected roads with and without the proposed development traffic, reported as percentage increases; and
- a review of height and weight restrictions along proposed construction transport routes.

12.3.2 Mitigation Measures

Mitigation measures will be proposed following the completion of the impact assessment, as informed by the baseline. The purpose of these measures is to aim to remove, minimise or compensate any significant effects. These mitigation measures will be agreed with THC and Transport Scotland.

Mitigation potentially required for the significant effects resulting from the development could include:

- an Outline Construction Traffic Management Plan (CTMP) to be prepared for the movement of abnormal loads, including all temporary works and removal of street furniture as required;
- careful consideration of timing of construction; and
- design of offsite road improvements to facilitate access.

12.4 Matters Scoped Out

Due to the potential negligible environmental effects during the operation and decommissioning phases of the developments, it is proposed that these stages of the project are scoped out of the access, traffic and transport assessment.

Should the alternative access route outlined at the end of Section 12.2.1 be considered as a viable option to access the Site, a new ALRA would not be commissioned for this route as it has already been assessed as part of the March 2020 Glen Ullinish Wind Farm Section 42 application (ref no. 20/01129/S42). The assessment found that subject to certain road modifications and interventions access via this route would be feasible.

12.5 Questions for Consultees

- Do consultees agree the items proposed in Section 12.4 can be scoped out of the assessment?
- Please can THC confirm what traffic flow data is available to be used for the assessment?
- If no data is available for the A850, please confirm if an ATC would be required?
- Please confirm if baseline traffic data is required for the A87 and if so what data is available?

12.6 References and Standard Guidance

The access, traffic and transport assessment will be carried out in accordance with the following policy and guidance documents:

- Scottish Planning Policy (SPP);
- Institution of Highways and Transportation (IHT) publication “Guidelines for Traffic Impact Assessment”;
- Guidelines for the Environmental Assessment of Road Traffic (1993) from the Institute of Environmental Management and Assessment (IEMA);

- Transport Scotland “Transport Assessment and Implementation: A Guide”; and Department for Transport (DfT) “Design Manual for Roads and Bridges (DMRB); and
- THC’s Roads and Transport Guidelines for New Developments.

13.0 Socio-Economics, Tourism, Recreation and Land Use

13.1 Consultation

No specific comments were made at the pre-application stage with regards to socio-economics, tourism and recreation, except in regard to the landscape and visual assessment in reference to sensitive recreational attractions and routes (covered under Section 6.0). A map referring to outdoor access and showing core paths and other paths which form part of the wider path network was included.

The assessment will use desk-based information sources to assess the likely effects, supplemented by consultation with stakeholders if relevant. Information to inform the baseline will be sought from various sources, including:

- Office of National Statistics;
- THC;
- British Horse Society Scotland;
- Cycling Scotland;
- Community Councils;
- Scottish Association for Country Sports;
- Scottish Rights of Way and Access Society (Scotways);
- Sustrans Scotland; and
- Visit Scotland.

Any consultation would have three key objectives:

- to verify published information;
- to identify potential effects; and
- to help assess significance of potential impacts.

13.2 Environmental Baseline and Potential Sources of Impact

The location of the proposed development is to the south and east of the existing wind farms at Edinbane and Ben Aketil, and the consented Ben Sca Wind Farm and Extension. This would increase the distance and hence the likely visual impacts on sensitive tourism receptors along the northern coast including around Loch Greshornish, Edinbane village and the A850 tourist route. There is potential for impacts on tourism receptors along the more remote west coast including the A863 tourist route, as well as Dunvegan Castle and Gardens to the north west. Use of the A850 for construction traffic may affect socio-economic receptors along this route.

During construction there may be a temporary adverse impact on certain local receptors including walkers and other users of recreational routes and access land. The closest recreational route is a Core Path approximately 1.5km to the south of the Site; and an unclassified path running north to south through the Edinbane Wind Farm, 0.5km to the east at its closest point. Effects on local accommodation businesses could be adverse (for example if there is any disruption caused by construction traffic) or beneficial (if used by construction workers). As occupancy rates for accommodation on Skye are generally high throughout the year, there is potential for displacement of tourism visitors if accommodation on the island were to be occupied by construction workers unless appropriate mitigation (an accommodation strategy) is put in place.

There are likely to be beneficial effects on the local and Scottish economy, including employment opportunities for construction businesses in the region, and increased spend on local services and accommodation for workers. The proposed development will lead to investment within Highland and Scotland.

