ScottishPower Renewables

Beinn Tharsuinn Repower and Western Extension

Scoping Report

25th March 2025

Onshore Development

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GLOSSARY

Term	Definition
alternatives	different design, layout and technological possibilities that could be considered during project development that have potential to fulfil the project objectives
ambient	of or relating to the immediate surroundings of something e.g., ambient noise level
appropriate assessment	process whereby projects, either alone or in combination, are considered to see if it can be ascertained that they will not adversely affect the integrity of a protected site
assessment	process by which information about effects of a proposed plan, project or intervention is collected, assessed and used to inform decision making
baseline conditions	environment as it appears (or would appear) immediately prior to the implementation of the project together with any known or foreseeable future changes that will take place before completion of the project
baseline studies	work done to determine and describe the environmental conditions against which any future changes can be measured or predicted and assessed
biodiversity	variety of life forms; different plants, animals and microorganisms; the genes they contain; and the ecosystems they form
catchment	drainage/basin area within which precipitation drains into a river system and eventually into the sea
competent authority	authority responsible for determining the application for consent, permission, licence or other authorisation to proceed with a development
construction phase	period during which the building or assembling of a proposed development and its infrastructure is undertaken

consultation	process by which those organisations or individuals with an interest in the area associated with the proposed scheme are identified and engaged as part of the EIA process
consultation bodies	organisations that the competent authority is required to consult by virtue of the EIA Regulations
cumulative impact	impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. A cumulative impact may arise as the result of (a) the combined impact of a number of different environmental topic-specific impacts from a single environmental impact assessment project on a single receptor/ resource or (b) the combined impact of a number of different projects within the vicinity (in combination with the environmental impact assessment project) on a single receptor/resource.
decommissioning	period during which a development and its associated infrastructure are removed from active operation
effect	term used to express the consequence of an impact (expressed as the 'significance of effect'), which is determined by correlating the magnitude of the impact with the importance (or sensitivity) of the receptor or resource in accordance with defined significance criteria. For example, land clearing during construction results in habitat loss (impact), the effect of which is the significance of the habitat loss on the ecological resource.
EIA Regulations	collective term for the various statutory instruments through which the Directives on Environmental Assessment have been implemented in the UK
Energy Consents Unit	part of the Scottish Government's Energy Division, the unit processes and administers energy infrastructure applications for Scottish Ministers under the 1989 Electricity Act; the unit is made up of two teams, the Section 36 team and the Section 37 team,
enhancement	measure that seeks to improve an environmental condition and is over and above what is required to mitigate the adverse effects of a project
environmental assessment	method and a process by which information about environmental effects is collected, assessed and used to inform decision-making. Assessment processes include strategic environmental assessment,

	assessment of implications on European sites, and environmental impact assessment.
environmental impact assessment	statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. Involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Regulations, including the publication of an EIAR.
Environmental Impact Assessment Report	otherwise known as an EIAR. Document produced in accordance with the EIA Regulations that reports the outcomes of the EIA process
environmental management plan	structured plan that outlines the mitigation, monitoring and management requirements arising from an environmental impact assessment
evaluation	determination of the significance of effects. Evaluation involves making judgements as to the value of the receptor/resource that is being affected and the consequences of the effect on the receptor/resource based on the magnitude of the impact.
existing environment	see 'baseline conditions'
Habitats Regulations	The Conservation (Natural Habitats) Regulations 1994 (most recently amended in 2012), is more commonly known as the Habitats Regulations. The Habitats Regulations cover requirements for sites that are internationally important for threatened habitats and species e.g., Natura sites, species that require strict protection e.g., European protected species, and other aspects of the Habitats Directive.
Habitats Regulations assessment	assessment of the impacts of implementing a plan or policy on a European site, the purpose being to consider the impacts of a project against conservation objectives of the site and to ascertain whether it would adversely affect the integrity of the site
impact	change that is caused by an action; for example, land clearing (action) during construction that results in habitat loss (impact)
local development	development type identified as local under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009
major development	development type identified as major under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009

