

Energiekontor UK Ltd

Glenkirk Wind Farm

Environmental Impact Assessment Scoping Report

October 2025

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1 INTRODUCTION

Introduction

- 1.1 Energiekontor UK Ltd (the Applicant) is evaluating the potential of land located approximately 5km north-east of Tomatin (hereinafter referred to as "the Site") for the development of a wind farm of up to 13 wind turbines, including associated development such as crane pads, access tracks, a substation and temporary construction compound ("the Proposed Development"). The Site lies in the administrative boundary of the Highland Council.

Purpose and Structure of the Scoping Report

- 1.2 The purpose of this Scoping Report is to formally request a Scoping Opinion from the Scottish Ministers via the Energy Consents Unit in accordance with Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ("the EIA Regulations").
- 1.3 Scoping is used to help identify where there are potential interactions between a project and the environment. It allows an Applicant to be clear which of these are considered to be the likely significant effects, upon which an Environmental Impact Assessment (EIA) should focus.
- 1.4 This Scoping Report provides an outline of relevant environmental receptors that may be significantly affected by the Proposed Development, describes any mitigation available or foreseen at this stage and describes the information that it is envisaged will be submitted as part of a future EIA Report. This approach enables consultees to comment upon the appropriateness of the baseline as it is known at this stage, the decision to scope in or out of further assessment, and the methodology used both to do this and the methodology which would be used in any further assessment.
- 1.5 Comments on the scope of the proposed EIA are invited. Should consultees be in a position to identify or provide additional relevant information concerning the existing environment or any specific local issues, this would be welcomed.
- 1.6 By virtue of the nature, size and location of the proposed development, it is anticipated that significant effects upon the receiving environment, particularly if unmitigated, are likely. As such, the Applicant is committed to providing an EIA in line with the guidance outlined within Section 2.
- 1.7 Therefore, this scoping report comprises the following sections:
- Section 1: Introduction;
 - Section 2: EIA Regulatory Framework;

- Section 3: The Site and its Context;
- Section 4: The Proposed Development;
- Section 5: Likely Significant Effects;
- Section 6 – 14: Subject-specific chapters; and
- Section 15 Content and Structure of the Proposed EIAR

Introduction to the Proposed Development

- 1.8 The Proposed Development is set out within Section 4 to the extent of project design and known parameters at this stage and broadly comprises 13 turbines, on a site of 438.5 hectares, approximately 5km north-east of Tomatin.
- 1.9 The proposed development at this stage has been subject to a detailed acquisition and initial design and constraints analysis process.
- 1.10 Energiekontor have sought specialist advice and survey up to this stage from competent experts, and will seek to do so throughout the EIA process. The environmental evidence collected to date as provided with the contents of this report, and the proposed methodologies detailed within Sections 6-14, have been provided by the following consultancies:
- Landscape and Visual: WSP
 - Ecology: RPS
 - Ornithology: RPS
 - Cultural Heritage: WSP

Energiekontor UK Ltd

- 1.11 Energiekontor UK Ltd is a wind energy development company with offices in Leeds, Edinburgh and Glasgow. The company was formed in 1999 and develops onshore wind farms throughout the United Kingdom. The company has built eight wind farms in the UK with several other sites in the development process. Energiekontor UK Ltd is part of the Energiekontor Group. The parent company, Energiekontor AG, was established in 1990 in Bremerhaven in Northern Germany. It has since grown to become one of the leading wind energy companies in Europe, having built more than 100 wind farms across the continent.

2 EIA REGULATORY FRAMEWORK

What is EIA?

- 2.1 EIA is a statutory process that is governed by UK and European law. It aims to improve the environmental design of a development proposal and provides decision-makers with sufficient information about the environmental impacts of a proposal.
- 2.2 An Environmental Impact Assessment Report (EIA Report), prepared during the EIA process, provides environmental information about a proposed development, including a description of the proposal, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

The EIA Process

- 2.3 The EIA process usually follows the following stages:
- Screening may be the first stage of the EIA process where the relevant authorities need to decide whether EIA is required.
 - Once it has been agreed that EIA is required, scoping is undertaken to define what should be assessed as part of the EIA and reported in the EIA Report.
 - With the scope set, relevant information on the environmental baseline conditions is collected. This information is then used initially to understand the dynamics of the likely environmental effects and to inform the design of the project to minimise the potential for significant adverse effects.
 - The formal assessment process is then undertaken on the design parameters to define the significant effects of the project.
 - Any significant adverse effects that are identified during the formal assessment process are then reviewed against the design to consider whether alterations could be made to minimise the effect. Should this occur, the formal assessment process is reiterated.
 - Where significant adverse effects cannot be minimised through alterations to the design itself, mitigation measures are considered. Monitoring may also be considered to measure the actual significance of the effect during and post-construction to allow management of mitigation where appropriate.
- 2.4 Once the EIA is completed, the EIA Report is submitted to the planning authority for consideration with the planning application. Therefore, the aim is to assist the Competent Authority (in this case The Highland Council) to form an opinion of the likely environmental effects of the proposed development. The Scoping process therefore is focused upon assessing the likely significant effects and proposing mitigation measures to reduce the

residual effects upon the environment where applicable. The Scoping process should also identify those environmental issues which do not require further consideration.

Screening – Is EIA Required?

- 2.5 Development projects that are described within Schedule 1 of the EIA Regulations will always require EIA and are referred to as 'Schedule 1 Developments'. Development projects listed in Schedule 2 that are located in a 'sensitive area' or exceed one of the relevant criteria or thresholds given in Schedule 2 are referred to as 'Schedule 2 Developments'. Not all Schedule 2 Developments will require EIA, as only a development project that is likely to have significant environmental effects by virtue of its size, location or nature will require such assessment. A development project that requires EIA is referred to as 'EIA development'.
- 2.6 In this case, the Proposed Development (as described in Section 4) is of a type described within Schedule 2 as an installation for the harnessing of wind power for energy production. It is not located within a 'sensitive area' as defined by the EIA Regulations; however, the project would exceed both of the applicable thresholds as it involves more than two wind turbines with hub heights of more than fifteen metres. The requirement for EIA is therefore determined on the basis of whether the project would be likely to give rise to significant effects on the environment by virtue of its size, nature or location.
- 2.7 The scale, nature and location of the Proposed Development are such that, to allow the environmental impacts of the project to be appropriately considered, Energiekontor UK Ltd has taken the decision to voluntarily undertake EIA. Therefore, no Screening Opinion will be sought from the Council.

General Approach to Scoping

- 2.8 Scoping is an exercise conducted at an early stage in the EIA process and is designed to ensure that the environmental studies provide all the relevant information on the impacts of the project, in particular focusing on the significant effects.
- 2.9 The findings of this exercise define the 'scope' of the environmental information to be provided and the terms of reference for the environmental studies to be undertaken. The scope of the work however remains flexible and can be amended should new issues or information arise while undertaking the project.
- 2.10 The project team benefits from significant experience and technical expertise in environmental assessment and development of such projects and will ensure that the EIA will be carried out in accordance with the EIA regulations. The potential environmental impacts during construction, operation and decommissioning will be identified and assessed in the EIA Report, based upon the recommendations of the technical EIA team, consultation with statutory consultees, other interested parties and local communities. Topic assessments will be undertaken using best practice methodology, following industry guidelines whenever appropriate and carried out by specialists with relevant professional experience.

- 2.11 Schedule 4 of the EIA Regulations states the information to be included within the EIA. Each assessment will consider these criteria and assess them whenever appropriate to the proposed development. This also highlights that the emphasis of the EIA process should be on assessing likely significant effects, rather than every environmental effect associated with a development.
- 2.12 Impartial professional consultants (as set out in Section 1) will assess the likely significant environmental effects identified. These specialist assessments will generally incorporate:
- Site visits;
 - Collection of baseline data regarding the site and surroundings;
 - Identification of the likely significant effects of the proposed development; and
 - Recommendations on how these effects could be avoided or reduced.
- 2.13 For each topic, the proposed methodology to be used within technical topics is set out within this Scoping Report. Cumulative effects will be assessed within each EIA Report chapter as appropriate, at a scale appropriate to that subject and in line with best practice guidance currently available. It is essential that the methodology used for assessing the significance of environmental effects is set out clearly and transparently within an EIA Report and is justifiable.
- 2.14 Significance is generally determined through a combination of the sensitivity of a receptor or resource to an effect and the magnitude of the change resulting from the proposed development, however where this differs the full methodology is explained within the relevant section as appropriate.
- 2.15 Significant effects are more likely to be predicted where important resources, or numerous or sensitive receptors, could be subject to impacts of considerable magnitude. Effects are unlikely to be significant where low value or non-sensitive resources, or a small number of receptors, are subject to minor impacts. The assessment of significance of an environmental effect resulting from the proposed development will have regard to the following:
- Sensitivity, importance or value of the resource or receptor;
 - Extent and magnitude of the effect;
 - Duration of the effect;
 - Nature of the effect;
 - Performance against environmental quality standards; and
 - Compatibility with environmental policies.
- 2.16 The methods for predicting the nature and magnitude of any potential impacts vary according to the subject area. Quantitative methods of assessment can predict values

that can be compared against published thresholds and indicative criteria in Government guidance and standards. However, it is not always possible to ascribe values to environmental assessments and thus qualitative assessments are used. Such assessments rely on previous experience and professional judgement. The methodologies used for assessing each topic area will be described within the individual chapters of the EIA Report and will follow best practice guidelines where applicable.

2.17 In addition to those items explained above, the EIA Report will either include discussion of, or scope out via section 5 of this Scoping Report, the following items:

- A description of the development, including description of the location, its physical characteristics, land-use requirements during construction and operation, a description of characteristics of the operational phase, and an estimate of the types and quantities of expected residues and emissions;
- A description of reasonable alternatives, including development design, size, scale, and a justification of the project choices made;
- A description of the baseline environmental situation and an outline of the likely evolution thereof without implementation of the proposed development;
- An assessment of the environmental baseline for each environmental topic scoped into the EIA, with reference to those items specified within Schedule 4 (5) of the EIA Regulations;
- A description of mitigation and monitoring measures (where applicable); and
- A description of any expected adverse impacts in relation to the vulnerability of the proposed development to risks of major accidents and/or disasters which are relevant to the project.

Consultation and Stakeholders

2.18 The Applicant recognises the importance of consultation and community involvement throughout the project development process in line with "PAN 3/2010 Community Engagement". PAN 1/2017: Environmental Impact Assessment Regulations also reinforces the importance of public involvement in the Scoping process and makes it clear that the EIA process is intended to ensure that consultation bodies and the public have opportunity to express their opinion on both the proposed development and the EIA Report.

2.19 The Applicant has held informal pre-application discussions with several bodies including a formal pre-application consultation meeting with The Highland Council. The Applicant has also held pre-Scoping discussions with NatureScot (NS) and Historic Environment Scotland (HES).

2.20 Where applicable, the points that were discussed have been addressed within the scope of work outlined below, and where the proposed scope varies from what has been suggested by regulators, this has been justified as appropriate.

3 THE SITE AND ITS CONTEXT

The Site and Surroundings

- 3.1 The Site is located approximately 5km northeast of Tomatin within Glenkirk Forest (**Figure 3.1**) and lies entirely within the administrative boundary of the Highland Council. The present land use is forestry.
- 3.2 The topography of the Site gradually rises in all directions from Gleann Seileach at 340m AOD and reaches various high points of 545m AOD at Carn Torr Mheadhoin in the north, 570m AOD at Carn Gleann an Tairbhidh, 469m AOD at Tom a' Ghealagaidh in the west / south-west and 563m AOD at Carn na Croite in the south (beyond the Site boundary). Access to the site is proposed using the forestry track to the southwest which runs from National Cycle Route 7 northeast towards Balvraid, however, could be subject to change as the development progresses. The nearest residential property is situated approximately 1.5km southwest of the closest turbine. The closest Settlement Development Area is Tomatin, located approximately 5km southwest of the site, while the next nearest settlement, Carrbridge, is approximately 11.2km southeast of the nearest turbine.
- 3.3 A number of watercourses cross the Site, including Allt Seileach and Allt an Tairbhidh.
- 3.4 There are no environmental designations within the site boundary. In line with The Highland Council's Onshore Wind Energy Supplementary Guidance, November 2016 (with addendum, December 2017), all turbines are situated within Group 3: Areas with potential for wind farm development. In terms of other environmental designations within 10km of the site, these include:
- Drynachan, Lochindorb and Dava Moors SLA
 - Cairngorm National Park
 - Cairngorm Straths ESA
 - Northern Strathspey WPA
 - Slochd SAC
 - Kinveachy Forest SAC, SPA & SSSI
 - River Spey SAC
 - Carn nan Tri-tighearnan SAC & SSSI
 - Allt na Feithe Sheilich SSSI
 - Findhorn Terraces SSSI

- Allt a' Choire SSSI

3.5 There are 6 wind farms within a 10km radius from the proposed development, including the operational Tom Na Clach Wind Farm and the approved Tom Nan Clach Extension Wind Farm which neighbour the site. A full table of cumulative wind farms can be found in **Table 6.1**, and is illustrated in **Figure 6.6**.

4 THE PROPOSED DEVELOPMENT

Introduction

- 4.1 This section describes the various elements proposed as part of the project and provides details of what processes will take place at the various stages of the project's lifecycle (e.g. construction, operation, decommissioning).

The Proposed Development

- 4.2 Energiekontor UK Ltd is investigating the potential for a wind farm development on the Site, consisting of the erection, 35 year operation and subsequent decommissioning of up to 13 wind turbines as illustrated in **Figure 4.1**. It is likely that the wind farm would provide up to 88.4MW of generating capacity. The principal elements of the Proposed Development are described in further detail below.

Wind Turbines

- 4.3 The turbines would be of a typical modern design comprising a three bladed rotor hub mounted on a nacelle (containing a gearbox and a generator), tower and foundation.
- 4.4 Final turbine selection would be made following the grant of planning permission following a tendering and procurement exercise. The EIA will therefore be undertaken on the basis of a candidate turbine design consisting of:
- A horizontal axis type with a rotor consisting of three blades, each up to approximately 81.5m in length (giving a total rotor diameter of up to approximately 163m);
 - A nacelle (cover housing) height of approximately 149m;
 - A maximum height to vertical blade tip of 230m;
- 4.5 It is also assumed that turbines would generate power for all wind speeds between 4m/s and 25m/s; and that at wind speeds greater than 25m/s (gale force, the turbines would shut down for self-protection.

Associated Development

- 4.6 The principal items of associated development include:
- Site tracks: to provide access for construction and maintenance vehicles from the site entry point to the substation and wind turbines. These would be installed at the commencement of the construction phase and would remain until the end of the decommissioning phase. They would have a 5.0m running width with local widening on corners and would be surfaced with coarse aggregate. Depending on localised ground conditions, they would either be cut into, or floated above, the ground.

- Temporary construction compound/storage area: to provide a secure area for site office facilities and storage of materials and components. To be constructed adjacent to the site track, with an 80m x 40m hardcore base, surrounded by a security fence and locked gates. The fence and gates would be removed at the end of the construction phase and the hardcore base retained but allowed to re-vegetate.
- Crane hardstandings and outrigger pads: to provide a level and firm base for the cranes at the location of each turbine. Each would be a maximum of 55 m x 25m and surfaced with coarse aggregate.
- Transformer housings: the transformers to step up the voltage exported from each turbine (from 690V to 33kV) would either be placed within the wind turbines themselves, or in a small secure external transformer housing placed next to each wind turbine tower, depending on the final turbine choice.
- High voltage and control cables: to form power and control circuits linking each turbine to the on-site substation, cables would be placed in trenches (dimensions to be determined by ground conditions but typically 0.5m wide x 1m deep) routed alongside the tracks.
- Substation building: a 15m long by 10m wide single storey building which will house the switchgear and control equipment plus secure storage space.
- Energy Storage Compound- The energy storage equipment would be housed within ISO shipping containers with a 2.4m high palisade fence in a compound 17.5m by 31.9m. Battery containers will be positioned a minimum of 2.5m apart to facilitate access to all sides. Battery energy storage equipment will be factory assembled and delivered to site in standard 12.2m long x 2.4m wide ISO shipping containers.

4.7 Access to the site is being considered across three routes, all of which will utilise either Inverness or Ardersier as the main port of entry for turbine components and other major infrastructure.

4.8 The first route exits the A9 at Tomatin and progresses northeast towards Balvraid and on to Site. The second option considers exiting the A9 at Dalmagarry Quarry, routing through Moy Estate and across the River Findhorn to the Site. A third option under consideration is to access via Tom nan Clach Wind Farm / Cawdor Estate. This would potentially tie in with existing infrastructure, and discussions with the relevant parties are ongoing.

Grid Connection

4.9 A grid connection would be required to feed the electricity generated by the wind farm into the distribution network for the operational period of the project. The grid connection would be subject to a separate design and consent process which would be led by the local Distribution Network Operator.

Construction Phase

- 4.10 It is estimated that it would take approximately 18 months to construct the Proposed Development. Construction works would include:
- Temporary and permanent highway modifications to enable vehicles to access the Site from the local and strategic highway network;
 - Construction of permanent new site tracks required to access the wind turbine positions. These would be used by civil engineering plant and construction equipment;
 - Construction of a secure site compound/storage area for site office facilities and storage of materials and components;
 - Installation of hardstandings and outrigger pads for the support of the cranes that would be used for the erection of the turbines;
 - Construction of foundations for the support of the turbine structures;
 - Wind turbine delivery and erection;
 - Installation of transformers in separate housings alongside each wind turbine (if required);
 - Installation of on-site high voltage cabling, communication cabling and earthing;
 - Installation of the Supervisory Control and Data Acquisition system;
 - Construction of the site substation;
 - Commissioning of site mechanical and electrical equipment; and
 - Reinstatement and landscaping including the removal of temporary site offices, and the reseeded of verges and areas around turbine bases.
- 4.11 The construction works would mainly follow the order detailed above but many activities may be carried out concurrently to reduce the overall length of the construction programme. There would be construction phasing, with civil engineering works progressing in some areas of the Site whilst turbines were being erected elsewhere. To minimise disruption to land use, site restoration would be undertaken as early as possible in development areas.
- 4.12 A detailed programme of works would be produced by the construction contractor prior to the commencement of works on Site.
- 4.13 Should planning permission be granted, it is likely that construction hours would be restricted by means of a planning condition imposed by the Council.

- 4.14 Construction material would typically be transported by road from source or seaport. Large loads such as wind turbine components (rotor blades, tower sections and nacelles) would be transported to the Site by low loader using a designated route.

Decommissioning Phase

- 4.15 At the end of the operational period, the wind farm would be decommissioned. This would involve the complete removal of the wind turbines, transformers, substation, switchgear and other equipment over a period of up to 12 months. The removal of the wind farm components would essentially be the reverse of the construction process.
- 4.16 Energiekontor UK Ltd would provide a decommissioning bank guarantee or insurance bond to ensure that sufficient funds are available at any time during the lifetime of the wind farm to enable all decommissioning works to take place.
- 4.17 The removal of the wind turbines at the end of the operational life of the wind farm would be the reverse of the erection process, involving similar cranes and procedures. The components would be removed off-site to be re-used elsewhere, dismantled and recycled or disposed of as appropriate.
- 4.18 The decommissioning of the turbine foundations would involve removing the upper part of the reinforced concrete foundation. This could be achieved by conventional construction equipment (e.g. excavator mounted pneumatic hammers etc.).
- 4.19 To achieve the removal of the upper section, which is up to 1.2 m deep, a 600 mm wide trench would need to be excavated around the approximately 4m diameter upstand to facilitate access for removal of the concrete. All other parts of the foundation would remain in place and no other disturbance of the ground around the turbine would be required.
- 4.20 Once the upstand has been removed, the disturbed area would be reinstated by backfilling with site-derived materials to an agreed method statement, leaving the remaining portion of the foundation approximately 1.2m below ground level.