There may be opportunity for beneficial cumulative effects if the proposed development were to proceed simultaneously with other local renewable energy schemes; there is a possibility that the effects of the project in-combination with other similar developments occurring simultaneously could be to raise the aggregate effects if local businesses decide to expand, or skilled workers choose to start a new business if they expect that there is a sustainable flow of work in the pipeline, potentially in response to the increase in demand raising the service supply price.

Potential sources of impact during operation of the proposed development include impacts due to the presence of the wind farm on individual tourism and recreational receptors through visual and other impacts; these will be assessed taking account of the findings of other assessments such as landscape and visual effects.

A number of studies have examined whether there is a link between the development of wind farms and changes in patterns of tourism spend and behaviour, and generally the conclusion is that there is little effect. The assessment will draw upon the findings of these studies when examining whether the operational development may have an adverse effect on the local visitor economy.

There would also be impacts on employment due to the need for direct jobs and provision of services for management and maintenance of the wind farm. There is also potential for beneficial effects on the local economy due to the potential for shared ownership with the local community, in line with THC's Community Benefit policy. The community's returns on their investment could be directly invested in the community for example in developing skills and training. The income from shared ownership would be in addition to a community benefit fund. These income streams could provide benefit to the local area for the lifetime of the wind farm and beyond. The EIA Report will present the potential economic benefits associated with the various income and expenditure streams associated with the construction and operation of the wind farm.

13.3 Method of Assessment and Reporting

There is no industry standard guidance for this assessment. The proposed method for assessment, based on experience on similar projects including Ben Sca Wind Farm, is detailed as follows and will take into consideration any matters raised in this scoping exercise. The assessment will:

- consider the social and economic policy context at the local, regional and national level;
- review socio-economic and recreation baseline conditions within the relevant study areas;
- assess the likely scale, scope, permanence and significance of identified effects, taking account of any embedded environmental or social measures proposed within the planning application;
- recommend mitigation measures, where appropriate; and
- assess cumulative effects of the scheme with other proposed schemes.

13.3.1 Approach to Baseline

Study Areas

A two-tiered study area is proposed for the assessment and these are defined as follows:

Wider Study Area (WSA)

The WSA is intended to encompass the area within which significant effects on employment and the local economy, including the tourism economy, could occur. The WSA is required for certain receptor groups because the majority of the business and labour market effects that could occur would be experienced by population and

business centres located across a wide area. The WSA area is primarily set at the area of the Highland administrative area but effects are also considered within the rest of Scotland and the UK where relevant.

Local Area of Influence (LAI)

The LAI forms the focus for assessment of both direct and indirect effects on those land use and tourism receptors that are likely to experience effects at a more local level. The LAI for such projects is generally defined by the application Site together with an area extending to 5km from the Site boundary. Given the importance of the coastal area as a tourism asset, it is proposed that the LAI would be extended to 10km for receptors that are within line of sight (to be identified through the Zone of Visual Influence).

Desk Study

It is proposed that the land use and socio-economic effects would be based on a desk study and would not require any bespoke studies.

Field Survey

There would be no requirement for field studies, but the assessment would take account of findings from other EIA Report Chapters, in particular landscape and visual and traffic and transport.

13.3.2 Assessment of Effects

Receptor sensitivity will be based on the receptor's importance or scale and the ability of the baseline to absorb or be influenced by the identified effects. For example, a receptor (such as the local construction supply chain or a tourist route) is considered less sensitive if there are alternatives with capacity within the relevant study area. In assigning receptor sensitivity, consideration has been given to the following:

- the capacity of the receptor to absorb or tolerate change;
- importance of the receptor e.g. local, regional, national, international;
- the availability of comparable alternatives;
- the ease at which the resource could be replaced; and
- the level of usage and nature of users (e.g. sensitive groups such as people with disabilities).

In order to aid clear and robust identification of significant effects, specific and targeted criteria for defining the magnitude of impacts have been developed for this assessment based on experience on other similar projects. The following four levels of magnitude will be adopted using professional judgement: high; medium; low and negligible. These reflect the level of change relative to baseline conditions and /or whether the change would affect a large proportion of the existing resident population or would result in a major change to existing patterns of use.

The level of effect of an impact on socio-economic receptors is initially assessed by combining the magnitude of the impact and the sensitivity of the receptor. Where an effect is classified as major, this is considered to represent a 'significant effect' in terms of the EIA Regulations. Where an effect is classified as moderate, this may be considered to represent a 'significant effect' but would be subject to professional judgement and interpretation, particularly where the sensitivity or impact magnitude levels are not clear or are borderline between categories or the impact is intermittent.