mitigation	measures intended to avoid, reduce and compensate adverse environmental effects
monitoring	continuing assessment of the performance of the project, including mitigation measures. This determines if effects occur as predicted or if operations remain within acceptable limits, and if mitigation measures are as effective as predicted.
non-technical summary	information for the non-specialist reader to enable them to understand the main predicted environmental effects of the proposal without reference to the main EIAR
operation	functioning of a development on completion of construction
photomontage	superimposing of an image onto a photograph to create a realistic representation of proposed or potential changes to a view
planning authority	local authority that is empowered by law to exercise planning functions for a particular area of the United Kingdom
pollution	any increase of matter or energy to a level that is harmful to living organisms of their environment (when it becomes a pollutant)
programme	series of steps that have been identified by the applicant, or series of projects that are linked by dependency
project	one (or more) aspect of a programme or plan that has been identified by the applicant and usually involves a direct physical intervention
Ramsar	areas designated by the UK Government under the International Ramsar Convention (the Convention on Wetlands of International Importance)
receptor	defined individual environmental feature usually associated with population, fauna and flora with the potential to be affected by a project
resource	defined but generally collective environmental feature usually associated with soil, water, air, climatic factors, landscape, material assets, including the architectural and archaeological heritage that has potential to be affected by a project

run-off	precipitation that flows as surface water from a site, catchment or region to the sea
Section 36 Application	in Scotland, the construction and operation of power stations of a certain capacity requires an application to be made to Scottish Ministers under section 36 of the Electricity Act 1989. Applications to the Scottish Ministers need to be accompanied by an EIAR. The Energy Consents Unit's Section 36 team will process applications for on-shore power station applications, including wind farms over 50 MW and hydro developments over 1 MW.
Schedule 1 project	plans or projects listed in Schedule 1 of the EIA Regulations
Schedule 2 project	plans or projects listed in Schedule 2 of the EIA Regulations
scoping	process of identifying the issues to be addressed by the environmental impact assessment process. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered not significant.
scoping opinion	opinion provided by a competent authority that indicates the issues an environmental impact assessment of a proposed development should consider
screening	formal process undertaken to determine whether it is necessary to carry out a statutory environmental impact assessment and publish an Environmental Impact Assessment Report in accordance with the EIA Regulations
sediment	organic and inorganic material that has precipitated from water to accumulate on the floor of a water body, watercourse or trap
significance	see 'significance of effect'
significance of effect	measure of the importance or gravity of the environmental effect, defined by either generic significance criteria or criteria specific to the environmental topic
significant environmental effect	environmental effect considered material to the decision-making process
site of special scientific interest	main national conservation site protection measure in Britain designated under the Wildlife and Countryside Act 1981

special area of conservation	international designation implemented under the Habitats Regulations for the protection of habitats and (non bird) species
special protection area	sites designated under EU Directive (79/409/EEC) for the conservation of wild birds
stakeholder	organisation or individual with a particular interest in the project
Study Area	spatial area within which environmental effects are assessed i.e., extending a distance from the project footprint in which significant environmental effects are anticipated to occur. This may vary between the topic areas.
the Highland Council	The local authority
threshold	specified level in grading effects e.g., the order of significance
visual amenity	value of a particular view or area in terms of what is seen
worst-case	principle applied where environmental effects may vary e.g.' owing to seasonal variations, to ensure the most severe effect is assessed

ABBREVIATIONS

Abbreviation	Meaning
AIL	Abnormal Indivisible Load
AOD	Above Ordnance Datum
ATC	Automatic Traffic Counts
BA	Badger Act
BDMP	Bird Disturbance Management Plan
BEIS	Department for Business, Energy & Industrial Strategy
BESS	Battery Energy Storage System
BGS	British Geological Survey
BoCC	Birds of Conservation Concern
BS	British Standards
CaSPlan	Caithness and Sutherland Local Development Plan
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CNS	Communications, Navigation and Surveillance
CO_2	Carbon Dioxide
CRAA	Collision Risk Analysis Area
CRM	Collision Risk Model