5 LIKELY SIGNIFICANT EFFECTS

Introduction

- 5.1 The following section discusses potentially significant effects which without mitigation, are likely to result in significant effects and therefore should be subject to EIA. By establishing the extent of potential impact and the likeliness of significant effects, the topic can be scoped into the EIA Report or scoped out as appropriate.
- 5.2 EIA involves the compilation, evaluation and presentation of any likely significant (both positive and negative) environmental effects resulting from a proposed development, to assist the Competent Authority when considering and determining an application. Early identification of potentially adverse environmental effects also leads to the identification and incorporation of appropriate mitigation measures into the project design to avoid, reduce, and if possible, remedy identified significant adverse environmental effects.
- 5.3 The EIA Regulations require consideration, throughout assessments, of all likely significant environmental effects; direct / indirect; secondary; cumulative; positive / negative; short / medium / long-term; or permanent / temporary.
- 5.4 For all environmental topics considered, the Scoping Analysis is split into the following headings:
- Introduction;
 - Baseline Conditions;
 - Likely Significant Effects During Construction;
 - Likely Significant Effects During Operation;
 - Design and Mitigation;
 - Inclusion or Exclusion from the EIAR; and
 - Proposed Scope of Assessment.
- 5.5 The EIA Regulations have a requirement to discuss likely significant effects in relation to decommissioning. Unless otherwise stated, it is assumed that decommissioning effects would be very similar to the detail included for construction effects.

6 LANDSCAPE AND VISUAL

Introduction

- 6.1 This section describes the methodology to be used within the Landscape and Visual Impact Assessment (LVIA) and provides an overview of the baseline conditions and the datasets to be used to inform the LVIA. An outline of the likely significant effects and design considerations that may be needed to provide mitigation and enhancement of the Proposed Development are also described.
- 6.2 The LVIA process will take account of national and local planning policy in relation to wind farm development, in particular National Planning Framework (NPF) 4 (2023), the Highland-wide Local Development Plan (HwLDP) (2012), the Inner Moray Firth Local Development Plan (IMFLDP2) (2024), and The Highland Council's (THC) Onshore Wind Energy Supplementary Guidance (OWESG) which was adopted in November 2016 and its Addendum (2017) (including the Black Isle, Surrounding Hills and Moray Firth Coast Caithness Landscape Sensitivity Appraisal).
- 6.3 Where required, the following technical assessments will be included as part of the scope of the LVIA:
- Residential Visual Amenity Assessment; and
 - Night-time Lighting Assessment.
- 6.4 This section is supported by **Figures 6.1 – 6.6** and should be read in conjunction with **Chapter 4**.
- 6.5 Consultees are requested to confirm the scope of this assessment and in particular comment on other known wind farm developments which should be included in the assessment (**Table 6.1**), the proposed viewpoint locations (**Table 6.2**) and matters that are proposed to be scoped out of this assessment.

Baseline Conditions

Site Description

- 6.6 The Proposed Development is located in a forested and undesignated area of the *Rolling Uplands - Inverness* Landscape Character as defined by the NatureScot Landscape Character Assessment (2019), approximately 5km north-east of Tomatin in the Highlands.
- 6.7 The Site is covered with coniferous forest plantations with Allt Seileach meandering almost through the middle. The topography of the Site gradually rises in all directions from Gleann Seileach at 340m AOD and reaches various high points of 545m AOD at Carn Torr Mheadhoin in the north, 570m AOD at Carn Gleann an Tairbhidh, 469m AOD at Tom a' Ghealagaidh in the west / south-west and 563m AOD at Carn na Croite in the south

(beyond the Site boundary). The Site is crossed by a number of watercourses, in particular Allt Seileach and Allt an Tairbhidh. The Site is remote from settlements with the closest residential property located over 1.5km (from the nearest indicative turbine) to the south-west at Balvraid Lodge, and the A9 located approximately 4.8km to the south-west. The existing Tom nan Clach and its consented extension are located 0.5km to the north-east of the Proposed Development, and the existing Moy Wind Farm is located 4.8km to the north-west of the Proposed Development.

Landscape Designations

- 6.8 The Cairngorms National Park is located approximately 5km south-east of the Proposed Development (nearest indicative turbine) (approx. 4km from the Site), and the locally designated Drynachan, Lochindorb and Dava Moors Special Landscape Area (SLA) is located adjacent to the Proposed Development to the north-east.
- 6.9 There are a number of other designated landscapes within 45km including National Scenic Areas (NSAs) and SLAs. Other Designated Landscapes within the Study Area are shown on **Figure 6.4** and include:
- 6.10 National Landscape Designations (within 45km):
- Cairngorms National Park, located approximately 4km to the south-east of the Site;
 - Cairngorm Mountains NSA, located 19.5km to the south-east of the Site; and
 - Deeside and Lochnagar NSA, located 44km to the south-east of the Site.
- 6.11 Local Landscape Designations (within 20km):
- Drynachan, Lochindorb and Dava Moors SLA (Highland), located adjacent to the north-east of the Site;
 - Loch Ness and Duntelchaig SLA (Highland), located 18km to the west of the Site;
 - Findhorn Valley and the Wooded Estates SLA (Moray), located 19km to the north-east of the Site.

Wild Land Areas

- 6.12 There are three WLAs within the 45km Study Area, the closest to the Proposed Development is the Monadhliath 20 - WLA, located 13km to the south-west.

Landscape Character

- 6.13 The Site is located within the *Rolling Uplands – Inverness* Landscape Character Type (LCT) as illustrated in **Figure 6.3**. The *Rolling Uplands – Inverness* LCT are noted by NatureScot as “rolling hills” which “form an upland backdrop to much of the eastern part of Inverness district, extending far beyond the district boundary and into the Cairngorms National Park. The uplands act as a sheltering edge to the Farmed Strath landscape type, from which

they rise. They also form a backdrop to more distant areas to the south, east and west where they seem to merge into an undulating skyline without any clearly identifiable features".

6.14 The key characteristics of the *Rolling Uplands – Inverness* as noted by NatureScot¹ are:

- "A series of large scale, smooth, rounded hills with summits of similar height forming broad, undulating upland plateaux containing occasional steep-sided straths.
- Open heather moorland dominates, the uniform colour and texture accentuating the landform.
- Straths floors contain inbye pastures, trees and small patches of woodland.
- Conifer forests limited to the lower edges of uplands and strath sides.
- Settlement limited to a few isolated farms in remote straths.
- A few mainly single track roads, integrated within the landform.
- Uninhabited interior, largely inaccessible to vehicles.
- Archaeological evidence of settlement and farming from prehistoric times to the 19th century.
- Striking colour and textural contrast between strath floors and moorland vegetation above.
- Expansive views from the hill tops and plateaux create a strong sense of openness and exposure.
- Scale and distance difficult to judge.
- Few signs of active management in the interiors, creating a strong perception of remoteness, although this is affected by a number of large wind farm developments."

6.15 Key characteristics particularly relevant to wind farm development, that indicate some suitability include the large scale, uninhabited interior, simple coniferous forestry cover, unenclosed land, and its characteristics of "openness and exposure" which all tend to indicate lower (Medium to Low) sensitivity to wind farm development.

*Landscape Sensitivity Appraisal: Black Isle, Surrounding Hills and Moray Firth Coast
Caithness (Highland Strategic Capacity)*

6.16 The Landscape Sensitivity Appraisal: Black Isle, Surrounding Hills and Moray Firth Coast Caithness is contained in THC's Addendum Onshore Wind Energy Supplementary Guidance, Part 2b, 2017 (Highland Strategic Capacity). This appraisal just covers the Site

¹ NatureScot 2019 Landscape Character Assessment.

area of the Proposed Development. Although 'capacity' studies do not accord with NPF4 or the most recent NatureScot guidelines on landscape sensitivity studies, it has been noted in this section in regard to the advice on landscape sensitivity.

6.17 The Proposed Development is located within the *BL10: Tom nan Clach, Lochindorb to Airdrie Mill, South of River Findhorn* Landscape Character Area which is part of the Rolling / Open Upland LCT. The Appraisal notes that there is scope for large wind farm development:

- "where well designed and contained.
- where design respects spacing and scale of existing development pattern.
- where development would not detract from Key Characteristics and Special Qualities of the Drynahan, Lochindorb and Dava Moors SLA.
- where development respects borrowed views to more distant hills in the north."

Dava Moor, Nairn and Monadhliath Area Wind Energy Landscape Sensitivity Pilot Study (2021)

6.18 This pilot study was commissioned by NatureScot to test the methodology set out in their then draft Landscape Sensitivity Assessment Guidance issued as a consultative draft in November 2020. The study is also intended to provide THC with an updated landscape sensitivity assessment which can support strategic planning and assist in the appraisal of specific development proposals.

6.19 This study has not yet been subject to public consultation, and neither is part of any accompanying planning guidance.

6.20 The objectives of this landscape sensitivity assessment for wind energy are to provide clear spatial guidance as to what size of wind energy development would be appropriate, in landscape and visual terms, within different landscapes in the Dava Moor, Nairn and Monadhliath study area. The study also considers potential cumulative and cross-border landscape and visual effects and considers broad constraints and opportunities for new wind energy developments, including extensions to, and repowering of, operational wind farms.

6.21 The Proposed Development is located within the Rolling Uplands (The Monadhliath) Landscape Assessment Unit (AU) as defined by this study. The study assesses a High-Medium sensitivity for turbines > 150m within this landscape and that turbines over 150m could fit within the scale of this landscape considering a number of constraints and opportunities. An assessment of the Proposed Development against these constraints and opportunities of the Rolling Uplands set out in the pilot study would be considered in the LVIA.

Visual Amenity

- 6.22 The visual assessment would draw upon the ZTV, site visits and viewpoint analysis and would assess the potential visual effects on views and visual amenity likely to be experienced by receptors (people) within the landscape as follows:
- Views from residential properties and settlements;
 - Views experienced whilst travelling through the landscape (road / rail users, walkers, horse riders and cyclists for example); and
 - Views from tourist and recreational destinations including hill summits.

Settlements and Residential Properties

- 6.23 The assessment of visual effects likely to be experienced from settlements includes consideration of residential areas, the public realm, and public open spaces within the settlement boundaries that would be frequented by people. Settlements included in the LVIA would be those defined in the HwLDP and IMFLDP 2.
- 6.24 Settlements within 10km overlapped by the ZTV in **Figures 6.1 and 6.2** include:
- Tomatin.
- 6.25 Carrbridge, Aviemore, Grantown on Spey, and much of Inverness are all located outwith the ZTV. There is, however, ZTV coverage from Nairn and Forres which are located between 20-30km distance.
- 6.26 There are four properties within 2km of the proposed turbine locations, at Balvraid and Ruthven. A Residential Visual Amenity Assessment (RVAA) will be undertaken to assess the effects on residential visual amenity likely to be experienced at residential properties within 2km of the Proposed Development.

Transport Routes

- 6.27 Principal transport routes within 10km of the Proposed Development that are overlapped by the blade tip ZTV in **Figures 6.1 and 6.2** are listed as follows:
- A9;
 - Inverness to Perth Main Railway Line via Aviemore and Carrbridge;
 - B9154; and
 - B9007.

Recreational Routes

- 6.28 National recreational routes within 45km of the Proposed Development that are overlapped by the blade tip ZTV in **Figure 6.5** are listed as follows:

- Sustrans Cycle Routes 1 and 7;
- Great Glen Way;
- Dava Way (overlapped with the Moray Way);
- Moray Coast Trail;
- John O'Groats Trail; and
- North Coast 500 / Highland / Moray Firth Tourist Route.

6.29 A number of local recreational routes including Core Paths, Rights of Way / Scottish Hill Tracks are scattered throughout the study area, the most relevant are two Core Paths to the south-west of Tomatin, 6km from the Site.

Recreational and Tourist Destinations

6.30 Recreational and tourist destinations included in the LVIA would include those features that appear as prominent landmarks or landscape features, locations associated with passive recreation such as walking, and where there is a clear relationship between the feature / destination and the landscape. Gardens and Designed Landscapes (GDL) would be included where these are open to the public, as well as National Trust gardens / land and Historic Environment Scotland visitor sites. The assessment would exclude locations for team sports and other recreational / tourist destinations where the focus of activity is not on the landscape or is indoors – for example museums, libraries, and gift shops. The assessment would make general reference to areas that might be used for hunting / stalking activities but would exclude specific assessment as the primary focus would be the activity, rather than the landscape.

6.31 Other recreational destinations would also include golf clubs, campsites and caravan parks, landmark and popular hill summits (Munros and Corbett's), and Forestry and Land Scotland walking and cycling trails.

Future Baseline

6.32 Further change to the baseline landscape is likely as a result of new applications and/ or eventual decommissioning or repowering of existing wind farms and their associated grid connections, occurring over the next 10-20 years.

6.33 Forestry felling and re-stocking is also likely to change the nature of available views across this landscape from various receptors within the study area.

Cumulative Developments

- 6.34 Drawing from NS guidance², the baseline of all other cumulative wind energy development, above 50m to blade tip height, within the 45km Study Area has been collated. Turbines below 50m to blade tip height within 10km have also been included. This includes all existing and consented wind energy development, and planning applications. In accordance with the same NS guidance, projects at scoping stage would not be included except those within 10km of the Proposed Development which would be included in the viewpoint wirelines but not as part of the cumulative assessment due to their planning uncertainty. There are no scoping projects at scoping stage within 10km of the Proposed Development.
- 6.35 In total, 36 other wind energy developments are included in the assessment as listed in **Table 6.1** and illustrated in **Figure 6.6**. As of 23 September, this includes 16 existing wind farms, 12 consented developments and eight applications in the Study Area.

Table 6.1 Wind Energy Development Included in the CLVIA

Reference ³	Name	Distance (m) ⁴	Number of turbines	Blade tip Height (m)
EXISTING WIND ENERGY DEVELOPMENTS WITHIN 45KM				
E01	Tom nan Clach	560	13	125
E02	Moy	4,827	20	124.9
E03	Farr	9,943	40	100
E04	Glen Kyllachy	10,115	20	110
E05	Aberarder	21,674	12	130
E06	Hill of Glaschyle	22,555	12	99.5
E07	Dunmaglass	22,619	33	120
E08	Berry Burn	23,768	29	99.5
E09	Paul's Hill I	26,771	28	100
E10	Corriegarth	31,506	23	119

² Guidance: Assessing the Cumulative Landscape and Visual Impacts of Onshore Wind Energy Developments, NatureScot (March 2021).

³ The reference number in the table relates to that used in the figures.

⁴ Measured from the nearest turbine of each wind energy development.

Reference ³	Name	Distance (m) ⁴	Number of turbines	Blade tip Height (m)
E11	Roths II	34,911	18	125 / 110
E12	Roths I	36,029	22	100
E13	Auchmore	39,253	2	80
E14	Stronelairg	39,546	66	135 / 125
E15	Fairburn	44,939	20	100
E16	Dornell	44,609	59	126
CONSENTED WIND ENERGY DEVELOPMENT WITHIN 45KM				
C01	Tom na Clach Extension	812	7	149.9
C02	Cairn Duhie	14,404	16	149.9
C03	Clash Gour	21,188	48	176/149.5/143/136.5/130
C04	Berry Burn Extension	25,946	9	149.9
C05	Paul's Hill II	28,348	7	149.9 / 134
C06	Ourack	29,467	17	180
C07	Corriegarth 2	31,063	14	149.9
C08	Meikle Hill	33,541	6	126.5
C09	Roths III	36,282	28	149.9/ 200 / 225
C10	Cloiche	39,206	36	149.9
C11	Dell	42,217	14	130.5
C12	Bhlaraidh Extension	44,932	15	180
APPLICATION WIND ENERGY DEVELOPMENT WITHIN 45KM				
A01	Balnespick	2,487	9	200

Reference ³	Name	Distance (m) ⁴	Number of turbines	Blade tip Height (m)
A02	Lynemore	7,729	14	200
A03	Kyllachy	8,109	13	180
A04	Clune	10,997	26	200
A05	Highland	17,227	19	200 / 230
A06	Kellas Drum	36,403	8	185 / 175
A07	Ballach	41,018	20	200 / 230
A08	Abhainn Dubh	43,811	13	149.9

Likely Significant Effects during Construction

6.36 The landscape, visual and cumulative effects that could arise as a result of the Proposed Development during construction are identified as follows:

- Direct localised and temporary effects on the host landscape character, characteristics and landscape elements, primarily as a result of wind turbine installation during construction;
- Indirect and temporary effects related to the visibility of the turbines and their effect on surrounding landscape character and locally designated landscapes and perceptual characteristics / special landscape qualities, primarily as a result of wind turbine installation during construction; and
- Temporary effects on views and visual amenity, primarily as a result of visibility of wind turbine installation during construction, experienced by visual receptors (groups of people) with visibility of the Proposed Development, on specific views and on their visual amenity/experience of the landscape.

Likely Significant Effects during Operation

6.37 The landscape and visual effects that could arise as a result of the Proposed Development during operation are identified as follows:

- Direct localised and long-term effects on the host landscape character, characteristics and potentially the landscape elements are likely to be significant within ~2-3km. Night-time effects resulting from aviation warning lights are also likely to be significant subject to a Lighting Strategy;

- Indirect and long-term effects related to the visibility of the turbines and their effect on surrounding landscape character and locally designated landscapes and perceptual characteristics / special landscape qualities. Night-time effects resulting from aviation warning lights are also likely to be significant subject to a Lighting Strategy; and
- Long-term effects on views and visual amenity resulting from visibility of the proposed wind turbines within ~5-10km distance, subject to detailed viewpoint analysis. Views of the proposed aviation warning lights and adverse effects on night-time views within ~5-10km distance, subject to detailed viewpoint analysis and a Lighting Strategy.

Potential impacts during decommissioning

- 6.38 The landscape and cumulative landscape effects of the Proposed Development during decommissioning are unlikely to be significant and would largely reverse the effects of turbine construction and operation. The visual and cumulative visual effects during decommissioning would lead to a reduction in the operational effects on views and visual amenity resulting from no visibility of the proposed wind turbines.

Design and Mitigation

- 6.39 As set out in **Chapter 4**, the 'scoping layout' of the Proposed Development represents up to a maximum of 13 turbines within the site boundary; each with a 230m height to blade tip. The EIA process will lead to further refinement of this layout as site constraints become known and are assessed in more detail.
- 6.40 The design strategy for the Proposed Development will be underpinned by a number of design objectives which will be developed and enhanced through the EIA process. Current design objectives include, but are not limited to, the following:
- maximise the production of renewable energy generation, in the context of the Scottish Ministers having declared a climate emergency and ambitious targets having been set in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, and National Planning Framework 4 approved in February 2023;
 - respect the environmental assets and constraints including watercourses, areas of deep peat and topography, nature conservation interests, landscape, archaeological interests and other environmental qualities of the site and its surroundings; and
 - comply with industry best practice in terms of turbine spacing to ensure safety and maximise wind yield.
- 6.41 From a landscape perspective there are a number of landscape objectives that reflect the Site constraints and surroundings as follows:
- Notwithstanding that landscape and visual impacts are to be expected as a result of onshore wind farm development, the effects of the Proposed Development should be localised and/ or appropriate design mitigation should be applied to reduce the effects on key landscape and visual receptors including the 'host' LCT, Cairngorms

National Park (and Cairngorms Dark Sky Park), Drynachan, Lochindorb and Dava Moors SLA, and views from the nearby settlements (Tomatin), residential properties, and the A9, main railway line and the Sustrans Cycle Route 7;

- There will be significant landscape and visual effects on the landscape character of the Site and localised surroundings. Additional forms of mitigation will be considered in the form of landscape management to address these effects as follows:
 - Critical design review of the 'scoping layout' and the subsequent development of a landscape-led revised design strategy and 'application layout', underpinned by the above high-level objectives. In particular, the design review will consider:
 - visibility of aviation warning lights and the potential options for further mitigation in the form of a Lighting Strategy or other alternatives;
 - likely effects on the residential visual amenity of surrounding residential properties within 2km, including, through the application of a RVAA;
 - likely landscape effects and visibility of turbines from within other designated landscapes and visual receptors resulting in a need for further mitigation in terms of turbine scale and layout (notable receptors include Cairngorms National Park, Highland Council SLA, the A9, main railway line, Sustrans National Cycle Route 7 and hillwalking routes and summits); and
 - likely cumulative landscape effects and visibility including landscape change and compatibility with other schemes, in particular the relationship with the existing Tom nan Clach Wind Farm / Extension, and Moy Wind Farm, and the application Balnespick Wind Farm.