Effects can be beneficial, neutral or adverse and these would be specified where applicable. It should be noted that significant effects need not be unacceptable or irreversible.

A statement of residual effects, following consideration of any specific mitigation measures, will be provided.

13.3.3 Mitigation

The assessment will take account of any environmental principles that are incorporated into the design of the proposed wind farm. These may include good practice construction measures with regard to matters such as traffic management and provisions for maintaining access for walkers. Any additional mitigation measures that would reduce the level of any significant effects will be set out in the chapter and considered prior to assessing residual effects.

13.3.4 Cumulative Effects

There is potential for cumulative effects to arise with regard to a number of prospective or consented projects at both construction and operational stage. Other projects to be assessed for cumulative effects will take account of the likely timing of construction, and proximity to the Site.

13.4 Matters Scoped Out

As the construction phase of the wind farm would be relatively short term (approximately 18 months) it is not expected that construction workers from outside the Wider Study Area (WSA) would have a significant effect on the demand for healthcare or educational services. Effects on demand for such community services are therefore scoped out.

Land use effects during the operational phase are scoped out as the operation of the wind farm would have minimal effect on agricultural or recreational uses.

13.5 Questions for Consultees

- Are the proposed study areas considered suitable?
- Are there any specific sensitive receptors that should be included?

13.6 References and Standard Guidance

The assessment will follow current best practice guidance as set out in the following documents:

- Scottish Planning Policy (2014), in particular paragraph 169;
- National Planning Framework 3 (2014) and Draft NPF 4 (2021);
- Scottish Government (2019) Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments;
- Scottish Government (2019) Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments;
- Scottish Government (2016) Draft Advice on Net Economic Benefit and Planning;
- Scottish Natural Heritage (2019) Good Practice During Wind Farm Construction; and
- Tourism Scotland 2020.

14.0 Other Environmental Issues

14.1 Introduction

A number of other environmental issues will be considered in relation to the proposed development. The approach to the following topics is discussed:

- aviation;
- infrastructure;
- telecommunications;
- television reception;
- shadow flicker;
- climate and carbon balance;
- air quality;
- population and human health; and
- environmental management.

Some of these topics have previously been proven not to be significant issues for wind farms in the vicinity of the Site and therefore it is anticipated that these can be scoped out of the EIA, where relevant. These topics, including reference to how they will be assessed or if they are proposed to be scoped out, are discussed in turn in the following text.

14.2 Aviation

Assessment of the effects of the proposed development on military and civil aviation will be undertaken through consultation with NATS, Ministry of Defence (MoD) and other relevant authorities. EIAs for the applications for the nearby wind farms of Ben Aketil, Edinbane and Glen Ullinish did not identify any issues with regards to aviation. For the adjacent consented Ben Sca Wind Farm and Extension, NATS identified potential interference with their radar on Tiree and as a result a mitigation radar blanking solution was agreed between Wind2 and NATS.

If it is assessed that the proposed development may have an adverse impact on nearby Air Traffic Control (ATC) radars or MoD low flying operation, a separate aviation assessment would be commissioned and if required, mitigation measures would be proposed and agreed with the relevant authority.

14.3 Infrastructure

Details and locations of infrastructure including overhead power lines, gas pipelines and underground cables will be checked and taken into account during the design of the proposed development.

14.4 Telecommunications

Wind farms produce electro-magnetic radiation which has the potential to interfere with broadcast communications and signals.

In order to determine the potential impact of the proposed development and inform the turbine layout, initial consultation has been undertaken with key stakeholders to identify relevant microwave links and Ultra High Frequency (UHF) telemetry links. Historically, Ofcom has provided on request a list of parties that operate licensed fixed links within a given search radius of a defined location. Since 2018, this process was under review

following GDPR requirements and has not been formally restarted. Therefore, consultation was undertaken directly with the most prevalent operators in order to obtain link details. At the time of writing, no further information from Ofcom has been made available. The following link operators were contacted:

- Airwave (Motorola Solutions);
- Arqiva;
- Atkins;
- British Telecom (BT);
- MBNL;
- Joint Radio Company (JRC);
- Virgin Media O2; and
- Vodafone.

No objection to the proposed development has been received from Airwave (Motorola Solutions), Atkins and Virgin Media O2.