CRTN	Calculation of Road Traffic Noise
CTMP	Construction Traffic Management Plan
dB	Decibels
DECC	Department of Energy and Climate Change
DfT	Department of Transport
DMRB	Design Management for Road and Bridges
DPSG	Designation Policy and Selection Guidance
DWPA	Drinking Water Protected Area
ECoW	Ecological Clerk of Works
ECU	Energy Consents Unit
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EN	Endangered
EU	European Union
GCR	Geological Conservation Review
GDL	Garden and Designed Landscape
GIS	Geographic Information Systems
GPP	Guidance for Pollution Prevention
GVA	Gross Value Added
GW	Gigawatts

GWDTE	Ground Water Dependent Terrestrial Ecosystem
Ha	Hectares
HEPS	Historic Environment Policy Scotland
HER	Historic Environment Record
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicle
HMEP	Habitat Management and Enhancement Plan
HR	Habitat Regulations
HRSG	Highland Raptor Study Group
HwLDP	Highland-wide Local Development Plan
ID	Identification
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedures
IMFLDP	Inner Moray Firth Local Development Plan
IOF	Important Ornithological Feature
JNCC	Joint Nature Conservation Committee
Km	Kilometre
LB	Listed Buildings
LBAP	Local Biodiversity Action Plan
LCT	Landscape Character Type

LDP	Local Development Plan
LI	Landscape Institute
LRA	Land Registration Act
LUPS	Land Use Planning System Guidance
LVIA	Landscape and Visual Impact Assessment
MCHE	Managing Change in the Historic Environment
MOD	Ministry of Defence
MW	Megawatts
NCAP	National Collection of Aerial Photography
NCN	National Cycle Network
NHZ	Natural Heritage Zone
NOMIS	National Online Manpower Information System
NPF4	National Planning Framework 4
NRHE	National Record of the Historic Environment
NS	NatureScot
NSA	National Scenic Areas
NVC	National Vegetation Classification
OS	Ordnance Survey
OSA	Outer Study Area
OWESG	Onshore Wind Energy Supplementary Guidance

OWPS	Onshore Wind Policy Statement
PAC	Pre-Application Consultation
PAN	Planning Advice Note
PMP	Peat Management Plan
PPM	Power Performance Masts
PSR	Primary Surveillance Radar
PSRA	Peat Slide Risk Assessment
PWS	Private Water Supply
RDB	Red Data Book
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
SLA	Special Landscape Areas
SM	Scheduled Monuments
SME	Small and Medium Enterprises
SNH	Scottish Natural Heritage
SPA	Special Protection Areas
SPP	Scottish Planning Policy
SPR	ScottishPower Renewables

SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
THC	The Highland Council
THCHET	Highland Council Heritage Environment Team
TS	Transport Scotland
UK	United Kingdom
VU	Vulnerable
WCA	Wildlife and Countryside Act
WFD	Water Framework Directive
WLA	Wild Land Areas
WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility

ScottishPower Renewables

01. Introduction

1. Introduction

1.1 Background and Context

1. ScottishPower Renewables (UK) Ltd (SPR) (hereafter referred to as "the Applicant") intends to apply to the Scottish Ministers for permission to construct and operate the re-powered and extended Beinn Tharsuinn Windfarm (hereafter referred to as the "proposed Development"), in the Highlands. The site of the proposed Development (hereafter referred to as "the Site") is located approximately 12.5 km north-west of Alness, at the approximate site centre National Grid Reference NH 60205 81661 (refer to Figure 1.1).

2. At its eastern extent, the proposed Development encompasses the existing 17 turbine Beinn Tharsuinn Windfarm which has been operational since 2005. The 2 turbine Beinn nan Oighrean Wind Farm turbines are also within the eastern extent of the Site. At its western extent, the proposed Development is in an upland area, north-west of the 13 turbine Coire na Cloiche Windfarm. The Beinn nan Oighrean and Coire na Cloiche Windfarms are separate to the proposed Development.