6.42 The Applicant is also proposing to implement nature positive measures as part of the Proposed Development. This is likely to include an integrated wind farm forest design plan, peatland habitat management and measures to increase landscape capacity, biodiversity and landscape improvements.

Inclusion or Exclusion from EIA

6.43 The selection of receptors to include in the assessment is based on the requirement for EIA to consider the likely significant effects. Effects that are not likely to be significant do not require assessment under the EIA Regulations.

6.44 The assessment will identify landscape and visual effects separately, as detailed in the approach to the assessment set out further below. The assessment will focus on the identification and, wherever appropriate, the mitigation of potential significant landscape and visual effects.

6.45 The primary form of mitigation for landscape and visual effects arising from large scale wind farm development is through iterative design of the layout of the turbines and associated infrastructure, with reference to key views, viewpoints, and receptors. Design evolution will be set out in detail in the design strategy that will form part of the EIA Report and will demonstrate how the design of the Proposed Development has sought to avoid, reduce or minimise landscape and visual effects wherever feasible.

- 6.46 Further mitigation will be considered where relevant and appropriate, and the residual effects taking account of the implementation of this mitigation will be presented in the assessment.

Proposed Scope of Assessment

Zone of Theoretical Visibility and Viewpoint Analysis

- 6.47 The Zone of Theoretical Visibility (ZTV) analysis is used to assist the design and further define the scope of the assessment and are used to indicate the areas from where it may be theoretically possible to view all or some of the proposed turbines. The ZTVs have been calculated using ReSoft WindFarm computer software to produce an area of potential visibility of any part of the proposed turbines, calculated to turbine blade-tip and hub-height, or other selected infrastructure. The ZTV does not however take account of built development and vegetation, which can significantly reduce the area and extent of actual visibility in the field and as such provides the limits of the visual assessment Study Area. As a result there may be an over-estimate of the theoretical visibility with roads, tracks and footpaths in the wider setting which, although shown as falling within the ZTV, have restricted viewing opportunities since they are heavily screened or filtered by banks, walls and vegetation. The ZTVs therefore provide a starting point in the assessment process and accordingly tend towards giving an over-estimated or maximum theoretical visibility of the proposed turbines.
- 6.48 A preliminary ZTV map has been produced and is calculated to show the area of theoretical visibility of the proposed turbines based on an indicative 13 turbine layout of up to 230m turbine height as follows:
- **Figure 6.1** illustrates the ZTV calculated to blade tip height at 1:360,000 scale across the 45km LVIA Study Area and provides an overview of the theoretical extent of visibility. This figure also illustrates the viewpoint locations and cumulative wind farms; and
 - **Figure 6.2** illustrates the same ZTV as above but presented at 1:120,000 scale at A0 paper size.
- 6.49 For the avoidance of doubt, areas out with the coloured areas of the ZTV would have no view of the Proposed Development and landscape and visual receptors within these areas are consequently scoped out of the LVIA.

Confirmation of LVIA Study Area

- 6.50 The LVIA Study Area for the Proposed Development (**Figures 6.1 - 6.2**) is based on a 46,006m radius circle that allows a minimum of 45km distance from an indicative 13 turbine layout in accordance with NS guidance⁵. It represents an over-estimated or maximum theoretical visibility of the Proposed Development.

⁵ Scottish Natural Heritage, February 2017. Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2

- 6.51 The detailed LVIA study area would be defined by the potential threshold for significant effects based on the viewpoint analysis and would include local / regional level receptors such as local LCTs, local landscape designations, main settlements, transport routes, 'B' and 'C' class roads, core paths / local recreational routes and local attractions. The viewpoint analysis and field survey will be used to confirm if a receptor can be scoped out and viewpoint analysis used to identify a conservative distance or 'threshold' for significant landscape and visual effects.

Confirmation of Cumulative LVIA Study Area

- 6.52 In accordance with NS guidance⁶ on cumulative assessment, information on existing and consented wind farms and other planning applications for other wind farm developments would be sourced from within a 'search area' of 60 km in order to inform the cumulative assessment of effects on landscape and visual receptors within the 45km radius LVIA Study Area.
- 6.53 The current cumulative situation within 45km is however indicated in **Table 6.1** and illustrated in **Figure 6.6**, showing the locations of wind farms that are operational, under construction, consented or which are at application stage and where the turbines are greater than 50m to blade tip. In line with NS guidance⁷, scoping stage wind farms have not been included except those within 10km which would be included on the viewpoint wirelines only.

Viewpoint Selection and Visualisations

- 6.54 A range of viewpoints have been proposed (as illustrated on **Figures 6.1 and 6.2**) and consultees are requested to confirm the viewpoint selection set out in **Table 6.2**, including requests to scope out viewpoints or recommend additional / alternative locations.
- 6.55 Visualisations would be prepared for each viewpoint to accord with NS guidance⁸ and THC guidance⁹.

Table 6.2 Proposed LVIA Viewpoints

ID	Viewpoint Name	Distance (m)	Visualisation Technique	Receptor and Viewpoint Type	Illustrated Night-time viewpoint
1	Balvraid Lodge	1,599	90-degree FoV – Baseline photograph, wireline and photomontage	Specific - residents	Yes

⁶

⁷ NatureScot, 2021. Guidance: Assessing the Cumulative Landscape and Visual Impacts of Onshore Wind Energy Developments.

⁸ Scottish Natural Heritage, February 2017. Visual Representation of Wind Farms: Good Practice Guidance, Version 2.2

⁹ Highland Council, 2016. Visualisation Standards for Wind Energy Developments.

ID	Viewpoint Name	Distance (m)	Visualisation Technique	Receptor and Viewpoint Type	Illustrated Night-time viewpoint
2	A9 overbridge at Findhorn	4,781	90-degree FoV – Baseline photograph, wireline and photomontage	Specific – road users	-
3	Sustrans NCR 7, Tomatin	5,048	180 (2x90) degree FoV – Baseline photograph, wireline and photomontage	Illustrative – cyclists, road users, residents	Yes
4	A9 Dalmagarry	5,074	90 degree FoV – Baseline photograph, wireline and photomontage	Specific – road users	-
5	Carn Glas-Choire	5,335	360 (4x90) degree FoV – Baseline photograph, wireline and photomontage	Specific – hill walkers, CNP, SLA	Yes
6	Carn nan Tri-tighearnan	5,549	360 (4x90) degree FoV – Baseline photograph, wireline and photomontage	Specific – hill walkers, SLA	-
7	Minor Road north of Drynachan	7,474	90-degree FoV – Baseline photograph, wireline and photomontage	Specific – road users, SLA	-
8	A9 Moy	8,084	90-degree FoV – Baseline photograph, wireline and photomontage	Specific – road users	Yes
9	B9007 near Lochindorb	9,880	90-degree FoV – Baseline photograph, wireline and photomontage	Specific – road users, SLA	-
10	Shore Road Lochindorb	12,627	90-degree FoV – Baseline photograph, wireline and photomontage	Specific – road users, visitors, SLA	-
11	A9 Daviot	13,056	180 (2x90) degree FoV – Baseline	Specific – road users	-

ID	Viewpoint Name	Distance (m)	Visualisation Technique	Receptor and Viewpoint Type	Illustrated Night-time viewpoint
			photograph, wireline and photomontage		
12	A939 at Milestone	15,021	90-degree FoV – Baseline photograph, wireline and photomontage	Specific – road users	-
13	Geal Charn Mor	20,085	360 (4x90) degree FoV – Baseline photograph, wireline and photomontage	Specific – hill walkers, WLA, CNP	-
14	A96 between Forres and Nairn	24,697	90 degree FoV – Baseline photograph and wireline	Specific – road users	-
15	Meall a' Bhuachaille summit	25,353	360 (4x90) degree FoV – Baseline photograph, wireline and photomontage	Specific – hill walkers, CNP, NSA	-
16	Great Glen Way north of Blackfold	26,448	90 degree FoV – Baseline photograph and wireline	Specific – walkers	-
17	Creagan a Chaise	26,565	360 (4x90) degree FoV – Baseline photograph, wireline and photomontage	Specific – hill walkers, CNP	-
18	A9 north of Tore	30,824	90-degree FoV – Baseline photograph and wireline	Specific – road users	-
19	Ptarmigan Lodge	32,510	360 (4x90) degree FoV – Baseline photograph and wireline	Specific – hill walkers, CNP, WLA, NSA	-
20	Meall Fuar-mhonaidh summit	39,530	360 (4x90) degree FoV – Baseline photograph and wireline	Specific – hill walkers, SLA	-

Other Technical Guidance

6.56 The assessment will be undertaken in accordance with the methods outlined in best practice guidance documents but not limited to the following:

- *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Landscape Institute and IEMA (May 2013), hereafter referred to as GLVIA 3;
- *Siting and Designing Windfarms in the Landscape*, Version 3a, SNH (August 2017);
- *Guidance: Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments*, NatureScot (March 2021);
- *Visual Representation of Wind Farms* Version 2.2, SNH (February 2017);
- *Visualisation Standards for Wind Energy Developments*, Highland Council, July 2016;
- *Guidance: General pre-application and scoping advice for onshore wind farms*, NatureScot (2024);
- University of Newcastle for SNH: *Visual Assessment of Windfarms: Best Practice*, Commissioned Report F01AA303A, 2002;
- *Residential Visual Amenity Assessment: Technical Information Note*, Landscape Institute, 15 March 2019;
- *Visual Representation of Development Proposals* Technical Guidance Note 06/19, Landscape Institute, September 2019;
- *Guidance: Spatial Planning for Onshore Wind Turbines – natural heritage considerations*, Version 3a, SNH, June 2015;
- *Landscape Sensitivity Assessment Guidance*. NatureScot, April 2022.
- *Guidance for Assessment of Effects on Special Landscape Qualities (AESLQ) – Draft*, NatureScot, 2024;
- *Scotland's Scenic Heritage* (Countryside Commission for Scotland, 1978);
- *The SLQs of the CNP*. SNH Commissioned Report, No.375 (NatureScot and the CNP Authority, 2010);
- *The Special Qualities of the National Scenic Areas*: SNH Commissioned Report No. 374, SNH, 2010;
- *Guidance on Aviation Lighting Impact Assessment*, NatureScot, November 2024; and
- *Night-time Photography* (Institute of Lighting Professionals, 2019).

Potential effects proposed to be scoped out of further assessment

- 6.57 As a result of the characteristics of the Site, baseline receptors and the Proposed Development, it is considered that some receptors would not be significantly affected in the context of the EIA Regulations. These receptors / effects can therefore be scoped out from further assessment in the EIA Report as follows:

LVIA Wider and Detailed Study Area:

- Limit wider LVIA Study Area for the landscape, visual and cumulative assessment to 45km as a result of the blade tip ZTV in **Figure 6.1**.
- The detailed LVIA study area would be defined by the potential threshold for significant effects based on the viewpoint analysis and would include local / regional level receptors such as local LCTs, local landscape designations, main settlements, transport routes, 'B' and 'C' class roads, core paths / local recreational routes and local attractions. The viewpoint analysis and field survey will be used to confirm if a receptor can be scoped out and viewpoint analysis used to identify a conservative distance or 'threshold' for significant landscape and visual effects.

Cumulative Assessment:

- Limit the cumulative baseline of all operational and consented wind energy development and other applications for wind energy development to within 45km of the Site to match the LVIA Wider Study Area; and
- Exclude other scoping stage and pre-application schemes in line with NS guidance.

Receptors out with the ZTV

- All receptors within the Study Area that are out with the blade tip ZTV would have no view of the Proposed Development and should be scoped out.

National Scenic Areas

- NSAs within 45km are illustrated on **Figure 6.4**. The ZTV illustrates that, there would be no or very limited visibility of the Proposed Development from all NSAs within the Study Area (beyond 20km). Effects on the Special Landscape Qualities of these NSAs are therefore scoped out of the assessment.

Highland SLAs

- Highland SLAs within 45km are illustrated on **Figure 6.4**. The ZTV illustrates that except for the Drynahan, Lochindorb and Dava Moors SLA, there would be very limited to no visibility of the Proposed Development from the remaining SLAs within the Study Area. Effects on the Special Landscape Qualities of these SLAs are therefore scoped out of

the assessment on the basis there would be no significant effects. Effects on the SLQs of the Drynahan, Lochindorb and Dava Moors SLA will be included in the assessment.

Moray SLAs

- Moray SLAs within 45km are illustrated on **Figure 6.4**. The ZTV illustrates theoretical visibility from up to three SLAs, however, given their distance, limited visibility and influence of existing and consented wind farms located closer to the SLAs and between the SLAs and the Proposed Development, it is proposed to scope out all Moray SLAs on the basis there would be no significant effects.

Wild Land Assessment

- A Wild Land Assessment is proposed to be scoped out of the assessment due to intervening distance, very limited visibility and other wind farms located between the WLAs and the Proposed Development. In accordance with NPF4, it states that *"buffer zones around wild land will not be applied, and effects of development out with wild land areas will not be a significant consideration"*.

Assessment Methodology

- 6.58 LVIA and cumulative assessment forms one of the key components of the EIA process when assessing proposed wind farm developments. The assessment will be undertaken in accordance with Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) (Landscape Institute and IEMA, 2013). An overview of the LVIA methodology, including cumulative assessment, is provided below with the detailed methodology to be provided as an appendix to the completed EIAR.

Landscape Effects

- 6.59 Landscape Effects are defined by the Landscape Institute in GLVIA 3, paragraphs 5.1 and 5.2 as follows:

"An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. ... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the Proposed Development may influence in a significant manner."

- 6.60 The landscape effects occurring during the construction, operational and decommissioning periods may therefore include, but are not restricted to, the following:

- Changes to landscape elements: the addition of new elements (wind turbines) or the removal of existing elements such as trees, vegetation and buildings and other characteristic elements of the landscape character type;

- Changes to landscape qualities: degradation or erosion of landscape elements and patterns and perceptual characteristics, particularly those that form key characteristic elements of landscape character types/areas or contribute to the landscape value;
- Changes to landscape character: landscape character may be affected through the incremental effect on characteristic elements, landscape patterns and qualities (including perceptual characteristics) and the addition of new features, the magnitude of which is sufficient to alter the overall landscape character within a particular area; and
- Cumulative landscape effects: where more than one wind farm may lead to a potential landscape effect.

Visual Effects

- 6.61 Visual Effects are concerned wholly with the effect of the development on views, and the general visual amenity, and are defined by the Landscape Institute in GLVIA 3, paragraphs 6.1 as follows:

"An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views."

- 6.62 Visual effects are identified for different receptors (people) who would experience the view(s) at their places of residence, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:
- Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view(s); and
 - Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

Determining the Significance of Effects

- 6.63 Essentially, the level of landscape and visual effect (and whether this is significant) is determined by assessing the sensitivity of the landscape or visual receptor and the magnitude of change likely to result from the Proposed Development. The LVIA includes an iterative design and assessment process that takes account of design improvements and mitigation. Further assessment is then undertaken of any remaining, residual effects that could not otherwise be mitigated or 'designed out'. In accordance with the relevant EIA Regulations, it is important to determine whether the effects, assessed as a result of the Proposed Development, are likely to be significant.
- 6.64 A matrix is used to guide the assessment process and is shown in **Table 6.3**, below. Significant landscape and visual effects are highlighted in bold, shaded in dark grey and relate to all those effects that result in a '**Substantial**', '**Substantial to Major**', '**Major**' or a

'Major to Moderate' level of effect. In some circumstances, 'Moderate' levels of effect (shaded light grey in **Table 6.3**) have the potential to be considered as significant, subject to the assessor's opinion. Such exceptions are also highlighted in **bold** and will be explained as part of the assessment where they occur. White or un-shaded boxes indicate a non-significant effect.

- 6.65 The type of effect will also be described and may be direct or indirect; temporary or permanent (reversible); cumulative; and beneficial, neutral, or adverse .

Table 6.3 Evaluation of Landscape and Visual Effects

Magnitude of Change	Landscapes and Visual Sensitivity			
	High	Medium	Low	Very Low
High	Substantial	Major	Moderate	Not used
High - Medium	Substantial to Major	Major to Moderate	Moderate to Minor	
Medium	Major	Moderate	Minor	
Medium - Low	Major to Moderate	Moderate to Minor	Minor	
Low	Moderate	Minor	Negligible	
Low – Very Low	Moderate to Minor	Negligible	Negligible	
Very Low	Minor	Negligible	Negligible	
Zero	None / No View			

Cumulative Landscape and Visual Impact Assessment

- 6.66 The assessment of cumulative effects is essentially the same as for the assessment of the 'solus' landscape and visual effects, in that the level of landscape and visual effect is determined by assessing the sensitivity of the landscape or visual receptor and the magnitude of change. Cumulative assessment however considers the magnitude of change posed by multiple developments.
- 6.67 The Cumulative LVIA (CLVIA) will assess the following types of cumulative effects:
- Cumulative landscape effects: where more than one wind energy development may have an effect on a particular area of landscape character or landscape designation.
 - Cumulative visual effects: the cumulative or incremental visibility of similar types of development that may combine to have a cumulative visual effect. These can be further defined as follows:

- Simultaneous or combined: where two or more developments may be viewed from a single fixed viewpoint simultaneously, within the viewer's field of view and without requiring them to turn their head.
 - Successive or repetitive: where two or more developments may be viewed from a single viewpoint successively as the viewer turns through 360°.
 - Sequential: where a number of developments may be viewed sequentially or repeatedly at increased frequency, from a range of locations when travelling along a route within the study area.
- 6.68 The CLVIA will adopt the same study area as the LVIA. Cumulative wind energy development for inclusion in the CLVIA are listed in **Table 6.1**. This cumulative database will be updated as required as part of the consultation process and prior to completion of the assessment.
- 6.69 The cumulative assessment will accord with NatureScot guidance¹⁰ and will be prepared to ensure that, as well as the effects of the Proposed Development (LVIA), the 'additional' cumulative effects and the 'combined' cumulative effects (CLVIA) will also be also reported as follows:
- 6.70 **Scenario 1** (the main cumulative assessment) would consider: Existing + Consented + the Proposed Development - the additional and combined cumulative effects of the Proposed Development and existing (including schemes under construction) and consented wind energy developments will be assessed.
- 6.71 Further, the cumulative assessment will take account of the timescales for the operation of the existing and consented developments.
- 6.72 In addition, a short assessment will also be undertaken for **Scenario 2** which takes into account the additional and combined cumulative effects of the Proposed Development and existing and consented wind energy developments and live applications (including schemes at planning appeal). This Scenario is less certain given the unknown decisions on live application wind farms.

Cairngorms National Park Assessment

- 6.73 National Parks in Scotland are designated under the National Parks (Scotland) Act 2000 because they are areas of national importance for their natural and cultural heritage. The four aims of national parks are to:
- “conserve and enhance the natural and cultural heritage of the area;
 - promote sustainable use of the natural resources of the area;
 - promote understanding and enjoyment (including enjoyment in the form of recreation) of the special qualities of the area by the public; and

¹⁰ NatureScot, March 2021. Guidance: Assessing the Cumulative Landscape and Visual Impacts of Onshore Wind Energy Developments.

- promote sustainable economic and social development of the area's communities."

6.74 The Proposed Development is located approximately 4km north-west of the CNP. No elements of the Proposed Development is located within the CNP. As a result, there would be no direct landscape effect on the CNP as a result of the Proposed Development.

6.75 Effects on the 'setting' of the CNP as an entity itself is not an applicably policy test.

6.76 The assessment of effects on the SLQs of the Cairngorms National Park (CNP) will be guided by the NatureScot, Draft 'Guidance for Assessment of Effects on Special Landscape Qualities (AESLQ)' (2024).

6.77 LVIA Viewpoints 5, 13, 15, 17 and 19 are located within the CNP which will be used to inform the assessment. In addition, the assessment will examine the views from other hilltops and any lower lying locations within the ZTV. The assessment will also take account of all other cumulative wind farm development shown on **Figure 6.6**.