A number of telecommunication links have been identified in the southern part of the Site, operated by Arqiva, BT, MBNL, JRC and Vodafone. Where relevant, the probability of a significant impact on fixed radio links has been assessed on the basis of Site proximity to transmitter-receiver paths and calculation of Ofcom-recommended clearance zones. Link paths and buffers have been used as constraints to development and informed the current turbine layout. Further consultation with each operator has been undertaken where relevant to understand if there are likely to be any potential operational issues. The current proposed turbine layout avoids direct impact on the identified links and the final design will ensure no conflict. It is therefore proposed the EIA will consider telecommunications through design and be scoped out of any further assessment.

The closest operational link is a FM radio link which is managed by Arqiva. Arqiva has confirmed through consultation that the current turbine layout would be acceptable and not cause interference issues to the link. It is recommended that THC consult with Arqiva as part of this Scoping exercise to confirm this conclusion.

14.5 Television Reception

The proposed development is located in an area which is served by a digital transmitter and is unlikely to be affected by the proposed development as digital signals are rarely affected. In the unlikely event that television signals are affected by the proposed development, mitigation measures will be considered by the applicant.

Television reception is scoped out of the EIA.

14.6 Shadow Flicker

Shadow flicker occurs when a certain combination of conditions prevail at a certain location, time of day and year. It firstly requires the sun to be at a certain level in the sky. The sun then shines onto a window of a residential dwelling from behind the wind turbine rotor. As the wind turbine blades rotate it causes the shadow of the turbine to flick on and off. This may have a negative effect on residents in affected properties.

If shadow flicker cannot be avoided through design, technical mitigation solutions are available, such as shutting down turbines when certain conditions prevail.

In the UK, significant shadow flicker is only likely to occur within a distance of ten times the rotor diameter (of a wind turbine), from an existing residential dwelling and within 130 degrees either side of north²⁴. As noted in the pre-application advice from THC, this is increased to 11 times the rotor diameter within the Highland area to account for the northern latitude.

Once the final turbine layout and parameters are fixed, the locations of residential properties in proximity to the Site will be verified and if any are situated within 11 rotor diameters from the proposed turbine locations, a shadow flicker model will be run to predict potential levels of effect.

The location of all residential dwellings, including confirm that no new dwellings have been built, or gained planning permission, in proximity to the Site will be verified during the EIA.

However, the current layout (shown on Figure 2a/2b) and likely maximum developable area does not have any residential properties within 11 rotor diameters (1,496m) of it and therefore it is proposed that shadow flicker is scoped out of the EIA (subject to no new residential dwellings being built within the zone of influence).

14.7 Climate and Carbon Balance

The EIA Regulations 2017 include for consideration of potentially significant effects on climate which includes greenhouse gas emissions. As a renewable energy project, the proposed development is likely to result in a significant saving in carbon and therefore benefit to the UK climate.

A carbon balance assessment will be undertaken for the proposed development using guidance Calculating Potential Carbon Losses and Savings from Wind Farms on Scottish Peatlands.

The main aims of the calculation are: to quantify sources of carbon emissions associated with the proposed development (i.e. from construction, operation and transportation of materials, as well as loss of peat as relevant); to quantify the carbon emissions which will be saved by constructing the proposed development; and to calculate the length of time for the project to become a 'net avoider', rather than a 'net emitter' of carbon dioxide emissions. The length of time is termed the 'payback time'.

14.8 Air Quality

Given the remote location of the Site, the generation of dust during construction activity is unlikely to have a direct impact on any human receptors and would be controlled by means of best practice to be described in the EIA Report.

Consideration will be given within the Ecology and Hydrology and Soils Chapters to the potential impacts that dust generation could have on any identified sensitive ecological or hydrological receptors. If required, detailed mitigation measures will be proposed within these EIA Report Chapters. Otherwise it is proposed that air quality is scoped out of the EIA.

14.9 Population and Human Health

The EIA Regulations 2017 include a requirement to assess as part of the EIA process, the potential significant effects on population and human health resulting from the proposed development. These requirements will be addressed in the EIA and EIA Report, as appropriate, under each of the other topic headings e.g. noise or socio-economic effects. Where no significant effects are likely these will be scoped out of the EIA.