3. The proposed Development will consist of up to approximately 31 wind turbines, up to 180 m height from ground to blade tip, with all associated and ancillary infrastructure. The total generating capacity of the turbines is anticipated to be greater than 50 megawatts (MW).

4. As the proposed Development will have an installed capacity in excess of 50 MW, the Applicant will submit an application for the proposed Development to the Scottish Ministers via the Scottish Government Energy Consents Unit (ECU) under Section 36 of the Electricity Act 1989, and will seek a direction for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

5. The consent application will be accompanied by an Environmental Impact Assessment Report (EIAR), as required by the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (hereinafter referred to as "the EIA Regulations"). This document is the Scoping Report which is submitted to the ECU in a formal request for an Opinion from the Scottish Ministers, as to the scope and level of detail of the EIAR for the proposed Development.

1.2 Need for the Proposed Development

6. The science behind climate change is well established and points strongly towards a need to reduce our reliance on fossil fuels in order to avoid negative economic, environmental and social effects. International and European commitments to reducing carbon dioxide (CO_2) emissions and tackling climate change have been made by all major economies. In response to these issues, the UK has made significant, legally binding commitments to increase the use of renewable energy. In September 2019, the Scottish Government passed The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 which set a legally binding goal to achieve Net-Zero greenhouse gas emission by 2045 at the latest. This was reinforced by the Scottish Government's aim set out in the Onshore Wind Policy Statement in December 2022, to achieve a minimum installed capacity of 20 gigawatts (GW) of onshore wind in Scotland by 2030 (Scottish Government, 2022). Under the newly adopted Climate Change (Emissions Reduction

Targets) Scotland Act 2024, annual emissions targets will be replaced with five-year carbon budgets from 2026-2045.

1.3 The Applicant

7. The Applicant is part of the Iberdrola Group, one of the world's largest integrated utility companies and a world leader in wind energy. SPR only produce 100% green electricity with a focus on wind energy and smart grids, and is driving the change to a cleaner, electric future. The Group are investing over £8 m every working day to make this happen and are committed to speeding up the transition to cleaner electric transport, improving air quality and, over time, driving down bills to deliver a better future quicker, for everyone.

8. SPR is at the forefront of the development of the renewables industry through pioneering ideas, forward thinking and outstanding innovation. Their ambitious growth plans include offshore windfarms in East Anglia with teams also leading the Group's international offshore development in Germany, France, and the USA. With over 40 operational windfarms, SPR manage all of their sites through their world leading Control Centre at Whitelee Windfarm, near Glasgow.

9. SPR currently have two operational windfarms within the Highlands region, Halsary and Beinn Tharsuinn (original). Hollandmey Windfarm, also in the Highlands region, has been consented following a Public Local Inquiry.

1.4 The EIA Consultant

10. RSK Environment Limited has been commissioned by the Applicant to coordinate the EIA Scoping process for the proposed Development. This Scoping Report has been prepared by a team of technical specialists within RSK and associated consultancies. The project team has excellent experience undertaking EIA work for wind energy developments across Scotland.

1.5 The Purpose of EIA Scoping Report

11. The EIA Regulations require that, before consent is granted for certain types of development, an EIA must be undertaken. The EIA Regulations set out the types of development which are subject to EIA (referred to as Schedule 1 development) and other developments which may be subject to EIA depending on certain parameters and/or their potential to give rise to significant environmental effects (referred to as Schedule 2 development).

12. The proposed Development falls within Schedule 2 of the EIA Regulations and has the potential to give rise to significant environmental effects. Therefore, it is the opinion of the Applicant that the proposed Development is an EIA development. Therefore, the Applicant will be submitting an EIAR as part of the consent application to the Scottish Ministers under Section 36.