6.78 The special qualities of the CNP are set out in *The Special Landscape Qualities of the Cairngorms National Park*, Commissioned Report No. 375, SNH and CNPA, 2010 and the Cairngorms National Park Partnership Plan, 2017-2022. Of these, the SLQs of the CNP proposed to include in the assessment are summarised as follows:

- *"General Qualities:*
Magnificent mountains towering over moorland, forest and strath;
Vastness of space, scale and height;
Strong juxtaposition of contrasting landscapes;
A landscape of layers, from inhabited strath to remote, uninhabited upland; and
The harmony of complicated curves.
- *The Mountains and Plateaux:*
The unifying presence of the central mountains;
An imposing massif of strong dramatic character;
The unique plateaux of vast scale, distinctive landforms and exposed, boulder strewn high ground; and
The surrounding hills.
- *Moorlands:*
Extensive moorland, linking the farmland, woodland and the high tops.
- *Glens and Straths:*
Steep glens and high passes.
- *Wildlife and Nature:*
Dominance of natural landforms; and
Wild Land and Wildness.
- *Visual and Sensory Qualities:*
Layers of receding ridge lines;
Grand panoramas and framed views;

*A landscape of many colours; and
Dark skies.*

- *Recreation:
A landscape of opportunities; and spirituality."*

Night-time Lighting Assessment

- 6.79 Aviation warning lights attached to turbine hubs and towers are required on all proposed wind turbines ≥ 150 m in accordance with Article 222 of the UK Air Navigation Order (ANO) (2016), subject to any proposed lighting mitigation strategy.
- 6.80 A proportionate night-time assessment of the proposed aviation lighting will be undertaken in accordance with NatureScot's *Guidance on Aviation Lighting Impact Assessment* (November 2024). The assessment will be supported by maps indicating the ZTV of any proposed aviation warning lights and four night-time viewpoints. The proposed night-time viewpoints, listed in **Table 6.2**, have been selected as representative of locations where there are likely to be people at night, including settlements and roads (and one hill top on the edge of the CNP).
- 6.81 A night-time ZTV of the turbine lighting positions would accompany the visualisations which would aid the assessment. The extent of the study area is likely to be restricted to 10-15km from the outer turbine positions according to the technical criteria of the proposed candidate light fixtures.

Residential Visual Amenity Assessment

- 6.82 Residential amenity is a planning matter that involves a wide number of effects, such as noise and shadow flicker, and benefits of which residential visual amenity is just one component. A Residential Visual Amenity Assessment (RVAA) will be undertaken to assess the effects on residential visual amenity likely to be experienced at residential properties within 2 km of the Proposed Development. There are currently four properties within 2km of the Proposed Development. The RVAA will accord with the advice in GLVIA 3 and the Landscape Institute's Technical Guidance Note 02/19: *Residential Visual Amenity Assessment* (2019).
- 6.83 As a minimum, the visual effects from each property included in the assessment will be illustrated by a wireline.

7 NOISE

Introduction

- 7.1 This section of the Scoping Report focuses on the likely direct and indirect effects of noise and vibration associated with the construction, operation and decommissioning phases of the Proposed Development. It is based upon a desk-based review of potentially noise sensitive receptors (NSRs) and their relationship to the proposed development.

Baseline Conditions

- 7.2 The Site is located within a rural location where background noise levels are anticipated to be relatively low. There are a number of residential properties to the west and southwest of the site, including those around the closest property, Balvraid Lodge, approximately 1.5km southwest of the nearest proposed turbine.
- 7.3 A list of noise assessment locations (NALs) considered with potential for significant effects is set out in Table 7.1 below. Existing noise limits and status of each property will be considered throughout the assessment process.

Table 7.1: Noise Assessment Location

Name	Easting	Northing
NAL 1 – Balvraid Lodge	283126	831328
NAL 2 – Balvraid Farmhouse	282926	831419
NAL 3 – Balmore Farmhouse	282447	830983
NAL 4 - Edinchat	281851	830758
NAL 5 - Toulouse	281801	830475
NAL 6 – East Ruthven Cottage	281691	833078
NAL 7 – Ruthven Cottage	281426	833079

- 7.4 As set out previously within this Scoping Report, there are a number of operational wind farm developments within the vicinity of the proposed development. Therefore, an assessment will be undertaken to consider the potential cumulative noise impact on noise sensitive receptor (NSRs).

Likely Significant Effects during Construction

- 7.5 Likely significant effects during construction are centred around noisy activities in the vicinity of noise sensitive receptors, such as the construction or widening of access roads, drilling or blasting associated with potential rock movement during the construction, the formation of borrow pits, and the noise associated with heavy goods vehicles and general construction movements.
- 7.6 Given that multiple access routes to Site are being assessed at this time, a number of properties are likely to require assessment for construction noise once the final turbine and infrastructure layout is known.

Likely Significant Effects during Operation

- 7.7 For operational noise, the EIA Report will assess the maximum sound power level for the candidate turbine type in order to assess a worst case scenario. If the modelling exercise shows that sound power levels will need to be reduced to achieve acceptable noise levels at sensitive locations, then the EIA Report will examine possible mitigation measures which may include the use of quieter turbines, increasing standoff distances, installing measures to monitor and, if necessary, using noise reduced modes in certain wind conditions.
- 7.8 Like all wind-related noise, operational noise from turbines increases with wind speed. The EIA Report will therefore compare the existing background noise levels with the calculated predicted noise levels over the range of wind speeds expected at the Site using the methodology set down in ETSU-R-97. The wind farm will be designed to fully comply with the requirements of ETSU-R-97 and, whilst noise associated with the operation of the proposed wind turbines may be audible at some locations under certain conditions, the noise generated would be within the ETSU-R-97 and would be deemed acceptable.

Design and Mitigation

- 7.9 For operational noise, the proposed turbine layout will be designed to comply with the noise limits established in accordance with ETSU-R-97. The distance to the nearest turbine from the closest residential properties (1.5km) is likely to mitigate any significant effect from the operation of the wind farm and it is predicted that the ETSU-R-97 simplified day time limit of 35dB would apply.
- 7.10 For construction noise, it is unlikely that any form of mitigation will be required unless any major site access track works are required in the very close vicinity of residential properties which would normally be avoided. Mitigation measures would be incorporated into site design by avoiding track proximity to residential properties as far as practicable, following good practice in construction techniques including avoiding work out of normal day-time construction hours wherever possible.
- 7.11 There are a range of turbine makes and models that may be appropriate for the Proposed Development. The final selection of turbine is likely to follow a competitive tendering exercise if consent for the Proposed Development is granted. The final turbine model may therefore differ from that on which the assessment is based. However, the final choice of

turbine will be required to comply with the noise limits established in the ETSU-R-97 assessment.

Inclusion or Exclusion from the EIAR

- 7.12 Given the potential for access track works and deliveries in relative proximity to residential properties, effects are not currently known and cannot fully be discounted. Therefore, construction noise has been scoped in.
- 7.13 It is likely that an operational ETSU-R-97 simplified noise assessment would be required in accordance with industry guidance. Further consultation would be undertaken with the Environmental Health Officers at The Highland Council to agree methodology.

Proposed Scope of Assessment

Matters to be scoped in

Construction Noise

- 7.14 Noise emitted during the construction and decommissioning phase will be temporary and short term in nature and can be minimised through careful construction practices. The effective control of these impacts can be achieved by way of a suitable planning condition. Should consent be granted, construction and decommissioning noise can be controlled through the use of two legislative instruments which address the effects of environmental noise with regard to construction noise, vibration, and nuisance:
- The Environmental Protection Act 1990 (EPA)¹¹; and
 - The Control of Pollution Act 1974 (CoPA)¹².
- 7.15 The CoPA provides two means of controlling construction noise and vibration. Section 60 provides the Local Authority with the power to impose at any time operating conditions on the development site. Section 61 allows the Developer to negotiate a set of operating procedures with the Local Authority prior to commencement of site works.
- 7.16 A construction noise assessment will be undertaken using data provided in British Standard (BS) 5228: Part 1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Noise'¹³ and the calculation methodology provided in ISO9613-2:1996 'Acoustics - Attenuation of sound during propagation outdoors' -Part 2: General method of calculation'¹⁴. Impacts will be assessed using criteria contained within BS5228-1:2009+A1:2014 and, where appropriate, mitigation measures will be proposed.

¹¹ Environmental Protection Act 1990

¹² Control of Pollution Act 1974

¹³ British Standard BS5228-1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Noise'

¹⁴ International Standards Organisation ISO9613: 1996 'Acoustics – Attenuation of sound during propagation outdoors Part 2: General method of calculation'

Operational Noise

- 7.17 The Scottish Government's Planning Advice Note PAN1/2011 'Planning and Noise'¹⁵ refers to the 'Onshore Wind Turbines' web-based document which in turn states that ETSU-R-97 'The Assessment and Rating of Noise from Windfarms'¹⁶ should be used by Planning Authorities 'to assess and rate noise from wind energy developments until such time that an update is available.' The web based document also refers to the Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'¹⁷ (IOA GPG) as a source, which provides:

'significant support on technical issues to all users of the ETSU-R-97 method for rating and assessing wind turbine noise, and should be used by all IOA members and those undertaking assessments to ETSU-R-97. The Scottish Government accepts that the guide represents current industry good practice.'

- 7.18 ETSU-R-97 details a methodology for establishing noise limits for proposed wind farm developments and these limits should not be exceeded. ETSU-R-97 states that noise limits should be set relative to existing background noise levels at the nearest receptors and that these limits should reflect the variation in both turbine source noise and background noise with wind speed. Separate noise limits apply for quiet daytime and for night-time periods. Quiet daytime limits are chosen to protect a property's external amenity, and night time limits are chosen to prevent sleep disturbance indoors, with windows open.
- 7.19 ETSU-R-97 recommends that wind farm noise for the quiet daytime periods should be limited to 5 dB(A) above the prevailing background or a fixed minimum level within the range 35 - 40 dB LA90,10min, whichever is the higher. The precise choice of criterion level within the range 35 – 40 dB(A) depends on a number of factors, including the number of dwellings in the neighbourhood of the wind farm (relatively few dwellings suggest a figure towards the upper end), the effect of noise limits on the number of kWh generated (larger sites tend to suggest a higher figure) and the duration and level of exposure to any noise. These factors will be taken into account with justification for deriving suitable noise limits included in the noise assessment.
- 7.20 An exception to the setting of both the quiet daytime and night time fixed minimum limit occurs where a property occupier has a financial involvement with the proposed development. In that case the fixed minimum limit can be increased to 45 dB LA90,10min or the prevailing background noise LA90 plus 5 dB, whichever is the greater for both the quiet daytime and night-time periods.
- 7.21 A background noise survey may not be required for situations where predicted wind turbine noise levels at the nearest noise sensitive properties is limited to an LA90,10min of 35dB(A) up to wind speeds of 10m/s at 10m, as the protection of the amenity of those

¹⁵ Scottish Government, Planning Advice Note PAN 1/2011: 'Planning and Noise'

¹⁶ ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R-97)

¹⁷ Institute of Acoustics 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' (2013)

properties can be controlled through a simplified noise condition as detailed in ETSU-R-97. ETSU-R-97 states that:

'For single turbines or wind farms with very large separation distances between the turbines and the nearest properties, a simplified noise condition may be suitable. If the noise is limited to an LA90,10min of 35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity, and background noise surveys would be unnecessary.'

- 7.22 Where background noise levels are predicted to exceed the simplified noise criteria (or if cumulative noise has the potential to constrain development) then background noise levels will be established at key locations around the proposed development. Noise limits will be set relative to background noise levels at the nearest receptors and these limits will reflect the variation in background noise with wind speed.
- 7.23 Background noise monitoring has been undertaken at a number of properties surrounding the site as part of previous noise assessments undertaken for other wind farm developments in the area. It is anticipated that this data can be used to assess the Proposed Development and to set suitable noise limits which could be adopted should consent be granted.
- 7.24 Detailed consultation will be undertaken with the Council's Environmental Health Department prior to the commencement of the noise assessment in order to agree which background noise level datasets will be used and the overall assessment methodology.
- 7.25 The noise assessment will include predictions of likely wind turbine noise levels across a range of wind speeds to demonstrate compliance with the noise limits. A cumulative noise assessment will be undertaken in order to consider the consented, operational and proposed wind farms within the vicinity of the Proposed Development. The assessment will be undertaken in accordance with ETSU-R-97 and the IOA GPG.

Matters to be scoped out

Properties

- 7.26 The Tin Church, situated 3.2 km southwest (coordinates: 281662E, 830397N) of the nearest turbine, has been scoped out of this assessment as it operates as a holiday let rather than a residential property.

Decommissioning Noise

- 7.27 Noise associated with decommissioning cannot be accurately determined at this stage given decommissioning technology may be very different in 35 years' time. In addition, should the proposed development be consented, there is the possibility that an extension of consent may be granted to operate the proposed development for longer.

Vibration

- 7.28 Given the nature of construction activities proposed and the relative distances from residential receptors, the risk of ground borne vibration impacting on residential receptors is considered very low, as such a vibration assessment will not be undertaken.

Low-Frequency Noise

- 7.29 A study¹⁸, published in 2006 by acoustic consultants Hayes McKenzie on the behalf of the Department of Trade and Industry (DTI), investigated low frequency noise from wind farms. This study concluded that there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines.
- 7.30 In February 2013, the Environmental Protection Authority of South Australia published the results of a study into infrasound levels near wind farms¹⁹. This study measured infrasound levels at urban locations and rural locations with wind turbines close by, and rural locations with no wind turbines in the vicinity. It found that infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations. Infrasound levels were also measured during organised shutdowns of the windfarms; the results showed that there was no noticeable difference in infrasound levels whether the turbines were active or inactive.
- 7.31 Bowdler et al., (2009)²⁰ concluded that:
- “...there is no robust evidence that low frequency noise (including ‘infrasound’) or ground-borne vibration from wind farms generally has adverse effects on wind farm neighbours”.*
- 7.32 More recently during a planning Appeal (PPA-310-2028, Clydeport Hunterston Terminal Facility, approximately 2.5 km south-west of Fairlie, 9 Jan 2018), the health impacts related to low frequency noise associated with wind turbines were considered at length by the appointed Reporter (Mr M Croft). The Reporter considered evidence from Health Protection Scotland and the National Health Service. In addition, he also considered low frequency noise surveys undertaken by the Appellant and the Local Authority both of which demonstrated compliance with planning conditions and did not identify any problems attributable to the turbine operations; some periods with highest levels of low frequency noise were recorded when the turbines were not operating.

18 Hayes McKenzie (2006). 'The measurement of low frequency noise at three UK windfarms', Hayes Mckenzie, The Department for Trade and Industry, URN 06/1412, 2006.

19 Environment Protection Authority (2013). 'Infrasound levels near windfarms and in other environments'. Available Online At: http://www.epa.sa.gov.au/xstd_files/Noise/Report/infrasound.pdf

20 Bowdler et al (2009). 'Prediction and Assessment of Wind Turbine Noise: Agreement about relevant factors for noise assessment from wind energy projects'. Acoustics Bulletin, Vol 34 No2 March/April 2009, Institute of Acoustics.

7.33 The Reporter concluded that:

- The literature reviews by bodies with very significant responsibilities for the health of local people found insufficient evidence to confirm a causal relationship between wind turbine noise and the type of health complaints cited by some local residents.
- The NHS's assessment is that concerns about health impact are not supported by good quality research.
- Although given the opportunity, the Community Council failed to provide evidence that can properly be set against the general tenor of the scientific evidence.

7.34 It is therefore not considered necessary to carry out specific assessments of low frequency noise and that it should be scoped out.

Amplitude Modulation

7.35 In its simplest form, Amplitude Modulation (AM), by definition, is the regular variation in noise level of a given noise source. This variation (the modulation) occurs at a specific frequency, which, in the case of wind turbines, is defined by the rotational speed of the blades, i.e. it occurs at the rate at which the blades pass a fixed point (e.g. the tower), known as Blade Passing Frequency.

7.36 A study²¹ was carried out in 2007 on behalf of the Department for Business, Enterprise and Regulatory Reform (BERR) by the University of Salford, which investigated the incidence of noise complaints associated with wind farms and whether these were associated with AM. The study defined AM as aerodynamic noise from wind turbines with a greater degree of fluctuation than normal at blade passing frequency. Its aims were to ascertain the prevalence of AM on UK wind farm sites, to try to gain a better understanding of the likely causes, and to establish whether further research into AM is required.

7.37 The study concluded that AM had occurred at only a small number (4 of 133) of wind farms in the UK, and only for between 7% and 15% of the time. It also stated that, the causes of AM are not well understood, and that prediction of the effect was not currently possible.

7.38 This research was updated in 2013 by an in-depth study undertaken by Renewable UK²², which has identified that many of the previously suggested causes of AM have little or no association to the occurrence of AM in practice. The generation of AM is based upon the interaction of a number of factors, the combination and contributions of which are unique to each site. With the current state of knowledge, it is not possible to predict whether any particular site is more or less likely to give rise to AM, and the incidence of AM occurring at any particular site remains low, as identified in the University of Salford study. The report

21 University of Salford (2007). 'Research into aerodynamic modulation of wind turbine noise'. Report by University of Salford, The Department for Business, Enterprise and Regulatory Reform, URN 07/1235, July 2007.

22 Renewable UK (2013). 'Wind Turbine Amplitude Modulation: Research to improve understanding as to its Cause and effects', Renewable UK, 2013.

includes a sample planning condition to address AM, however that has not yet been validated or endorsed by UK Government.

7.39 In 2016, the IOA proposed a measurement technique to quantify the level of AM present in any particular sample of windfarm noise²³. In August 2016 a report written by WSP/Parsons Brinkerhoff was published by the Department of Business, Energy & Industrial Strategy (BEIS, formerly The Department of Energy & Climate Change) who have published guidance²⁴. The report sought to build on the conclusions of the IOA study in order to define an appropriate assessment method for AM, including a penalty scheme and an outline planning condition.

7.40 In November 2017, an article entitled 'A planning condition for wind farms' was published in Vol 42 No 6 of the Acoustics Bulletin magazine. The article was written collaboratively by a number of noise consultants and suggested a noise planning condition which included consideration of AM. The authors noted in the article that:

'Whilst local authorities and developers have waited for a planning condition that could be applied to newly consented wind farms, or to those already consented but with a suspensive condition, the report Wind Turbine AM Review (WTAMR) by WSP/Parsons Brinckerhoff for DECC arguably did not provide that. In addition there have been a number of comments on WTAMR that we consider should be addressed.'

7.41 The article then went on to propose a draft condition but noted that: 'This approach is proposed based on the current state of understanding but may be subject to modification in light of new research and further robust information.' And 'As various people before us have discovered, the derivation of a penalty is not easy. There is not sufficient reliable research to be confident that a penalty system would always provide a fair indication of the impact of AM.'

7.42 At the time of writing there has been no official response to those recommendations from the IOA Noise Working Group and, as yet, no endorsement from any Scottish Government Minister or Department. The recommendation to impose a planning condition and the associated penalty scheme is at odds with the advice from the IOA GPG which currently states (paragraph 7.2.10):

'The evidence in relation to "Excess" or "Other" Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM.'

7.43 At time of writing there is no agreed methodology which can be used to predict the occurrence of AM or an agreed methodology which can be used to determine whether the effects of AM, should it occur, are likely to be significant. On that basis it is considered therefore that amplitude modulation should be scoped out.

²³ Institute of Acoustics, (2016) A Method for Rating Amplitude Modulation in Wind Turbine Noise

²⁴ BEIS, (2016), Review of the evidence on the response to amplitude modulation from wind turbines

8 TERRESTRIAL ECOLOGY

Introduction

- 8.1 This chapter presents the approach to be used in assessing the potential effects of the Proposed Development on ecological receptors. It will summarise the desk-based and field survey work completed to date and outline further plans for assessment and survey to define the ecological baseline conditions on the site and adjacent areas in order to allow a robust assessment of potential effects from the Proposed Development on ecological features.
- 8.2 It describes the methods of assessments and indicates any areas which are to be scoped out of that assessment. It also reviews the designated sites in proximity to the site and addresses what impacts will be considered for those sites.
- 8.3 The fundamental approach to the ecology assessment detailed within the EIA Report for the Proposed Development will be to:
- Identify the ecological baseline of the Proposed Development and adjacent areas;
 - Evaluate the nature conservation value and/or the legal or planning status of identified receptors;
 - Assess the risk of the Proposed Development to adversely impact upon features assessed as being above a threshold; and to
 - Present appropriate mitigation or compensation strategies, if required.