²⁴ Parsons Brinckerhoff Consultants on behalf of DECC (2010) Update of UK Shadow Flicker Evidence Base. Available at: http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/ored_news/ored_news/uk_shad_flick/uk_shad_flick.aspx (Accessed on 22/04/2021)

14.10 Environmental Management

The applicant is committed to pollution prevention and environmental protection. As such an environmental management strategy to minimise environmental effects of the proposed development during construction will be developed. The principles of this strategy will be presented in an outline Construction Environmental Management Plan (CEMP) appended to the EIA Report. Should consent be granted, the outline CEMP would be revised and updated to a CEMP, the content of which would be agreed with THC through consultation and enforced via a planning condition. The CEMP would be used by the Contractor to ensure appropriate environmental management is implemented throughout the construction phase of the proposed development.

15.0 Invitation to Comment

You are invited to provide comment on this Scoping Report. Please send all Scoping responses to THC Planning Department at:

The Highland Council Headquarters
Planning and Economic Development
Glenurquhart Road
Inverness
IV3 5NX

epanning@highland.gov.uk

If you wish to discuss matters contained in this report in greater detail prior to responding to the Scoping exercise, please contact:

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APPENDIX A: PROPOSED TURBINE COORDINATES

Table A1: Proposed Turbine Coordinates for Scoping

Turbine Number	Easting	Northing	Turbine Blade Tip Height (m)
1	134268	847301	149.9
2	134677	847173	149.9
3	134048	846818	149.9
4	134516	846685	149.9
5	133604	846405	149.9
6	134051	846292	149.9
7	134337	846047	149.9
8	133303	845953	149.9
9	133762	845765	149.9
10	134316	845674	149.9

APPENDIX B: CULTURAL HERITAGE APPRAISAL AND DETAILED METHODOLOGY

Table A2: Archaeological Appraisal of Assets

Designation Ref	Designation Name	Category	Distance (km)	ZTV 0-10 Turbines	Direction	Appraisal Comments
SM7929	Struanmore, chambered cairn 800m SW of Struan Primary School	Prehistoric ritual and funerary: chambered cairn	6.5	0	South	Asset is scoped out of the assessment due to the asset falling outwith the ZTV and the primary setting (such as SM7930 and SM2139) of the asset is the immediate prehistoric landscape and views over the coast to the south.
SM7930	Dun Beag, cairn 100m SSW of, Struan	Prehistoric ritual and funerary: cairn (type uncertain)	5.5	0	South	Asset is scoped out of the assessment due to the asset falling outwith the ZTV and the setting being the immediate prehistoric landscape and associated heritage assets, mainly to the south.
SM3485	Sornaichean Coir Fhinn, standing stones, Eyre	Prehistoric ritual and funerary: standing stone	8.5	1	Northeast	Asset is scoped out of the assessment due to the main view being Loch Eyre and the immediate peninsulas. Whilst 1 turbine may be visible, as indicated by the ZTV, it is unlikely that this will interfere with the view towards Loch Eyre due to the defensive views to the north of the loch. With only one blade tip and an overall distance of 8.5km away from the proposed turbines it is therefore scoped out of further assessment
SM3511	Kensaleyre Church, two cairns 320m & 180m SW of	Prehistoric ritual and funerary: cairn (type uncertain)	8.5	0	Northeast	Asset is scoped out of the assessment due to the asset falling outwith the ZTV and the setting being the River Haultin, the immediate prehistoric landscape and associated heritage assets.
SM3512	Romesdal Bridge, cairn 460m SW of	Prehistoric ritual and funerary: cairn (type uncertain)	8.5	2	Northeast	Asset is scoped out of the assessment due to the asset falling outwith the ZTV and the setting being the surrounding prehistoric landscape and the view over Loch Snizort Beag.
SM3514	Carn Liath, chambered cairn 380m SW of Kensaleyre Church	Prehistoric ritual and funerary: chambered cairn	8.5	0	Northeast	Asset is scoped out of the assessment due to the asset falling outwith the ZTV and the setting being the River Haultin, the immediate prehistoric landscape, and associated heritage assets.

Table A2: Archaeological Appraisal of Assets

Designation Ref	Designation Name	Category	Distance (km)	ZTV 0-10 Turbines	Direction	Appraisal Comments
SM3494	Dun Feorlig, broch 230m NNE of Feorlig Farm	Prehistoric domestic and defensive: broch	3	9	Southwest	Included in assessment.
SM3884	Ardmore, chapel & burial ground 230m SW of	Ecclesiastical: burial ground, cemetery, graveyard	5	10	Southwest	The setting of the asset is the township of Balmore, who's habitants would have been served by the church and its burial ground. The view towards the asset and its approach from the township is not shared with the proposed development, and as such it has been scoped out of further assessment.
SM3885	Dun Neill, dun 420m SW of Ardmore	Prehistoric domestic and defensive: dun	5.5	0	Southwest	Asset is scoped out of the assessment due to it falling outwith the ZTV and its setting consisting of the view over Loch Bracadale to the south and west.
SM3493	Dun Osdale, broch 850m N of Osdale	Prehistoric domestic and defensive: broch	8	9	Northeast	Included for assessment.
SM910	Dun Cruinn, fort, Kensaleyre	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	8	8	Northwest	The asset is situated on the northern slopes of Dun Fada, it controls the approach to Skye with overlooking the bays to the north and south. The approach would place one blade tip in the distance of 8km that would no distract from the views to the monument. The positioning of the proposed development does not impact intervisibility with nearby Brochs (such as SM911 and SM921). As such the asset is scoped out of further assessment.
SM935	Clach Ard, symbol stone, Tote, Carbst	Crosses and carved stones: symbol stone	7.5	6	East	Asset is scoped out of assessment as it is no longer in its original position and is positioned to be viewed as a roadside attraction rather than through its relationship with the surrounding landscape.
SM947	Skeabost Island, St Columba's Church & other ecclesiastical remains	Ecclesiastical: church	7	0	East	Asset is scoped out of assessment due to falling outwith the ZTV and the setting of these remains being the island on which they are located.
SM911	Dun Flashader, broch, Skye	Prehistoric domestic and defensive: broch	4	9	North	Included within assessment.

Table A2: Archaeological Appraisal of Assets

Designation Ref	Designation Name	Category	Distance (km)	ZTV 0-10 Turbines	Direction	Appraisal Comments
SM921	Dun Suladale, broch 800m SW of Suladale	Prehistoric domestic and defensive: broch	5.75	2	Northeast	Asset is scoped out of assessment as there is low visibility with the Site and the setting of the asset being its position offering open views of Loch Snizort and the coastline. The positioning of the proposed development does not impact intervisibility with nearby Brochs (such as SM911 and SM910).
SM918	Dun Mor, fort, Struanmore	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	5	0	South	Asset is scoped out of assessment due to falling outwith the ZTV with neither its key approaches or contributors to it's significance falling within the ZTV.
SM930	Ullinish, fort, Bracadale	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	6.5	9	South	Included within assessment.
SM912	Dun Garsin, broch, Bracadale	Prehistoric domestic and defensive: broch	6	0	Southeast	Asset is scoped out of assessment due to falling outwith the ZTV and its setting being its defensive positioning at the head of the Amar River, which provides views over Loch Breag to the south and southeast.
SM905	Dun Fiadhairt, broch	Prehistoric domestic and defensive: broch	8	0	East	Asset has been scoped out of the assessment due to falling outwith the ZTV and the primary view from the asset being to the west/northwest over Loch Dunvegan.
SM942	Annait, monastic settlement on W bank of Bay River	Ecclesiastical: monastic settlement	5.25	0	Northeast	Asset has been scoped out of the assessment due to falling outwith the ZTV and the setting of the asset being its proximity to the Bay River and its tributaries.
SM893	Barpannan, two chambered cairns, Vatten Duirinish	Prehistoric ritual and funerary: chambered cairn	2	9	East	Included in assessment.
SM2139	Knock Ullinish, souterrain	Prehistoric domestic and defensive: souterrain, earth-house; Secular:	5	0	South	Asset is scoped out of the assessment due to the asset falling outwith the ZTV and the setting being the immediate prehistoric landscape and associated heritage assets, which are located primarily to the south and east.