Baseline Conditions

- 8.4 A review of the statutory and non-statutory designated sites relevant to ecology has been completed. Sites relevant to ornithology are presented in Chapter 9 and are not considered here. The review sought to identify those sites with 10km of the Proposed Development, their qualifying features, and if there are potential connectivity pathways between the Proposed Development and the designated site.
- 8.5 Numerous statutory and non-statutory designated sites were identified within 10km of the Proposed Development (Figure 8.2, Table 8.1). The designated sites include Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), a Wildcat Priority Area and numerous Ancient Woodland Inventory (AWI) woodlands. None of these sites border the Proposed Development, but several AWI woodlands are located in the wider woodland around the Proposed Development.

Table 8.1: Statutory and Non-statutory Designated Sites of Ecological Interest Within 10km of the Proposed Development

Site name	Designation (site code)	Distance and direction from site	Qualifying features (ecological only)	Habitat links to site	Grid reference
Carn Nan Tri-Tighearnan	SAC (8220) SSSI (323)	1.4km north	SAC and SSSI: Blanket Bog SSSI only: Upland habitats: Subalpine dry heath	Connected via watercourses and woodland.	NH82673 496
Northern Strathspey	Wildcat Priority Area	3.9km south	Wildcat <i>Felix silvestris</i>	Connected via moorland. Boundaries of area are along natural watersheds and water features.	NH88732 872
Slochd	SAC (8639)	4.3km south west	European dry heaths	Connected via watercourses and moorland.	NH81942 764
River Spey	SAC	6.2km south east	Otter <i>Lutra lutra</i> Freshwater pearl mussel <i>Margaritifera margaritifera</i> Sea lamprey <i>Petromyzon marinus</i> Atlantic salmon <i>Salmo salar</i>	No hydrologic connection to the Proposed Development.	NH90742 800
Kinveachy Forest	SAC (8283) SSSI (864)	9.1km south	SAC: Bog Woodland, Caledonian forest SSSI: Native Pine Woodland	Habitat not connected due to fragmentation.	NH85612 183
Solishan Wood, Baddengorm Woods, Ellan Wood, Beananach	AWI woodland	3.10 – 9.97km	Ancient woodland of semi-natural origin (1a and 2a)	Connected via moorland and other habitats.	Various

Site name	Designation (site code)	Distance and direction from site	Qualifying features (ecological only)	Habitat links to site	Grid reference
Wood, various unnamed woodlands					
Baddengorm Woods, Tolquhonie Wood, Duthil Plantation, various unnamed woodlands	Ancient Woodland	0.28 – 8.65km	Long Established (of plantation origin) (2b)	Connected via moorland and other habitats.	Various
Baddengorm Woods, Beananach Wood, various unnamed woodlands	Ancient Woodland	1.52 – 9.91km	Other (on Roy map)	Connected via moorland and other habitats.	Various

8.6 The site and wider landscape have potential to support a number of species of high conservation value which might be affected by the Proposed Development. These species have been identified following completion of several surveys undertaken in 2022 and 2023. The survey area covered is shown in Figure 8.1. Species identified which have the potential to utilise the site and surrounding area include:

- Bat *Chiroptera* species
- Fish species
- Freshwater pearl mussel
- Otter
- Pine marten *Martes martes*
- Water vole *Arvicola amphibius*
- Wildcat
- Badger *Meles meles*
- Red squirrel *Sciurus vulgaris*
- Mountain hare *Lepus timidus*

- 8.7 Phase 1 habitat surveys²⁵ and national Vegetation Classification (NVC)²⁶ surveys are ongoing throughout 2025. These would seek to identify habitats of potential ground water dependent terrestrial ecosystems (GWDTE)²⁷ and highlight areas of sensitive habitat which should be avoided during the design of the Proposed Development.
- 8.8 Surveys for terrestrial protected species were undertaken in September 2022 and identified suitable habitat and field signs for multiple protected species. Further surveys are proposed for 2026 to update the baseline dataset. These surveys will include an updated bat roost assessment in line with current guidelines²⁸. These surveys would seek to assess how protected species are using the site and the surrounding landscape.
- 8.9 In addition, bat static detectors were deployed between March and October 2022. These remain valid until April 2025. As such, additional surveys may be undertaken in 2026 to determine the species assemblage on site and how bats are using the site.
- 8.10 A wildcat survey was undertaken in 2023 which identified suitable habitat for wildcat species, including suitable denning habitat. As the site is located in close proximity to a Wildcat Priority Area and the 2023 surveys identified suitable habitat, an updated walkover survey is proposed for 2026, to determine the use of the site by wildcats.
- 8.11 Fish and freshwater pearl mussel habitat assessments were undertaken in July 2022. The results are considered suitable in 2025 as there have been no significant changes to watercourses within the site. Based on these surveys, fish population and aquatic invertebrate surveys are recommended in line with Marine Scotland Science guidelines for onshore wind farms²⁹. These surveys will include collecting updated fish habitat information at surveyed locations.

Assessment Methods

Identification of Potential Effects

- 8.12 The assessment process follows the approach detailed in CIEEM (2018³⁰) which places a greater emphasis on professional judgement of the reporting Ecologist rather than a desk-based assessment. The term Important Ecological Feature (IEF) is used for those species and habitats identified to be included in the assessment. For each impact with the potential to affect the relevant IEFs, the assessment considers the following parameters:

²⁵ Joint Nature Conservation Committee (2010) Phase 1 Habitat Survey: A technique for environmental audit.

²⁶ Rodwell, J.S. (2006) NVC Users' Handbook, JNCC, Peterborough, ISBN 978 1 86107 574 1.

²⁷ SEPA (2017) Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, LUPS-GU31, version 3.

²⁸ Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London.

²⁹ The Scottish Government (2021). Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme. [online] Gov.scot. Available at: <https://www.gov.scot/publications/monitoring-watercourses-in-relation-to-onshore-wind-farm-developments-generic-monitoring-programme> [Accessed 3 Dec. 2024].

³⁰ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

- Whether the impact is positive or negative in its influence;
- The extent of the impact;
- The magnitude, duration and timing of the impact; and,
- The impact's frequency and ease of reversibility.

8.13 The assessment identifies potential effects that could give rise to more significant effects which are then considered in further detail. The assessment similarly identifies any potential cumulative impacts from surrounding developments prior to determining the significance of any effect, be this negligible, minor, moderate or major. Effects could be either beneficial or adverse.

Likely Effects during Construction & Decommissioning

8.14 It is anticipated that effects will be similar between construction and decommissioning of the Proposed Development, and therefore the two phases are considered together. The following potential effects to ecological receptors during the construction and decommissioning phases of the Proposed Development have been identified:

- Temporary loss of habitat from construction of temporary components (e.g., construction compound);
- Disturbance to protected species (e.g., noise, vibration, visual);
- Disturbance to protected species from construction lighting if night-time working is required;
- Pollution of habitats, including watercourses, resulting in habitat degradation, injury/mortality to species and their prey; and
- Injury/mortality to individual animals due to plant movements.

Likely Effects during Operation

8.15 The following potential effects caused during the operational phase of the Proposed Development have been identified:

- Permanent loss of habitat from construction of permanent components (tracks, turbine foundations and substations);
- Modification of aquatic habitats due to hydrological change;
- Injury/mortality to bats due to collision with turbine blades or barotrauma;
- Fragmentation of species ranges or habitats;
- Pollution of the aquatic environment; and,

- Disturbance due to maintenance activities (e.g., increased traffic and human presence).

Design and Mitigation

8.16 The following inbuilt mitigation for the Proposed Development would seek to reduce any potential effects to ecological receptors (as identified above) during both the construction and operational phases of the Proposed Development:

- Infrastructure would be designed to avoid areas of deep peat and where feasible all road structures on soils classed as peat would utilise a floating method of construction;
- A 50m buffer would be placed around all known watercourses with infrastructure placed out with these buffers (with the exception of watercourse crossings) to minimise the likelihood of sedimentation and pollution occurring;
- Strict pollution prevention measures will be adhered to during all construction activities;
- Infrastructure design would seek to avoid areas of ground water dependent terrestrial ecosystem habitat if identified as present within the Proposed Development area;
- A post-consent Construction Environment Management Plan (CEMP) would be provided which would detail mitigation plans to protect environmental receptors during the construction phase of the Proposed Development;
- All turbines would be placed a suitable buffer distance from features likely to be used by bat species to reduce the potential for collision mortality or barotrauma in line with industry standard guidance³¹;
- An Ecological Clerk of Works (ECoW) would be present throughout the duration of the construction phase of the Proposed Development to oversee compliance with all environmental commitments and mitigation;
- Pre-construction surveys would be completed prior to commencement of the construction phase to ensure an up-to-date baseline is available of protected species utilisation of the Proposed Development area to minimise disturbance to sensitive species;
- Where water crossings are required, these would be sensitively designed to:
 - Allow safe passage of otters, water voles, and fish species;
 - Avoid alterations of the watercourse being crossed; and
 - Retain habitat directly adjacent to the crossing.

8.17 In addition to the above mitigation, it is anticipated that a Habitat Management Plan would be required to compensate for the loss of habitats from the construction of the

³¹ SNH (NatureScot; 2019). Bats and onshore wind turbines - survey, assessment and mitigation.

Proposed Development. At this stage it is proposed that, if possible, an area greater than that affected by the Proposed Development would be identified and appropriate management would be employed to mitigate any potentially adverse effects from the Proposed Development to ecological receptors.

- 8.18 Additionally, Biodiversity Enhancements, in line with NPF4, will be outlined in a Biodiversity Enhancement Plan, which will be created in line with current guidelines at the time of writing and in consultation with relevant bodies.

Inclusion or Exclusion from EIAR

- 8.19 Based on the above information all elements of ecology will be scoped into the assessment within the EIA Report apart from the following:
- Beaver *Castor fibre*: the Proposed Development is outside of the current understood range of beavers in Scotland. Should beaver signs be identified during terrestrial protected species surveys, this species may subsequently be scoped into the assessment.
 - Great crested newts *Triturus cristatus*: the Proposed Development is outside of the current understood range of great crested newts in Scotland. Furthermore, a desk-based assessment did not identify any ponds within a 500m buffer of the site.
 - River Spey SAC and SSSI: The Proposed Development is not hydrologically connected to the River Spey SAC and SSSI, and therefore no impacts are anticipated on these designated sites.

Proposed Scope of Assessment

- 8.20 Further surveys are proposed in 2026 to assess how species are using the site and identify any ecological constraints regarding the species. Surveys may include the following (proposed survey date range):
- Fish population survey (July-mid-October inclusive)
 - Aquatic invertebrates survey (March-May inclusive)
 - Wildcat survey (January-April inclusive)
 - Terrestrial protected species, including bat roost assessment (March-September)
 - Phase 1 and NVC (March-November)
 - Bat static detectors (April-October)

8.21 The Ecology Chapter of the EIA Report will follow approach detailed in CIEEM Guidelines³². Any Important Ecological Features (IEFs) be included during this assessment. The EIA report will be supported by a number of Technical Appendices, likely to include but not limited to the following topics:

- Draft Habitat Management Plan;
- Biodiversity Enhancement Plan;
- Terrestrial Protected Species Technical Survey Report;
- Bat Technical Survey Report;
- Fish Population and Aquatic Invertebrate Report;
- Habitats Technical Survey Report.

³² CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

9 ORNITHOLOGY

Introduction

- 9.1 This chapter presents the approach to be used in assessing the potential effects of the Proposed Development to ornithological receptors. The section will summarise the ornithology surveys completed to date (April 2022 – October 2025) to define the ornithological baseline conditions on the site and within adjacent areas to inform a robust assessment of potential effects from the Proposed Development on ornithological receptors.
- 9.2 This chapter describes the methods of assessment and indicates any areas which are to be scoped out of that assessment. It also reviews the designated sites in proximity to the site and addresses what impacts will be considered for those sites. NatureScot and the Highland Raptor Study Group have also been consulted to request information and advice regarding species that may be impacted by the Proposed Development.
- 9.3 The approach to the ornithology assessment detailed within the EIA Report for the Proposed Development will be to:
- Identify the ornithological baseline of the Proposed Development and adjacent areas;
 - Evaluate the nature conservation value and/or the legal or planning status of identified receptors;
 - Assess the risk of the Proposed Development to adversely impact upon features assessed as of high conservation value;
 - Present appropriate mitigation, if required; and,
 - Confirm any residual effects on birds, after mitigation.

Baseline Conditions

Desk Study

- 9.4 Twenty-two internationally and/or nationally designated sites of ornithological interest were identified within 20km of the site (Table 9.1). These includes Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs) and Ramsar sites.
- 9.5 No non-statutory designated sites were identified within 20km whose designating features included ornithology interests.

Table 9.1: International and Nationally Designated Sites within 20km of the site.

Site	Designation (site code)	Distance and direction from site	Qualifying features (ornithology only)	NGR
Kinveachy Forest	SPA (UK9002581) SSSI (864)	9.1km south	SPA: - Capercaillie <i>Tetrao urogallus</i>, breeding - Scottish crossbill <i>Loxia scotica</i>, breeding SSSI: - Breeding bird assemblage	NH 856175
Loch Vaa	SPA (UK9002751) SSSI (1065)	14.6km south	SPA and SSSI: - Slavonian grebe <i>Podiceps auratus</i>, breeding SSSI only: - Goldeneye <i>Bucephala clangula</i>, breeding	NH 913175
Abernethy Forest	SPA (UK9002561) SSSI (9)	15.7km southeast	SPA and SSSI: - Capercaillie, breeding - Osprey <i>Pandion haliaetus</i>, breeding - Scottish crossbill, breeding SSSI only: - Crested tit <i>Lophophanes cristatus</i>, breeding - Woodland breeding bird assemblage includes the above species as well as black grouse <i>Tetrao tetrix</i>, redstart <i>Phoenicurus phoenicurus</i>, spotted flycatcher <i>Muscicapa striata</i> and tree pipit <i>Anthus trivialis</i>.	NJ 010165
Craigmore Wood	SPA (UK9001801)	17.8km south	Capercaillie, breeding	NJ 022224
Loch Flemington	SPA (UK9001691)	17.8km north	Slavonian grebe, breeding	NH 810520
Darnaway and Lethen Forest	SPA (UK9020292)	18.2km north	Slavonian grebe, breeding	NJ 000530
Anagach Woods	SPA (UK9020297)	18.2km southeast	Capercaillie, breeding	NJ 050278
Longman and Castle Stuart Bays	SSSI (1675)	18.3km northwest	- Cormorant <i>Phalacrocorax carbo</i>, non-breeding - Goldeneye, non-breeding - Red-breasted merganser <i>Mergus serrator</i>, non-breeding - Redshank <i>Tringa totanus</i>, non-breeding	NH 715496

Site	Designation (site code)	Distance and direction from site	Qualifying features (ornithology only)	NGR
			Wigeon <i>Anas penelope</i>, non-breeding	
Inner Moray Firth	SPA (UK9001624)) Ramsar (UK13025)	18.3km northwest	SPA and Ramsar: - Bar-tailed godwit <i>Limosa lapponica</i>, non-breeding - Greylag goose <i>Anser anser</i>, non-breeding - Red-breasted merganser, non-breeding - Redshank, non-breeding - Waterfowl assemblage, non-breeding SPA only: - Common tern <i>Sterna hirundo</i>, breeding - Cormorant, non-breeding - Curlew <i>Numenius arquata</i>, non-breeding - Goldeneye, non-breeding - Goosander <i>Mergus merganser</i>, non-breeding - Osprey, breeding - Oystercatcher <i>Haematopus ostralegus</i>, non-breeding - Scaup <i>Aythya marila</i>, non-breeding - Teal <i>Anas crecca</i>, non-breeding - Wigeon, non-breeding	NH 586462
Moray Firth	SPA (UK9020313)	18.9km northwest	- Common scoter <i>Melanitta nigra</i>, non-breeding - Eider <i>Somateria mollissima</i>, non-breeding - Goldeneye, non-breeding - Great northern diver <i>Gavia immer</i>, non-breeding - Long-tailed duck <i>Clangula hyemalis</i>, non-breeding - Red-breasted merganser, non-breeding - Red-throated diver <i>Gavia stellata</i>, non-breeding - Scaup, non-breeding - Shag <i>Phalacrocorax aristotelis</i>, breeding & non-breeding - Slavonian grebe, non-breeding	NH 879647

Site	Designation (site code)	Distance and direction from site	Qualifying features (ornithology only)	NGR
			Velvet scoter <i>Melanitta fusca</i>, non-breeding	
Loch Ashie	SPA (UK9001554) SSSI (961)	19.4km west	SPA and SSSI: Slavonian grebe, passing	NH 629348
Cairngorms	SPA (UK9002241) SSSI (288)	19.6km south	SPA only: - Capercaillie, breeding - Merlin, breeding - Osprey, breeding - Peregrine <i>Falco peregrinus</i>, breeding - Scottish crossbill, breeding SSSI only: - Snow bunting <i>Plectrophenax nivalis</i>, breeding - Ptarmigan <i>Lagopus muta</i>, breeding - Breeding bird assemblage SPA and SSSI: - Dotterel <i>Charadrius morinellus</i>, breeding - Golden eagle <i>Aquila chrysaetos</i>, breeding	NN 934985
Loch Ruthven	SPA (UK9001551) SSSI (1047) Ramsar (UK13042)	19.6km west	SPA, Ramsar and SSSI: - Slavonian grebe, breeding SSSI only: - Breeding bird assemblage	NH 615277
North Rothiemurchus Pinewood	SSSI (1241)	19.6km south	- Capercaillie, breeding - Crested tit, breeding - Osprey, breeding - Scottish crossbill, breeding - Breeding bird assemblage	NH 930100

Consultation

- 9.6 The Highland Raptor Study Group (HRSBG) were consulted in 2023 on numbers of breeding pairs of some species within Natural Heritage Zone 10 (which contains the Proposed Development).
- 9.7 In order to inform the assessment and design, consultation with NatureScot (NS) was undertaken in 2024 to request advice regarding the impact of the site on golden eagle and white-tailed eagle *Haliaeetus albicilla* and appropriate mitigation measures in response to this.

Field Surveys

- 9.8 The ornithological survey programme was developed based on the particular ornithological sensitivities which were anticipated to occur at the site. Most surveys were completed between April 2022 and March 2024 and further surveying is proposed in 2025. The survey programme was devised following NatureScot's survey guidance for assessing onshore wind farms which was available at the time of commissioning (SNH*, 2017)³³ as well as other relevant generic and species-specific survey guidance.

Survey Area Restrictions

- 9.9 Ornithology surveyor access was mainly restricted to areas within the redline boundary (RLB). Surveying outside RLB (within relevant target species survey buffer) had to be undertaken via public roads, footpaths and vantage points from within the RLB.

Vantage Points

- 9.10 Ornithology studies commenced in April 2022 until March 2024, and have been carried out across three vantage point (VP) locations. Flight activity surveys have been carried out as detailed in Table 9.3 below.

Table 9.3: Flight Activity Survey VP Locations

VP Number	Easting	Northing	View Angle (degrees)	Location in Relation to the Site
1	282969	832600	90°	Outside RLB
2	285284	832656	210°	Outside RLB
3	285298	832663	30°	Outside RLB

- 9.11 A minimum of 36 hours of survey effort has been completed at each VP within the breeding season (April – August 2022 and 2023) and non-breeding season (September – March 2022/23 and 2023/24). The survey effort has been based on the key species/groups of conservation concern which are most likely to occur over or in the vicinity of the site. At this site, these are likely to be raptors including golden eagle and white-tailed eagle.

Moorlands Breeding Bird Surveys

- 9.12 Moorland Breeding Bird Surveys (MBBS) were carried out in 2022. Due to access limitations and uncertainties about the site's RLB, a second year of surveys was postponed, scheduled to be completed in 2026. Currently, data relating to surveys conducted in 2022 is the only information available.
- 9.13 MBBS surveys followed NatureScot (SNH, 2017) guidance, covering the Proposed Development plus a 500m buffer where access permitted. The surveys involved four visits

³³ SNH (2017). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms.

*NatureScot was formerly known as Scottish Natural Heritage (SNH).

undertaken between April and July 2022 following a modified Brown and Shepherd (1993)³⁴ methodology, as detailed in Gilbert *et al.* (1998)³⁵.

Breeding Raptor

- 9.14 To date, Breeding Raptor surveys (2022 and 2023) across the Proposed Development have followed methods in line with Hardey *et al.* (2013)³⁶ and Gilbert *et al.* (1998) and covered the Proposed Development and out to a 2km buffer (6km for breeding eagle), using publicly accessible roads to cover the buffer area.
- 9.15 There were four visits per breeding season (April, May, June and July), with an extra three (January, February, March) in 2023 to cover the early breeding season of eagles.

Black Grouse

- 9.16 Surveys for black grouse leks were conducted in 2023 following the method detailed in Gilbert *et al.* (1998). Three surveys were conducted at the site between late March and mid-May involving walkovers covering all areas of suitable lekking habitat (e.g. areas of short grassland or moorland, particularly near forest edges and along forest rides) within 1.5km of the site. Each survey was conducted between approximately one hour before sunrise and up to two hours after dawn.
- 9.17 A second year of black grouse surveys were not completed due to uncertainties about redline boundary and access to areas of the buffer. Year 2 surveys are scheduled to be completed in 2026.

Capercaillie

- 9.18 A walkover survey was completed in April 2022 to assess the habitat suitability for capercaillie within the Proposed Development and surrounding area out to a buffer of 1.5km.

Results

Vantage Point results

- 9.19 Over the 24-month period April 2022 to March 2024 a total of 368 flights by 14 target species were recorded during the flight activity surveys; Table 9.4 summarises the results of these surveys.

³⁴ Brown, A. F. & Shepherd, K. B (1993). A Method for Censusing Upland Breeding Waders, Bird Study 40, pp. 189 – 195.

³⁵ Gilbert, G., Gibbons, D. W & Evans, J (1998). Bird Monitoring Methods. RSPB, Sandy.

³⁶ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B & Thompson, D (2013). Raptors: A Field Guide for Surveys and Monitoring (3rd Edn). Stationary Office Books.

Table 9.4: Summary of Flights Recorded During All Vantage Point Surveys

Species	Survey Season				Total Flights Recorded
	Breeding 1 (April – August 2022)	Breeding 2 (April – August 2023)	Non-Breeding 1 (September 2022 – March 2023)	Non-Breeding 2 (September 2023 – March 2024)	
Greylag goose	0	0	4	0	4
Pink-footed goose <i>Anser brachyrhynchus</i>	0	0	2	1	3
Whooper swan <i>Cygnus cygnus</i>	0	0	1	0	1
Black grouse	0	0	1	0	1
Golden plover <i>Pluvialis apricaria</i>	3	0	0	0	3
Curlew	0	5	0	0	5
Osprey	0	2	0	0	2
Golden eagle	17	15	58	46	136
Goshawk <i>Accipiter gentilis</i>	7	3	24	30	64
Hen harrier <i>Circus cyaneus</i>	0	0	1	1	2
Red kite <i>Milvus milvus</i>	15	24	13	31	83
White-tailed eagle	8	8	13	23	52
Merlin <i>Falco columbarius</i>	1	1	1	0	3
Peregrine	1	0	2	6	9
Total	52	58	120	138	368

Moorland Breeding Bird Survey results

- 9.20 A total of 17 species were recorded during the MBBS in 2022. Common crossbill, golden plover, osprey, goshawk, red kite and white-tailed eagle were recorded species listed on Annex I of the EU Birds Directive and / or Schedule 1 of the Wildlife and Countryside Act 1981. A further six Red-listed Birds of Conservation Concern and/or Scottish Biodiversity List (SBL) species were also recorded during the surveys.

Breeding Raptor results

- 9.21 During the surveys a total of 77 flights were recorded; target species included golden eagle (23 flights), hen harrier (2 flights), white-tailed eagle (4 flights), peregrine (2 flights),

red kite (19 flights), osprey (7 flights), merlin (2 flights), goshawk (13 flights), and snipe *Gallinago gallinago* (1 flight).

Black Grouse results

- 9.22 One male black grouse was recorded lekking during a survey in April 2023.

Capercaillie results

- 9.23 During the survey in April 2022, no habitat suitable for capercaillie was recorded at the Proposed Development or within the 1.5km survey buffer.

Assessment Methods

- 9.24 Wind farm developments can have potential effects on birds during construction, operation and decommissioning phases. These impacts often include habitat loss and/or deterioration, disturbance, displacement, and injury/mortality, particularly related to collision risk.
- 9.25 The assessment will consider the potential effects of these impacts on the ornithological features found in proximity to the Proposed Development and the significance of any effect in the context of their conservation value.

Identification of Potential Effects

- 9.26 The assessment process will follow that as detailed in the Chartered Institute of Ecology and Environmental Management (CIEEM) (2018)³⁷ which now places a greater emphasis on professional judgement of the reporting ornithologist rather than a desk-based assessment. The term Important Ornithological Feature (IOF) is used for birds of conservation value to be included in the assessment. For each potential effect on an IOF, the assessment considers the following parameters:
- Whether the impact is positive or negative in its influence;
 - The extent of the impact;
 - The magnitude, duration and timing of the impact; and,
 - The impact's frequency and ease of reversibility.
- 9.27 The assessment would similarly include consideration of any proposed mitigation to avoid or minimise the effect of any potential impact to the relevant IOFs and seek to identify any potential cumulative impacts from surrounding developments prior to determining the residual significance of any effect, be this negligible, minor, moderate or major.

³⁷ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

- 9.28 Potential effects during construction, operation and decommissioning are detailed below, however the final effects assessed in the EIA will be determined following the completion of all surveys and a robust desk-based assessment, in consideration with the final layout.

Likely Effects during Construction & Decommissioning

- 9.29 It is anticipated that effects will be similar between construction and decommissioning of the Proposed Development, and therefore the two phases are considered together. The following may affect IOFs during the construction and decommissioning phases of the Proposed Development:

- Temporary loss of habitat such as from construction of temporary components (e.g., construction compound), loss of open moorland habitat available for ground nesting birds or loss of vegetation for woodland species.
- Disturbance to nesting / lekking species – noise or visual disturbance generated by construction can disturb species, interrupt their normal behaviours and/or discourage breeding attempts.
- Damage to nests – due to increased vehicle activity and footfall on the site, ground nests become more vulnerable to damage. Furthermore, all nests are vulnerable to damage and destruction through vegetation removal works during the breeding season.

Likely effects during Operation

- 9.30 The following may affect IOFs during the operational phase of the Proposed Development:

- Permanent loss of habitat from construction of permanent components (tracks, turbine foundations and substations);
- Modification of habitats due to hydrological change;
- Indirect loss of bird habitat due to the displacement of birds (disturbance and/or displacement) by construction and operation of the wind farm;
- Accidental mortality due to construction activities;
- Collision mortality;
- Barrier effects to migratory species.

Design and Mitigation

- 9.31 Should the Proposed Development be predicted to pose any adverse effects on features of ornithological interest, it may be necessary to implement mitigation measures to minimise or avoid those effects. Further assessment of the data collected between 2022 and 2026 will determine the potential effects of the development to ornithological receptors and therefore any mitigation required.

9.32 Mitigation measures that may be considered are:

- Implement a Bird Protection Plan (BPP) to protect breeding and roosting birds in accordance with relevant legislation. This would detail mitigation plans to protect ornithological receptors during the construction phase of the Proposed Development.
- Pre-construction surveys should be completed prior to commencement of the construction phase to ensure an up-to-date baseline is available of protected species utilisation of the Proposed Development area to minimise disturbance to sensitive species.
- An Ecological Clerk of Works (ECoW) should be present throughout the duration of the construction phase of the Proposed Development to oversee compliance with all environmental commitments and mitigation, and would attend the site regularly to make or oversee observations of birds present in and around areas where works are planned, and identify any potential constraints to works and/or reactive mitigation needs.
- Where possible, construction works (including felling) should take place outside the main breeding bird season (March to August inclusive), possibly including January and February if nesting eagles may be disturbed.
- Scottish crossbill is listed on Schedule 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended). As the species can breed year-round (Balmer *et al.*, 2013)³⁸, a pre-construction survey of areas of suitable habitat for nesting Scottish crossbill within 200m (Goodship and Furness, 2022)³⁹ of felling and other works should be completed ahead of any operations, regardless of the time of year, by a suitably experienced and qualified ECoW, to check for active nests.
- Where construction works are required during the key lekking period for black grouse (late March to mid-May; Gilbert *et al.*, 1998), pre-construction survey of areas of suitable lekking habitat within 750m of works would be completed by a suitably experienced and qualified ECoW, to check for the presence of black grouse leks.
- Where construction works are required during the breeding bird season, the area within at least 500m of works should be surveyed ahead of any operations, by a suitably experienced and qualified ornithologist, to check for active nests of all bird species (excluding Scottish crossbill, which is covered above). Where there is suitable habitat for nesting species listed on Schedule 1 of the WCA 1981 (as amended) or Annex I of the Birds Directive, the Study Area would be extended to the maximum buffer distance for the relevant species recommended by NatureScot (Goodship and Furness, 2022) guidance.

³⁸ Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. and Fuller, R.J. 2013. Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland. BTO Books, Thetford.

³⁹ Goodship, N.M. and Furness, R.W. 2022. Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. A report from MacArthur Green to NatureScot.

- A 'toolbox talk' would be delivered by a suitably experienced ECoW to ensure that all contractors working on the site are aware of ornithological sensitivities and relevant legislation.
- If any nests or breeding territories of species listed on Schedule 1 of the WCA 1981 (as amended) or Annex I of the Birds Directive are identified during pre-construction surveys, an exclusion zone around the nest (or territory) would be established (with the distance appropriate to the species and agreed through consultation with NatureScot). No works would be permitted within the exclusion zone and no personnel or vehicles would be allowed to enter or pass through until the ECoW has confirmed that the chicks have fledged or the breeding attempt has failed.
- If any black grouse leks are identified within 750m of works during pre-construction surveys for this species during the key lekking period (late March to mid-May), a 750 m exclusion zone around the lek site would be established, within which no works would take place around the hours of dawn or dusk (with permitted working times to be determined by the ECoW through monitoring of the leks).
- In relation to eagle species at risk of collision, enhancement of foraging habitat away from the turbine envelope and the removal of carrion and carcasses from the site and appropriate buffer can help prevent attracting eagles into collision risk areas.

9.33 Proposed enhancement measures that may be considered are:

- Habitat improvement, which will form part of the Habitat Management and Biodiversity Enhancement Plans for the site, which will be agreed in consultation with NatureScot.

9.34 Proposed monitoring measures that may be considered are:

- Monitoring of the locations and breeding performance of key species, such as golden eagle and white-tailed eagle, could be commissioned, and would continue prior to, during, and after construction to enable a 'before and after' assessment to be made. Monitoring would be undertaken in years 1-5, 10, 15 and 20 of the operational phase of the site. A report detailing the monitoring work would be published on an annual basis and made publicly available. Monitoring would be undertaken in line with best practice guidance (SNH, 2009)⁴⁰.

Assessment of Residual Effects

9.35 The assessment of residual effects includes the consideration of any proposed mitigation measures to avoid or minimise the effect of any likely significant effects on the relevant IOFs. The residual effect will consider the effectiveness of the proposed mitigation measures to reduce the extent, magnitude and duration of predicted likely significant effects prior to determining the residual significance of any effect.

⁴⁰ SNH. (2009). SNH Guidance on Methods for Monitoring Bird Populations at Onshore Wind Farms. SNH, Inverness, UK.

Inclusion or Exclusion from the EIAR

- 9.36 Based on the above information, consideration of IOFs will be scoped into the assessment within the EIA Report, with particular focus on golden eagle and white-tailed eagle recorded at the potential collision height of turbines during the flight activity surveys. Common crossbill, osprey, goshawk, red kite are species recorded during the surveys which are listed on Annex I of the EU Birds Directive and / or Schedule 1 of the Wildlife and Countryside Act 1981 and therefore should be considered in the assessment. Red-listed species present in and near to the site, black grouse, curlew, skylark and lesser redpoll, should also be considered.
- 9.37 Since no capercaillie habitat was present within 1.5km of the site, this species can be scoped out of assessment.

Proposed Scope of Assessment

- 9.38 As detailed above, a second year of MBBS and black grouse surveys are to be completed in 2026. Following this, a detailed impact assessment following the industry standard guidance provided by CIEEM (CIEEM, 2018) will be carried out. Assessments will include collision risk modelling and territory analysis of the target species recorded during the field surveys to inform the potential effects of the development to IOFs. Furthermore, following guidance from NatureScot, population modelling for the NHZ10 white-tailed eagle population will be completed for the assessment. Consideration will be given to cumulative effects to IOFs from surrounding operational and Proposed Developments coupled to an assessment of the potential effects of the development to surrounding designated sites. The assessment will be presented in the Ornithology Chapter of the EIA Report with relevant Technical Appendices providing the survey results and analysis to support the assessment of effects. An Outline Bird Protection Plan and Outline Habitat Management Plan will also be submitted in line with mitigation measures mentioned above.

10 TRAFFIC AND TRANSPORT

Introduction

- 10.1 This chapter of the EIA Report will consider the potential effects associated with increased road traffic generated during the construction phase of the proposed development, including access route(s) and measures to minimise disruption to the local road network and receptors along it.

Baseline Conditions

- 10.2 Initially the turbine components would be transported by sea to a Port of Entry which is anticipated to be either Inverness or Ardersier.
- 10.3 From the port of delivery, several access routes have been identified and are being considered further. It is anticipated that a 'preferred' access route will be identified and assessed as part of any forthcoming planning submission.
- 10.4 Baseline traffic flow information would be obtained via new surveys on relevant roads via an Automated Traffic Counter (ATC) that would be in place for a one-week period.

Likely Significant Effects During Construction

- 10.5 The most identifiable traffic and transport characteristic associated with wind farm developments is the need to transport the wind turbine components to the site. Turbine components would be transported by sea to a defined Port of Entry (expected to be Inverness or Ardersier), following which components would then be brought to site by abnormal loads vehicles via an agreed route.
- 10.6 A Swept Path report and model will be carried out to assess the capacity of the road network to accommodate the delivery of any abnormal loads associated with the proposed development.
- 10.7 There is also a need to transport general construction material to the site, such as cabling, aggregates, concrete, pipes, etc. These materials will be transported in standard Heavy Goods Vehicles (HGVs), leading to a temporary increase in traffic volumes on the surrounding road network, dependant on the scale of the proposed development, final material requirements, final sourcing of materials and final construction phasing plan, all of which are unknown at this time. A small quantity of traffic would also be generated via workers travelling to site throughout the construction period.
- 10.8 Guidance for the assessment of environmental effects associated with traffic is presented within 'Guidelines for the Environmental Assessment of Road Traffic' (IEMA). This document sets out a methodology for identifying significant environmental effects where a proposed development is likely to give rise to changes in traffic flows.

- 10.9 The guidance also states that in order to determine the scale and extent of potential impacts, the following two rules should be used to identify road links within the study area where a full assessment will be required:
- Rule One: include highway links where flows are predicted to increase by more than 30% or where the number of HGVs is predicted to increase by more than 30%
 - Rule Two: include any other specifically sensitive area where traffic flows are predicted to increase by 10% or more.
- 10.10 The study area to predicate these rules within can broadly be defined as the main route between the chosen Port of Entry and the site.

Likely Significant Effects during Operation

- 10.11 Aside from occasional maintenance visits to service the wind farm, the operational phase is not considered to introduce a significant increase in traffic.
- 10.12 It is therefore likely that no significant effects will occur during the operational phase and for this reason, operational traffic is scoped out of the EIAR.

Design and Mitigation

- 10.13 It is sometimes possible to mitigate likely significant effects, in this case construction effects, via project design. With regards to traffic & transport this mitigation equates to suitable phasing of the proposed development. Whilst the construction phase is yet to be determined, in any event suitable construction phasing will be considered and proposed subject to a Construction Environmental Management Plan (CEMP), whilst vehicle movements to and from the site would be controlled by a Traffic Management Plan (TMP). Specific details of both plans would likely be issued as post-consent, pre-commencement conditions.
- 10.14 For construction traffic, there are no known design or mitigation that would prevent potential significant effects at this stage in the project.

Inclusion or Exclusion from the EIAR

- 10.15 Based on the points outlined above, it is suggested that construction traffic will be scoped into the EIAR, whilst operational traffic is scoped out.

Proposed Scope of Assessment

- 10.16 It is proposed to discuss the detailed scope of the transport assessment directly with The Highland Council Roads Officer for the area and with Transport Scotland in relation to the A9. It is currently proposed that the assessment would include the following key elements:
- Preparation of an Abnormal Loads Assessment to confirm the proposed route to site from the Port of Delivery to the site access point, which will route from Inverness or

Ardersier south via the A9 to development site boundary, and any potential pinch points on this route.

- Calculation of increased traffic generation on the surrounding road network during construction of the wind farm based on material and staffing requirements.
- Assessment of the environmental effects of increased traffic generation on the surrounding road network that is likely to be used during construction.
- Assessment of the effects associated with increased traffic through local small settlements including the residential properties along the route, and the settlements either side of the access route corridor.

10.17 It is considered that the effects of operational traffic on existing traffic flows following can be scoped out of the EIA.

10.18 The traffic and transport section of the EIA Report will consider baseline conditions, the transport and traffic impacts and proposed mitigation measures as appropriate. The work will be undertaken in accordance with relevant transportation guidelines and standards, including:

- Institute of Environmental Assessment (now IEMA) (1993) Guidelines for the Environmental Assessment of Road Traffic.
- Institute of Highways and Transportation (1994) Guidelines for Traffic Impact Assessment.

10.19 The assessment of construction traffic would be provided in terms of sensitivity of the road network and the magnitude of effect, in order to then provide a professional judgement of effect and its significance.

10.20 Sensitivity of receptor can generally be considered in terms of assessing the residual capacity of the network under existing road and traffic conditions by examining the capacity of the road compared to its use.

10.21 Magnitude of effect is a product of the existing traffic volumes, the percentage increase and change due to the proposed development, changes in the type of traffic and the temporal distribution of traffic. Significance of effect will be then assessed using IEMA guidelines and professional judgement on a scale of major, moderate, minor and negligible, or an intermediate category between these. Effects judged to be moderate, or major would generally be considered significant, with those falling underneath this not significant.

10.22 It is not anticipated that a formal Transport Assessment (TA) will be required as TAs are not generally considered necessary for temporary construction works. The likely traffic movements associated with the operation of the wind farm are also not considered high enough to warrant a TA.

- 10.23 Any significant cumulative traffic impacts associated with other developments commencing in tandem with the proposed development would also be considered.
- 10.24 Where significant effects are identified, measures to prevent, reduce and, where possible, offset those adverse effects will be proposed. Measures likely to be utilised include:
- Instructing abnormal loads and HGVs, including site personnel as appropriate, to use only the approved access route(s) to the Site.
 - No parking of construction plant, equipment and vehicles off-site on public highways.
 - Establishing a construction traffic management plan for the development which could be secured via a suitably worded planning condition.

11 HYDROLOGY, GEOLOGY AND PEAT

Introduction

- 11.1 This section of the report sets out the proposed approach to the assessment of the potential impacts of the proposed development on soils, geology and the water environment during construction, operation and decommissioning of the wind farm.
- 11.2 This section of the Scoping Report should be read alongside Chapter 8 for reference to the cross-linkages between the hydrological environment and terrestrial ecology related to groundwater dependant terrestrial ecosystems (GWDTEs) and the assessment methodology linked to them.