Table A2: Archaeological Appraisal of Assets

Designation Ref	Designation Name	Category	Distance (km)	ZTV 0-10 Turbines	Direction	Appraisal Comments
		settlement, including deserted, depopulated and townships				
SM7120	Dun Ardtreck, galleried dun, Skye	Prehistoric domestic and defensive: dun	8.25	0	South	The asset is situated on the edge of a cliff on the Minginish Peninsula, overlooking the sea to the north. Whilst this view is towards the location of the proposed development, the asset falls outwith the ZTV and as such the turbines are unlikely to be visible.
SM9249	St Mary's Church and Burial Ground, Dunvegan	Crosses and carved stones: tombstone; Ecclesiastical: church	6	8	East	The asset is situated to the north of the A850, on the eastern outskirts of the village of Dunvegan. The setting of the asset is the village and surrounding settlements. As such, the asset doesn't share any views with the development, and it has been scoped out of further assessment.
SM90325	Dun Beag, broch and surrounding structures, Struan, Skye	Prehistoric domestic and defensive: broch; Secular: farmstead	5.5	0	South	The asset is located upon a rocky outcrop, providing wide views of the surrounding landscape and other nearby prehistoric heritage assets. Whilst the asset does look towards the north in the direction of the development, the ZTV indicates that the topography of the landscape will screen the asset from views of the Site. Therefore, it is scoped out of further assessment.
SM13662	Dun Arkaig, broch	Prehistoric domestic and defensive: broch	2.5	9	Southeast	Included in assessment.
SM13664	Abhainn Bhaile Mheadhonaich, broch and standing stone 145m SE of An Cairidh	Prehistoric domestic and defensive: broch; Prehistoric ritual and funerary: standing stone	1.75	9	Southwest	Included in assessment.
SM3507	Eyre Manse, two cairns 490m W & WSW of	Prehistoric ritual and funerary: cairn (type uncertain)	9	1	Northeast	The asset is located along the eastern bank of Loch Eyre, within a wider prehistoric funerary landscape. There is limited visibility with the proposed development, and its positioning does not impact the understanding of the monument nor its relationship with the prehistoric

Table A2: Archaeological Appraisal of Assets

Designation Ref	Designation Name	Category	Distance (km)	ZTV 0-10 Turbines	Direction	Appraisal Comments
						landscape that it is located within. As such, it has been scoped out of further assessment.
SM3417	Kensaleyre Church, cairns and standing stones 1200m SSE of	Prehistoric ritual and funerary: cairn (type uncertain)	8.5	0	Northeast	The asset is located on the east of Loch Eyre and is part of a wider prehistoric funerary landscape. There is low potential of visibility of the proposed development, indicated by the asset falling outwith the ZTV. As such, it has been excluded from further assessment.
SM903	Ullinish Lodge, chambered cairn, Bracadale	Prehistoric ritual and funerary: chambered cairn	6	9	South	Included in assessment.
Category A LB498	Dunvegan Parish Church (Church of Scotland)		6.25	0	West	The asset is situated to the east of the A850, within the village of Dunvegan. The setting of the asset is the village, utilising views to the church. As the asset, nor its approaches fall within the ZTV it has therefore been scoped out of further assessment.
Category A LB501	Dunvegan castle, approach causeway and bridges		6.25	0	West	The asset is situated on an elevated outcrop overlooking Loch Dunvegan to the west. The approach towards the castle from land is towards the west, away from the proposed development. There is significant forestry to the east of the castle. The ZTV indicates that the topography would screen the turbines from the view of the castle and its approach, and as such it has been scoped out of further assessment.
Category A LB503	Dunvegan castle		6.25	0	West	The setting of the asset is the wider castle compound within which it is situated. The ZTV indicates that turbines would not be visible from this location, and the placement of the proposed development would not cause intervisibility issues with the rest of the castle buildings. As such, the asset has been excluded from further assessment.

Detailed Cultural Heritage and Archaeology Methodology

Heritage Significance

The categories of heritage significance to be referred to are presented in Table A2, which will act as an aid to consistency in the exercise of professional judgement and provide a degree of transparency for others in evaluating the conclusions drawn.

The significance categories have been defined with regard to factors such as: designation, status and grading. For undesignated assets, consideration will be given to their inherent heritage interests, intrinsic, contextual, and associative characteristics as defined in Annex 1 of HEPS (2019b). In relation to these assets, this assessment will focus upon an assessment of the assets' inherent capability to contribute to our understanding of the past; the character of their structural, decorative and field characteristics as determined from the HER and Canmore records and / or Site visits; the contribution of an asset to their class of monument, or the diminution of that class should an asset be lost; how a Site relates to people, practices, events, and/or historical or social movements. Assessments of the significance of specific assets, where recorded within the HER, will be taken into account.

Table A3: Heritage Significance

Heritage Significance	Explanation
Highest	Sites of national or international importance, including: World Heritage Sites.
High	Site of National importance, including: Scheduled Monuments; Category A Listed Buildings; Gardens and Designed Landscapes included on the national inventory; Designated Battlefields; and Non-designated assets of equivalent significance.
Medium	Sites of Regional/local importance, including: Category B and C Listed Buildings; Some Conservation Areas; and Non-designated assets of equivalent significance.
Low	Sites of minor importance or with little of the asset remaining to justify a higher importance.
None	Sites that are of no heritage significance.
Unknown	Further information is required to assess the significance of these assets.