Baseline Conditions

- 11.3 A review of data from the British Geological Survey's online 'Geology Viewer' shows that the site is underlain by Phase 2 Findhorn Pluton - Granodiorite, biotite. This is Igneous bedrock formed between 443.8 and 419.2 million years ago during the Silurian period.⁴¹ Naturescot's 'Carbon and Peatland' map also shows that the Site is comprised of Class 5 soils.⁴²
- 11.4 A number of watercourses are present throughout the site. Most notably, Allt Seileach, which runs east to west through the Site. Allt an Tairbhidh also runs through the south of the Site. The Allt na Crìche, which is a tributary to the River Findhorn, crosses the northern boundary of the Site.
- 11.5 Under the Private Water Supplies (Scotland) Regulations 2006, Local Authorities have a duty to hold data on private water supplies (PWS) in their area and monitor the quality of supply. An initial review of the area within a 2km buffer of the scoping boundary indicates that there is a total of four PWS, with three properties located to the south-west of the scoping boundary, and a further property to the west of the boundary (see Figure 11.1: Private Water Supply for locations).
- PWS Balvraid (~550m south-west of site entrance) and PWS Balmore (~1.25km south-west of site entrance) – Both of these PWS are indicated to be springs. They both lie at the foot of an area of high ground (Tom Nan Cliath), which is situated to the south of the PWS's and is not associated with the development site boundary. It is considered that the water from these springs is likely to be sourced from water draining from this area of high ground rather than catchments located on-site. The Allt Bruachaig watercourse is also noted to be situated between the PWS and the site.

⁴¹ British Geological Survey (2025). *BGS Geology Viewer - The Geological Map Viewer of Britain*. [online] Available at: https://geologyviewer.bgs.ac.uk/?_ga=2.101739585.1505055057.1757410918-1583617635.1757410918

⁴² NatureScot (2016). *Carbon and peatland 2016 map | Scotland's soils*. [online]. Available at: <https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/>

- PWS Edinchat (1.72km south-west of site entrance) – This PWS is also indicated to be a spring. Again, this PWS lies at the foot of an unnamed area of high ground situated to the north-west of the PWS and is not associated with the development site boundary. It is considered that the water from this spring is likely to be sourced from water draining from this area of high ground rather than catchments located on-site.
- PWS East Ruthven (1.23km west of western site boundary) – This PWS is indicated to be a surface water abstraction that is located on the northern bank of the River Findhorn. Water is likely to be abstracted from the Allt nam Meannan or another unnamed tributary, which are noted to drain an area of high ground (Tom na Slaite) situated to the north of the PWS and is not associated with the development site boundary. The River Findhorn is also noted to be situated between the PWS and the nearest site boundary.

11.6 On the basis that all of the above PWS's are considered unlikely to be impacted by site development works, it is suggested that the impacts on Private Water Supplies should be scoped out of the EIA report.

Likely Significant Effects During Construction

- 11.7 Construction activities linked to wind farm construction and decommissioning have the potential to affect geology, hydrology and hydrogeology receptors, via - for example - potential pollution and release of contaminants, peat disturbance, and/or excavations in inappropriate locations.
- 11.8 The EIA Report will establish the potential effects during construction (and decommissioning), assess the significance of potential impacts, and outline appropriate mitigation measures, which may be factored into a Construction and Environmental Management Plan ('CEMP').

Likely Significant Effects during Operation

- 11.9 Significant effects on geology, hydrology, and hydrogeology receptors are far less likely during the operational phase of a wind farm development, however there are still receptors (particularly peat and soils) that will need to be established and identified within the EIA Report to assess the potential for likely significant effects.
- 11.10 No significant effects for PWS are considered likely during operation.

Design and Mitigation

- 11.11 The EIA Report will consider, where appropriate, sustainable drainage principles with a view to minimising the potential risk of flooding at the Site and preventing the Proposed Development from causing flooding, groundwater or watercourse pollution. Given the nature of the site, it anticipated that most impacts upon surface water hydrology can be minimised through effective management and careful design of infrastructure such as turbines, crossing points and access points.

- 11.12 A 50m buffer will be applied to all watercourse and waterbodies within the Study Area to minimise the risk of potential impacts due to changes in runoff, sedimentation, or water quality. While the number of watercourse crossings will be minimised across the site, the 50m buffer will need to be breached for watercourse crossings for the proposed access track, but this will be kept to a minimum and will cross perpendicular to the watercourses. Watercourse crossings would also be designed in accordance with good practice and possibly subject to CAR licences.
- 11.13 It is anticipated that all excavations <1m will be over 100m away from any identified PWS as per SEPA guidance. Where possible, excavations >1m will be over 250m away.
- 11.14 If deep peat is localised, the most appropriate form of peat management may be to avoid siting infrastructure within deep peat areas through careful and iterative infrastructure design.
- 11.15 Mitigation and monitoring measures will be put in place to ensure that water quality within the specified watercourses is not compromised as a result of the Proposed Development.

Inclusion or Exclusion from the EIAR

- 11.16 In order to establish the existing hydrology, hydrogeology and geology conditions at the Site an initial desktop information gathering exercise will be carried out followed by site surveys. Following initial assessments, a detailed methodology focusing on the principal areas of consideration will be established and will form the basis of the EIAR assessment. Principal areas for consideration will include:
- Water quality and pollution prevention;
 - Site drainage (tracks, turbine foundations and hardstanding areas);
 - Ground water (in particular relating to turbine foundation construction);
 - Peat risk and peat waste management;
 - Watercourse crossings and the impact of other engineering activities near water;
 - Potential for land contamination.
- 11.17 A flood risk assessment is not anticipated to be required for this Proposed Development and so will not be included in the EIAR.

Proposed Scope of Assessment

- 11.18 The baseline section above will be expanded following hydrological site visit to validate baseline characteristics through the review of relevant and available information relating to soil, geology and water. This will include the review of information held by SEPA, SNH, Scottish Water and the Highland Council, such as groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and private water supplies, surface water flows, flooding, rainfall data, and water quality and soil data. The

desk study will identify sensitive features which may potentially be affected by the Proposed Development. An additional review of published geological maps, OS maps, aerial photographs and site-specific data such as site investigation data, geological and hydrological reports, digital terrain models (slope plans) and geological literature will also be carried out.

- 11.19 A walkover site visit will also be undertaken to identify site constraints and verify the presence or absence of receptors. Detailed site observations will be recorded.
- 11.20 Peat probing will inform the assessment of potential effects and more detailed design work. The investigation will look at potential locations for turbines, access routes and borrow pits for signs of existing or potential peat instability. Outputs from the walkovers and site visits will comprise a record of investigation locations and summary of peat depths recorded.
- 11.21 When the design layout has been finalised, further peat probing will be carried out along infrastructure and at turbine locations. The further peat probing will ensure that all infrastructure locations and routes have sufficient peat depth information to support related studies on peat instability and peat excavation and re-use
- 11.22 The scope of assessment will also cover requirements from regulatory bodies such as SEPA which require proposed and existing watercourse crossings to be documented and photographed.
- 11.23 The information obtained from the review of existing data, site surveys and guidance documentation will inform the assessment of any potential effects associated with the proposed development. In the event that likely significant effects are identified, mitigation measures will be proposed.
- 11.24 Liaison would be undertaken between team members to identify interactions between surface and ground water at the site and also any potential interactions between peat distribution at the site and hydrology. Discussions would also be undertaken with team members involved in the ecology assessment to identify potential impacts on groundwater dependent terrestrial ecosystems (GWDTEs). If significant areas of moderate or high GWDTEs are located in proximity to proposed infrastructure, additional studies would be undertaken to define whether these are truly groundwater dependent, refine their extent, conceptualise the hydrogeology and assess if there are any potential effects on them.
- 11.25 It is not expected that detailed runoff or flood modelling for catchments downstream of the site will be required. However, standard runoff calculations would be carried out to show the potential impact of increases in hardstanding on downstream flows.
- 11.26 A peat landslide hazard and risk assessment (PLHRA) will be carried out in accordance with the Scottish Government Peat Landslide Hazard & Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Government, 2017). The PLHRA will be informed by information gathered from peat depth models, site walkovers and detailed geomorphological mapping and terrain classification. The assessment will utilise a combined qualitative (contributory factor) and quantitative (factor of safety)

approach to assess the likelihood of peat landslides, the consequences should peat landslide occur, and appropriate mitigation measures based on calculated risk levels.

- 11.27 A peat management plan (PMP) will be prepared in accordance with 'Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste' (Scottish Renewables, SEPA, 2012). The PMP will be informed by peat depth probing as described above, and by a full site appraisal of potential re-use opportunities (e.g. mapping of drainage ditches, informal and industrial peat turbary, and landscaping requirements associated with infrastructure). Where opportunities are identified to integrate the PMP with wider environmental enhancement measures, for example for peat restoration, the PMP will indicate the volume and type of peat (acrotelm / catotelm) to be used for this activity.

12 CULTURAL HERITAGE

Introduction

- 12.1 This section of the Scoping Report provides an overview of the cultural heritage baseline in relation to the Proposed Development, describes the potential effects associated with construction and operation of the Proposed Development, and presents the assessment methodology to be used in the EIA.

Baseline Conditions

- 12.2 An initial desk-based study of cultural heritage records has been carried out to inform the potential for significant effects on heritage assets from the Proposed Development. The site boundary was used to determine the potential for effects on designated and non-designated heritage assets during construction, through physical impacts.
- 12.3 A 10km buffer from the turbine locations has been used to identify World Heritage Sites, Scheduled Monuments, Category A Listed Buildings, Gardens and Designed Landscapes (GDLs), and Registered Battlefields that have the potential for effects to occur, through changes related to their setting. A 5km buffer was applied to determine potential effects upon the setting of Conservation Areas and Category B and C listed buildings, as the setting of these heritage assets does not tend to include distant landscape views as an important element of their cultural significance. Significant effects are considered unlikely to occur outside of a 5-10km radius from the turbine locations, unless the cultural significance of the heritage asset includes specific long distance landscape views or intervisibility with other heritage assets and/or landscape features.
- 12.4 Designated heritage assets beyond 10km were also considered where long-ranging views were deemed to contribute to their cultural significance.
- 12.5 The distribution of heritage assets within the site boundary and 10km buffer is illustrated in **Figure 12.1**. There are no designated heritage assets within the site boundary. There are no World Heritage Sites, GDLs, or Registered Battlefields within 10km of the turbine locations.
- 12.6 There are 10 Scheduled Monuments within the 10km buffer, six of which have theoretical visibility of the turbines according to the Zone of Theoretical Visibility (ZTV; **Figure 12.1**). The Scheduled Monuments which are within the 10km buffer and with theoretical visibility of the Proposed Development are set out in **Table 12.1**, below. Four Scheduled Monuments have no visibility of the turbines according to the ZTV. A very small section of the northeastern corner of **SM11878** and the southern tip of **SM11446** are within the ZTV, but as the majority of the scheduled area is not visible and there are no likely impacts on the areas within the ZTV, they are considered to have no visibility of the Proposed Development. The four heritage assets with no theoretical visibility comprise the following scheduled monuments:

- Alltlaigh, farmstead 1990m NE of Cnapan a' Choire Odhair Bhig (**SM11878**);

- Isle of Moy, fortified island and laird's house (**SM11446**);
- Little Banchor, depopulated settlement 1130m WSW of Banchor (**SM11818**); and
- Drumbain Cottage, hut circles 725m, 845m and 975m ESE of (**SM11673**).

Table 12.1 Scheduled monuments located within 10km of the turbine locations and with theoretical visibility

Name	Scheduled Monument Reference	Easting	Northing	Distance from the nearest turbine
Eilean nan Clach, crannog	SM11447	277700	834052	6km northwest of T6
Edinchat, cairn 415m NNW of	SM11734	281665	831177	2.8km southwest of T1
Woodend, cairn 760m NW of	SM11739	278622	826795	7.9km southwest of T1
Balnught, hut circle 1225m ENE of	SM11798	289430	840660	7.8km northeast of T13
Ruthven, depopulated township 600m S of	SM11901	281515	832420	2.4km southwest of T6
Soilsean, deserted township and hut circle 745m ESE of	SM11806	281496	827817	5.4km southwest of T1

- 12.7 The centre of the scheduled prehistoric Dunearn fort (**SM2470**; **Fig 12.1**) is located 10.3km to the northeast of T13. It has been included for consideration as long ranging views contribute to its cultural significance, and it has theoretical visibility of the Proposed Development.
- 12.8 Aulnaslanach Viaduct (**LB14887**) is the only Category A listed building within 10km of the turbine locations at 7.8km to the northwest of T6 (**Figure 12.1**). It has theoretical visibility of the turbines based on the ZTV.
- 12.9 The Tomatin Railway Viaduct (**LB14893**) is the only Category B listed building within 5km of the turbines, located 5km to the southwest of T1. The Bridge over Funlack Burn (**LB14888**) is 4.5km to the west of T1 and is the only Category C listed building within 5km of the Proposed Development. Both of these listed buildings have theoretical visibility based on the ZTV (**Figure 12.1**).
- 12.10 There are two non-designated heritage assets within the site boundary. Glenkirk farmstead (**HER: MHG63522/Canmore ID: 115997**) is recorded on the Highland Council's Historic

Environment Record⁴³ (HER) and the National Record of the Historic Environment (NHRE). It is located at the southwestern boundary of the Proposed Development, c.970m to the southwest of T1 (**Figure 12.1**). A review of the Highland Council HER map⁴⁴ identified a possible burial cairn (Carn Gleann Tairbhidh; **HER: MHG63522**) at the eastern boundary of the Proposed Development, c.50m east of T5 (**Figure 12.1**). There is potential for as yet unrecorded non-designated heritage assets to be present within the site boundary.

Likely Significant Effects During Construction

- 12.11 Significant effects during construction are related to physical impacts such as alteration or destruction of heritage assets. Effects related to noise and visual impacts during construction are temporary in nature and are not anticipated to be significant.
- 12.12 The current location of the turbines will not physically impact the known non-designated heritage assets within the site boundary (farmstead; **HER: MHG63522/Canmore ID: 115997** and cairn; **HER: MHG63522**). The potential for currently unrecorded archaeological remains within the site boundary is unknown at this stage as it is unclear if previous work, such as walkover surveys, geophysical surveys, or other archaeological investigations have been undertaken. This will be better understood as the project progresses and full HER data is obtained.
- 12.13 At this stage it is unknown if there will be direct physical impacts to the farmstead, cairn, or any currently unrecorded archaeological remains from associated infrastructure such as access tracks, compounds, control buildings and cable trenches, as this information has yet to be determined. During the final design stages for the Proposed Development, demarcation and avoidance of the farmstead and cairn, and any other identified archaeological remains, will be considered wherever practicable.

Likely Significant Effects during Operation

- 12.14 Significant effects during operation are related to the Proposed Development introducing changes within the setting of heritage assets.
- 12.15 The six scheduled monuments listed in **Table 12.1**, and Dunearn fort (**SM2470**) located beyond the 10km buffer, are of particular interest in terms of potential significant effects during operation. They should also be considered for cumulative effects. These designated heritage assets will be assessed in detail, and further heritage assets may be assessed on the basis of consultation with HES and the Highland Council Historic Environment Team (HCHET).
- 12.16 The listed buildings noted in **Section 12.7** and **12.8** are not anticipated to have any significant effects arising from changes within their setting. Long ranging views to and from the listed buildings do not contribute to their cultural significance.

⁴³ Highland Council, 2025, Highland Historic Environment Record (online), available at <https://her.highland.gov.uk/map>, accessed 15th May 2025

⁴⁴ Ibid

Design and Mitigation

- 12.17 The design of the Proposed Development will consider the potential direct impacts on designated and non-designated heritage assets in agreement with consultees.
- 12.18 Physical impacts during construction on designated heritage assets must be avoided as these are statutorily protected by law. Similarly, physical impacts on non-designated heritage assets will be avoided where possible. Demarcation and avoidance of heritage assets will be adopted as a preventative measure. Iterative design regarding the placement of the turbines and associated infrastructure in conjunction with demarcation will reduce potential significant effects arising from the construction phase of works.
- 12.19 Where effects on non-designated heritage assets cannot be avoided during construction, mitigation such as archaeological monitoring and recording and/or open area excavation will be proposed. Areas which have archaeological potential may be required to undergo a programme of archaeological evaluation such as non-intrusive geophysical survey or intrusive archaeological trenching. These measures will be discussed with the consultees.
- 12.20 Impacts through changes within the setting of heritage assets are more difficult to mitigate, as measures intended to reduce visibility of Proposed Developments often increase significant effects rather than reduce them.

Inclusion or Exclusion from the EIAR

Construction Phase

- 12.21 Direct physical impacts, arising from construction of the Proposed Development, on non-designated heritage assets within the site boundary will be scoped into the assessment. This will include any as yet unrecorded heritage assets which may be identified through desk-based investigations and walkover surveys.
- 12.22 There are no designated heritage assets within the site boundary. Therefore, direct physical impacts on these from the construction of the Proposed Development are scoped out of the EIAR.
- 12.23 Due to the temporary nature of construction, impacts due to changes within the setting of designated heritage assets during construction will be scoped out of the assessment.

Operational Phase

- 12.24 Impacts due to changes within the setting of World Heritage Sites, Gardens and Designed Landscapes, Registered Battlefields and conservation areas have been scoped out of the EIAR as there are none within 10km of the Proposed Development.
- 12.25 Potential significant effects due to changes within the setting of scheduled monuments during operation will be scoped into the assessment. Potential significant effects to changes within the setting of listed buildings will be scoped out of further assessment.

- 12.26 It is not anticipated that significant effects through changes within the setting of non-designated heritage assets will arise as a result of the Proposed Development during operation. However, consultation with Highland Council Historic Environment Team (HCHET) may require selected non-designated heritage assets within the Historic Environment Records (HER) to be included, depending on their cultural significance.
- 12.27 Indirect impacts on heritage assets are not anticipated during the operational phase of the Proposed Development. Therefore, they are scoped out of the EIAR.

Decommissioning Phase

- 12.28 Direct physical impacts during decommissioning of the Proposed Development on non-designated heritage assets within the site boundary will be scoped out. It is anticipated that there will be no survival of non-designated heritage assets within the footprint of the Proposed Development, and therefore, no further impacts would occur.
- 12.29 Due to the temporary nature of the decommissioning construction activity, impacts due to changes within the setting of designated heritage assets during the decommissioning phase will be scoped out. Removal of turbines would reverse operational effects.

Proposed Scope of Assessment

- 12.30 The proposed scope of the assessment will consider:
- Effects arising from direct physical impacts: Potential physical effects on all heritage assets, including buried archaeological remains and other historic structures, within the footprint of the Proposed Development including the construction of associated services, construction compounds, electrical cable connections and on-site access tracks; and
 - Effects arising from changes within the setting: Potential effects through changes within the setting of scheduled monuments within 10km of the proposed turbines, and Category B listed buildings within 5km of the proposed turbines. This will also include cumulative effects from other nearby proposed and operational developments.

Methodology

- 12.31 The assessment of potential effects on heritage assets within the baseline will be carried out in accordance with the guidance set by the Chartered Institute for Archaeologists (CIfA) ^{45 46}, and the Environmental Impact Assessment Handbook⁴⁷.
- 12.32 A detailed desk-based study will be undertaken to inform the cultural heritage baseline and will include consultation with HES and HCHET. The assessment will be informed by a

⁴⁵ CIfA, 2020, Standard and guidance for archaeological advice by historic environment services, [online] available at [CIfA-SandG-Archaeological-Advice-by-HER-2020.pdf](#), accessed 15th May 2025

⁴⁶ CIfA, 2020, Standard and guidance for historic environment desk-based assessment, [online] available at [CIfA-SandG-DBA-2020.pdf](#), accessed 15th May 2025

⁴⁷ NatureScot (previously Scottish Natural Heritage) and Historic Environment Scotland, 2018, Environmental Impact Assessment Handbook, version 5

review of all available archaeological records, historical documentary evidence, cartographic evidence and photographic material. This will involve consulting the following sources:

- data on Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Battlefields, and Gardens and Designed Landscapes, obtained from HES;
- data on other, non-designated heritage assets obtained from the National Record of the Historic Environment (NRHE) which is maintained by HES, and from the Highland Council Historic Environment Records (HER);
- readily accessible primary and secondary historical sources for information relating to the area's historical past, including past land use;
- pre-Ordnance Survey maps of the site boundary, available online from the National Library of Scotland (NLS);
- first and subsequent editions of the Ordnance Survey (OS) maps of the site boundary, examined via the NLS;
- LiDAR datasets of the general area through NLS;
- Aerial imagery of the site boundary, examined through the National Collection of Aerial Photography (NCAP);
- the solid and drift geology for the site boundary based on that recorded by the British Geological Survey/Geological Survey of Great Britain maps;
- the soil types for the site boundary, examined through the Scotland's Soils map, managed by Scottish Environment Protection Agency (SEPA); and
- the results of a walkover survey of the construction areas of the Proposed Development.