Magnitude of Impact

Determining the magnitude of any likely impacts will include consideration of the nature of the activities proposed during the construction and operational phases of the proposed development.

Changes could potentially include direct change (e.g. ground disturbance), and indirect change (e.g. change to setting); this latter might include visual change, as well as noise, vibration, smell, dust, traffic movements etc. Effects may be beneficial or adverse, and may be short term, long term or permanent. The magnitude of any effects will be assessed using professional judgment, with reference to the criteria set out in Table A3.

Table A4: Magnitude of Impact

Magnitude of impact	Explanatory criteria
High Beneficial	The proposed development would considerably enhance the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Medium Beneficial	The proposed development would enhance, to a clearly discernible extent, the heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Low Beneficial	The proposed development would enhance, to a minor extent, the heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Very Low Beneficial	The proposed development would enhance, to a very minor extent, the heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Neutral/None	The proposed development would not affect (or would have harmful and enhancing effects of equal magnitude upon) the heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Very Low Adverse	The proposed development would erode, to a very minor extent, the heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would not be considered to affect the integrity of the asset's setting.
Low Adverse	The proposed development would erode, to a minor extent, the heritage significance of the affected asset, or the ability understand, appreciate and experience it. This level of indirect effect would rarely be considered to affect the integrity of the asset's setting.
Medium Adverse	The proposed development would erode, to a clearly discernible extent, the heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect might be considered to affect the integrity of the asset's setting.
High Adverse	The proposed development would considerably erode the heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would probably be considered to affect the integrity of the asset's setting.

Significance of Impact

The significance of impact criteria are presented in Table A4. Table A5 provides a matrix that relates the heritage significance of the asset to the magnitude of impact on its significance, to produce the overall significance of impact. This assessment will be undertaken separately for direct effects and indirect effects, the latter being principally concerned with effects resulting from change to the setting of heritage assets.

Table A5: Significance of Impact Criteria

Significance of Impact	Description
Major	Severe harm or enhancement, such as total loss of significance of the asset or of the integrity of its setting, or exceptional improvement of the heritage significance of the asset and/or the ability to understand, appreciate and experience it.
Moderate	Harm or enhancement, such as the introduction or removal of an element that would affect the heritage significance of the asset and the ability to understand, appreciate and experience it to a clearly discernible extent.

Significance of Impact	Description
Minor	Harm or enhancement to the asset’s heritage significance and/or to the ability to understand, appreciate and experience it to a modest extent, such that the majority of the asset’s inherent interests and aspects of setting would be preserved.
Very Minor	Harm or enhancement to the asset’s heritage significance and/or to the ability to understand, appreciate and experience it, that is barely discernible.
Nil	The development would not affect the heritage significance of the asset and/or the ability to understand, appreciate and experience it, or would have harmful and enhancing effects of equal magnitude.

Table A6: Significance of Impact Matrix

Magnitude of Impact	Heritage Significance (excluding unknown)			
	Highest	High	Medium	Low
High beneficial	Substantial	Substantial	Moderate	Slight
Medium beneficial	Substantial	Moderate	Slight	Very slight
Low beneficial	Moderate	Slight	Very slight	Very slight
Very low beneficial	Slight	Very slight	Negligible	Negligible
Neutral/None	Neutral/Nil	Neutral/Nil	Neutral/Nil	Neutral/Nil
Very low adverse	Slight	Very slight	Negligible	Negligible
Low adverse	Moderate	Slight	Very slight	Very slight
Medium adverse	Substantial	Moderate	Slight	Very slight
High adverse	Substantial	Substantial	Moderate	Slight

Significance of Impact

Professional judgment will be used in the determination of any significant effects, with reference to the matrix presented in Table A5. Any impacts identified as ‘Substantial’ or ‘Moderate’ within the matrix would almost certainly be considered ‘Significant’ for purposes of EIA.

Impacts will be defined as either ‘Significant’ or ‘Not Significant’.

Residual Impact

Residual impacts are those that remain even after the implementation of suitable mitigation measures. Residual impacts will be identified, and the level of those residual impact defined with reference to Tables A4 and A5.

The significance of those residual impacts for purposes of EIA would then be defined as either ‘Significant’ or ‘Not Significant’.

FIGURES

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