12.33 A study area of 10km will be used to determine potential effects on scheduled monuments and Category A listed buildings if they are within the ZTV. Although no World Heritage Sites, GDLs, or Registered Battlefields have been identified within 10km, this will be confirmed at EIA stage, to ensure none have been added.

12.34 Additional designated heritage assets beyond 10km will be considered if they have visibility of the turbines according to the ZTV, and if long-ranging views contribute to their cultural significance. A study area of 5km will be used to determine effects on Category B and C listed buildings and non-designated heritage assets deemed to be of national importance and with long ranging views forming part of the heritage assets' cultural significance. No conservation areas were identified within 5km at scoping stage, and it is unlikely any will be added at EIA stage; however, if this were to change, they will also be considered.

- 12.35 Consultation with HES will be undertaken to agree the assessment methodology and visualisation viewpoints for the setting assessment. It is recommended that visualisations in the form of wireline or photomontages are provided from Edinchat cairn (**SM11734**) as it has views across the valley to the northeast towards the Proposed Development. Visualisations are also recommended in relation to Eilean nan Clach crannog (**SM11447**) as the turbines will be visible behind the monument on the southeast approach from the B9154.
- 12.36 Field surveys to identify and record the baseline character and condition of any heritage assets within the proposed site will be undertaken in addition to site visits to heritage assets in the wider landscape for the purpose of assessing potential impacts through changes within their setting.
- 12.37 Effects on heritage assets will be determined by identifying the cultural significance of the heritage assets within the baseline and assessing the magnitude of any potential impacts. Mitigation measures will be recommended to minimise the impact of the proposed development on identified heritage assets, and a residual effect will be determined.
- 12.38 The determination of the cultural significance of heritage assets is based on statutory designation and/or professional judgement against the characteristics and criteria expressed in HES Designation Policy and Selection Guidance⁴⁸ and the Historic Environment Policy for Scotland (HEPS)⁴⁹.
- 12.39 **Table 12.2** identifies factors which are appropriate to consider during the assessment of heritage asset cultural significance, with the adoption of five ratings for value: very high, high, medium, low, and negligible.

Table 12.2: Criteria for assessing the value of heritage assets

Value	Example
Very High	World Heritage Sites (including nominated sites)
High	Scheduled Monuments (including proposed sites); Listed Buildings (Category A and B); Battlefields included within the inventory; Marine Protected Areas; Gardens and Designed Landscapes; Conservation areas containing nationally important buildings; and Non-designated heritage assets of scheduled quality and importance.
Medium	Listed Buildings (Category C); Conservation areas containing buildings that contribute significantly to its historic character; and Non-designated heritage assets of regional importance.
Low	Non-designated heritage assets of local importance;

⁴⁸ HES, 2020, Designation Policy and Selection Guidance

⁴⁹ HES, 2019, Historic Environment Policy for Scotland

	Non-designated heritage assets compromised by poor preservation and/or poor survival of contextual associations; and Buildings of modest quality in their fabric or historical association.
Negligible	Non-designated heritage assets with very little or no surviving archaeological interest; Artefact find spots (where the artefacts are no longer in situ and where their provenance is uncertain); and Poorly preserved examples of particular types of minor historic landscape features (e.g., quarries and gravel pits, dilapidated sheepfolds, etc).

12.40 The criteria for assessing the magnitude of impact from the Proposed Development on heritage assets is shown in **Table 12.3**.

Table 12.3: Criteria for assessing the magnitude of impact on heritage assets

Magnitude of Impact	Adverse	Beneficial
Major	Loss of most or all key archaeological materials or key historic building elements such that the cultural significance of the heritage asset is totally altered. Comprehensive changes within the setting such as extreme visual effects, gross change of noise or change to sound quality, or fundamental changes to use or access.	Preservation of a heritage asset in situ where it would otherwise be completely or almost lost. Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.
Moderate	Changes to many key archaeological materials or key historic building elements, such that the cultural significance of the heritage asset is clearly modified. Considerable changes within the setting that affect the character of the heritage asset such as visual change to many key aspects or views, noticeable differences in noise or sound quality, or considerable changes to use or access.	Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored. Changes that improve the way in which the heritage asset is understood, appreciated, and experienced.
Minor	Changes to key archaeological materials or key historic building elements, such that the cultural significance of the heritage asset is slightly altered. Slight changes within the setting such as slight visual changes to few key aspects or views, limited changes to noise levels or sound	Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.

	quality, or slight changes to use or access.	
Negligible	Changes to archaeological materials or historic buildings elements such that alterations to the cultural significance of the heritage asset are very minor. Very minor changes within the setting such as virtually unchanged visual effects, very slight changes in noise levels or sound quality, or very slight changes to use or access.	Very minor changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Very minor changes that result in a slight improvement in the way a heritage asset is understood, appreciated, and experienced.
No Change	Changes to fabric or within the setting that leave cultural significance unchanged.	

- 12.41 The significance of the effect of an impact on an attribute of a heritage asset is a function of the importance of the attribute and the magnitude of impact. For this assessment, effects of Moderate or greater significance are potentially significant in the context of the EIA regulations and are highlighted in bold in **Table 12.4**.

Table 12.4: Significance of effect

		Magnitude of Impact				
Value		Major	Moderate	Minor	Negligible	No Change
	Very High	Very Large	Large or Very Large	Moderate or Large	Slight	Neutral
	High	Large or Very Large	Moderate or Large	Slight or Moderate	Slight	Neutral
	Medium	Moderate or Large	Moderate	Slight	Neutral or Slight	Neutral
	Low	Slight or Moderate	Slight	Neutral or Slight	Neutral or Slight	Neutral
	Negligible	Slight	Neutral or Slight	Neutral or Slight	Neutral	Neutral

13 SOCIO-ECONOMICS

Introduction

- 13.1 The requirement to assess socio-economics arose from the reform to EIA Regulations in 2017. Relevant to wind farms, the potential effects upon socio-economics can be considered in the following terms:
- Impact of the proposed development upon population trends in the area;
 - Impact of the proposed development upon wealth and prosperity in the area, including job creation and/or loss;
 - Impact of the proposed development upon recreational pursuits;
 - Impact of the proposed development upon human health in terms of pollution, amenity and direct impacts.

Baseline Conditions

- 13.2 The 2022 Census enumerated the population of Highland as a Local Authority at 235,400. As a Local Authority, Highland has the seventh highest population of the Scottish Local Authorities, yet the lowest population density of eight people per square kilometre.⁵⁰
- 13.3 In terms of economy, sectors which the population are noticeably more employed in compared to the Scottish average, include water supply, construction, accommodation and food services and human health and social work activities.
- 13.4 According to NOMIS 2021 statistics, across the Highland area, 77.1% of people were economically active compared to a national average of 77.5%. Self-employment and part time working are both higher in Highland than the national average. Benefit claimants are lower than the national average (2.3% compared to 3.1%).
- 13.5 The average life expectancy across Highland is 77.6 for men and 82.0 for women, comparing favourably with Scottish average of 76.5 and 80.8 respectively.⁵¹
- 13.6 In terms of recreation, there are no Core Paths within the site boundary.

⁵⁰

https://www.highland.gov.uk/info/695/council_information_performance_and_statistics/165/highland_profile_-_key_facts_and_figures

⁵¹ https://www.nrscotland.gov.uk/files/statistics/council-area-data-sheets/highland-council-profile.html#life_expectancy

Likely Significant Effects During Construction

- 13.7 Significant effects during construction would be related to economic benefits associated with local contracts in the construction of the wind farm. Where possible, Energiekontor tender and award contracts to local companies across elements of construction and associated services.
- 13.8 It is not anticipated there would be any significant effects upon recreation via construction, as typically these would be associated with temporary closures. Turbine vehicles would move at night therefore limiting any obstructions to tourist traffic, whilst other HGVs would be controlled via a Traffic Management Plan.

Likely Significant Effects during Operation

- 13.9 Likely significant effects during operation include proceeds from community benefit, which has the potential to greatly aid local causes such as community schemes, facilities, sports clubs, arts, culture and recreational pursuits.

Inclusion or Exclusion from the EIAR

- 13.10 Socio-economic impacts associated with wind farm developments primarily relate to job creation, use of local services and income spent in the locality of a project. This section of the EIA Report will therefore consider and assess the likely impacts of the proposal on the economic profile of the area, including short term job opportunities, and outline these accordingly.

Proposed Scope of Assessment

- 13.11 The EIA Report will consider the effects of the Proposed Development on employment and the economy. This will include the employment opportunities for local suppliers with relevant construction and maintenance experience during the construction and operational phases of the development. The EIA Report will focus on short and long term employment opportunities and input from the Proposed Development into the local economy (expenditure in shops / local services etc.).
- 13.12 Potential effects upon tourism and recreation would be considered as would potential effects on land management practices.
- 13.13 There is no established guidance for conducting a socio-economic assessment as part of the EIA process. It is therefore proposed that the assessment uses desk-based information sources to assess the likely scale of effects, supplemented by consultation with local stakeholders.
- 13.14 Cross reference would be made to other technical assessments to consider potential effects on recreational assets and other leisure and tourism attractions in the surrounding area, for example due to visual impact, traffic, and noise.

14 FORESTRY

Introduction

- 14.1 With forestry present throughout the Site, it will be necessary for the EIA Report to assess the impacts of the construction and operation of the proposed development on forestry assets.

Baseline Conditions

- 14.2 The Site is located within a large woodland block, comprising entirely of commercial forestry. There is no Ancient Woodland Inventory within the site boundary, according to available records.
- 14.3 Existing forestry records will be analysed and augmented as required through further survey and assessment to document the full detail of existing and proposed forestry across the Site. A forestry baseline survey will be prepared to describe the crops existing at the time the EIA Report is prepared, including detailed information on species, planting year and restocking design proposals within any existing and agreed forestry plans.

Likely Significant Effects During Construction and Operation

- 14.4 Areas of woodland will need to be felled for the construction and operation of the wind farm, including access tracks, turbine locations and other infrastructure.
- 14.5 Further woodland may need to be felled for wind yield and protection of bat species, however the extent of this is not currently known.
- 14.6 The structure of the woodlands may therefore change, resulting in a potential loss of woodland area. This will be addressed through the redesign of the existing forest including, for example, the use of designed open space or alternative woodland types or the provision of compensatory woodland planting on an alternative site.
- 14.7 It is currently anticipated that bespoke felling will be undertaken around the necessary turbine foundations, and existing access tracks will be utilised where possible to reduce the volume of felling.

Design and Mitigation

- 14.8 There is a presumption against permanent woodland removal within the UK unless it addresses other environmental concerns or delivers additional and clearly defined public benefits. The Scottish Government's "Control of Woodland Removal Policy" records the assessment requirements and compensatory measures which should be considered when removing woodland cover and the requirements under this policy will be addressed within the EIA Report.

Proposed Scope of Assessment

- 14.9 The purpose of the assessment will be to:
- Confirm the present age and species structure of the forestry crops;
 - Analyse the impact on existing and proposed Forestry Plans of any necessary tree removal to facilitate the proposed development;
 - Identify any measures necessary to mitigate the impact of the proposed development on existing forestry crops.
- 14.10 Scottish Forestry will be consulted on the development of the proposals relating to the restructuring of the forestry cover as a consequence of the development to ensure that the proposed changes to the existing forestry crops are appropriate and suitably address the requirements of the Control of Woodland Removal Policy.
- 14.11 The forestry proposals will be prepared in accordance with the current industry best practice and guidance.
- 14.12 The forestry report will be presented within a chapter of the EIA Report documenting the timing and extent of area of woodland to be felled during the life of the proposed development and an overview on forestry waste. It will also include restocking proposals to illustrate areas which would be replanted during the life of the wind farm.
- 14.13 The changes to the woodland structure will be analysed and described in relation to species composition, age class structure, commercial timber production etc. with supporting text, tables, diagrams and maps as necessary.
- 14.14 Any wider effects of forest felling and restocking will be assessed in the relevant chapters of the EIA Report as described in the other sections of this document, for example in relation to the treatment of brash, or the visual impact of forestry felling.

15 OTHER ISSUES

15.1 This section of the EIA Report will consider the following topics:

- Climate Change
- Air Quality
- Major Accidents and Disasters
- Radio-Communications and Television
- Aviation
- Shadow Flicker.

Climate Change

15.2 By its very nature, the proposed Development will reduce demand for fossil fuel electricity generation and therefore provide a benefit to the Scottish Government's carbon reduction targets. This positive effect will be given further consideration in the EIA.

15.3 With respect to climate adaptation, consideration will also be given to the resilience of the wind farm to projected climate change and to the likely consequences of climate change for baseline conditions/assessment findings, and the resilience of proposed mitigation measures to any projected changes. The latest climate change projections (UKCP18) will be used, which allow climate changes to be projected at the regional level; in this case, the north of Scotland.

15.4 Wind farm developments are expected to consider potential impacts on carbon rich soils utilising the Scottish Government's carbon calculator tool, and it is suggested that this tool will be utilised as part of the EIAR to fully assess any potential impacts that may occur as a result of the Proposed Development.

Air Quality

15.5 The nearest Air Quality Monitoring Area to the Site is located in Inverness⁵². In most areas, the majority of ambient pollutions are currently well below limits set for protecting human health and the environment. It is estimated that air quality levels in Scotland will remain stable or continue to improve.

⁵² NatureScot (2025). *Air Quality in Scotland*. [online] www.scottishairquality.scot.

- 15.6 The potential effects associated with air quality during construction and decommissioning are the effects of dust associated with construction and decommissioning activities and the effects of emissions arising from construction traffic on local air quality.
- 15.7 No adverse air quality impacts are anticipated from the operation of the Proposed Development given the rural nature of the site and the distance from sources of air pollution. Additionally, due to the short term, temporary nature of the construction and decommissioning phases, it is proposed that air quality (with the potential exception of dust) is scoped out of the EIA Report.
- 15.8 Potential impacts on air quality from dust during the construction and decommissioning phases will be addressed through standard mitigation techniques to be agreed as part of a Construction Environmental Management Plan (CEMP). No further specific assessment is proposed.

Major Accidents and Disasters

- 15.9 The proposed Development is not located in an area with a history of natural disasters such as extreme weather events, and the construction and operation of the proposed Development would be managed within the requirements of a number of health and safety related Regulations, including the Construction (Design and Management) Regulations 2015 and the Health and Safety at Work etc. Act 1974.
- 15.10 As the development is not considered vulnerable to any major accidents or disasters that could result in likely significant environmental effects, it is proposed that this topic is scoped out from further assessment within the EIA Report.

Radio-communications and Television

- 15.11 Wind turbines can cause electromagnetic interference through physical and electrical interference. Physical interference can cut across electromagnetic signals resulting in a 'ghosting' effect which largely affects television signals and radar. Electrical interference arises as a result of the operation of the generator within the nacelle of the turbine and can also affect communication equipment in proximity to the turbines. Where possible, any potential effects on radio-communication links and television will be mitigated at the turbine layout design stage by the use of exclusion zones around any link paths.
- 15.12 The Office of Communications (Ofcom) is responsible for the licensing of two-way radio transmitters. It holds a register of most microwave links and will therefore be consulted in order to establish baseline conditions. However, because not all microwave links are published, system operators will also be individually consulted on the proposed development's potential to cause electromagnetic interference. The outcome of this consultation process, including any mitigation actions taken, will be detailed in the EIA Report.

Aviation

- 15.13 The EIA Report will include a description of military and civilian aeronautical and radar issues relating to the Proposed Development. Consultation will be undertaken once the locations of the turbines have been finalised with appropriate interested parties. The EIA Report will present the findings of these consultations and all responses received, as well as any predicted impacts on aviation and mitigation required.
- 15.14 In particular, NATS En Route Ltd (NERL) operates a network of long-range Air Traffic Control (ATC) radars throughout the United Kingdom. There are two main long range 'en route' NATS radars that cover the area surrounding the Proposed Development.
- 15.15 Radar systems can be susceptible to interference from wind turbines as the blade movement can cause intermittent detection by radars within their operating radius. This is particularly relevant where there is a line of sight between the radar and the wind turbine development. Due to their height, wind turbines can also impact upon airports and airfields if they protrude into the safeguarding distance above and around them.

Shadow Flicker

- 15.16 Shadow flicker is a phenomenon where, under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off. It only occurs inside buildings where the flicker appears through a narrow window opening.
- 15.17 A shadow flicker assessment is generally required if any properties lie within 10x rotor diameter of the wind farm. This is in line with Scottish Government online renewables planning advice on 'onshore wind turbines' which states that *"where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), 'shadow flicker' should not be a problem."*
- 15.18 However, in 'Spatial Planning for Onshore Wind Energy in Highland' (2015) and the associated Onshore Wind Energy Supplementary Guidance, this distance has been increased to 11x rotor diameter. This is to account for the northern latitudes of the Highlands and is in line with the conclusions of the DECC Update of the UK Shadow Flicker Evidence Base, 2011.
- 15.19 With the nearest residential property located 1.5km to the southwest of the nearest turbine, it is not anticipated that shadow flicker will have any impact on residential properties due to the property sitting south of any proposed turbines and as such will not be assessed as part of the EIA.

16 CONTENT AND STRUCTURE OF THE EIAR

16.1 Following the rationale set out in the above sections, it is proposed that the final EIAR contains the following chapters:

- Chapter 1: Introduction
- Chapter 2: EIA Methodology
- Chapter 3: Proposed Development and Construction Methods
- Chapter 4: Design Evolution
- Chapter 5: Renewable Energy and Planning Policy
- Chapter 6: Landscape and Visual
- Chapter 7: Noise
- Chapter 8: Terrestrial Ecology
- Chapter 9: Ornithology
- Chapter 10: Traffic and Transport
- Chapter 11: Geology, Hydrology and Hydrogeology
- Chapter 12: Cultural Heritage
- Chapter 13: Socioeconomics
- Chapter 14: Forestry
- Chapter 15: Other Issues
- Chapter 16: Schedule of Mitigation

16.2 These chapters will be supported by supplementary volumes containing all relevant figures, technical appendices and visualisations. A standalone Non-Technical Summary (NTS) will also be provided. These will be structured as follows:

- Volume 1: Written Statement
- Volume 2: Figures
- Volume 3: Visualisations
- Volume 4: Technical Appendices

- Volume 5: THC Visualisations

16.3 For the benefit of doubt, the environmental topics highlighted above are those which to be scoped into the EIA Report. Those which will be scoped out of full assessment are:

- Landscape and Visual - analysis of visual impacts beyond 45km, Highland and Moray SLAs with no visibility of the proposed development, wildland assessment.
- Noise – noise assessment of 'Tin Church' property as a holiday let. decommissioning noise, vibration, low frequency noise, amplitude modulation.
- Ecology – beavers, great crested newt, River Spey SAC and SSSI.
- Ornithology – capercaillie.
- Traffic and Transport – operational traffic.
- Hydrology, Geology, and Peat - flood risk assessment, private water supplies.
- Cultural Heritage - impacts of construction and decommission on designated assets.
- Other Issues - air quality, major accidents and disasters, shadow flicker.

16.4 We would welcome comment on the proposed scope and methodologies contained within this Scoping Report from all consultees and look forward to a collaborative EIA process. If you wish to discuss any aspect of this Scoping Report, please contact:

- Laurie Leith, Assistant Project Manager, 44 Elliot Street Mews, Glasgow, G3 8DZ.