13. In accordance with Regulation 12 (1) of the EIA Regulations, the Applicant requests the Scottish Ministers to adopt an opinion as to the scope and level of detailed information to be provided within the EIAR. This EIA Scoping Report provides the following information (as prescribed by Regulation 12 (2) of the EIA Regulations):

- a description of the location of the development, including a plan sufficient to identify the land;
- a brief description of the nature and purpose of the development and of its likely significant effects on the environment; and
- such other information or representations as the developer may wish to provide or make.

14. The 'Scoping Opinion' is to be provided following discussion with the relevant consultation bodies. The consultees identified at Scoping are set out within **Appendix A**. The Applicant recognises the value of the scoping approach. The purpose of this EIA Scoping Report is to ensure that relevant issues are identified, and to agree the methodology of baseline surveys and assessments with consultees.

15. EIA is an iterative process which identifies the potential environmental effects and informs the eventual design of a proposed development with the aim of avoiding, reducing, offsetting, and minimising significant adverse environmental effects..

16. The Applicant is a licenced generator and has obligations under Schedule 9 (paragraph 3) of the Electricity Act 1989 to:

> *"(a) have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest" and*
>
> *"(b) do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects"*

17. In addition, Schedule 9 also sets out a requirement for the protection of fisheries and Paragraph 3(3) states:

> *"shall avoid, so far as possible, causing injuries to fisheries or to the stock of fish in any waters."*

18. The EIAR will have due regard to these duties.

19. The structure of the EIAR will follow the requirements set out in Schedule 4 of the EIA Regulations and other relevant good practice guidance. The EIAR will comprise up to five volumes:

- A standalone Non-Technical Summary;
- **Volume 1** – Written Statement;
- **Volumes 2 & 3** – Figures and Visualisations;

- **Volume 4** – Technical Appendices; and
- **Volume 5** – Confidential Appendices (if required).

20. The introductory chapters of **Volume 1** will comprise:

- an introduction;
- a description of the Site selection and design iteration process;
- a description of the Site and its context;
- a description of the proposed Development;
- information on the EIA approach, methodology and determination of significance of effects; and
- a summary of the relevant planning and energy policy considerations.

21. The remainder of **Volume 1** will present a report of the likely significant effects of the proposed Development on the environment for those factors that have been scoped in for assessment. Each of the environmental factors will be reported as a chapter of **Volume 1** and will contain the following information:

- a description of the existing environment;
- a description of the approach to the assessment;
- predicted likely significant effects and an assessment of their significance;
- mitigation measures taken to avoid or reduce likely significant effects; and
- a description of any residual effects (following the application of mitigation measures), their magnitude and significance.

22. The EIAR will reference figures and technical studies which will be contained in **Volumes 2** to **5**.

23. The following environmental factors are considered in this EIA Scoping Report:

- Landscape and Visual;
- Ornithology;
- Ecology;

- Geology, Soils and Peat, Hydrology and Hydrogeology;
- Noise and Vibration;
- Cultural Heritage;
- Transport and Access;
- Aviation;
- Shadow Flicker;
- Telecommunications, Infrastructure and Local Services; and
- Climate (Carbon Calculator).

24. An assessment of cumulative effects will be presented within each environmental factor chapter. An overall summary of cumulative and in-combination effects will be included in the EIAR.

25. The EIAR will also include a schedule of mitigation measures and a summary of residual effects.

26. A standalone Planning & Policy Statement assessing the proposed Development against all relevant planning and energy policies and a Pre-Application Consultation (PAC) Report explaining the consultation carried out with the local communities will also accompany the consent application.

27. Early consultation is key in the development process. It will ensure that local communities and stakeholders are given the opportunity to provide feedback to inform the development proposals. The Applicant will arrange consultation events and provide regular communication at key stages of the project.

28. Public consultation is an important element of the EIA and the overall planning process and can take many different forms. The Applicant will seek to use the most practical and effective form of public consultation possible and will consider the following options:

- public information days, held in communities near to the Site;
- mail drops, posting information leaflets to each address near to the Site;
- providing a dedicated webpage for the proposed Development which would host information;
- providing a mailbox and email address for the public to provide comment or ask questions; and
- consultations with community councils to get feedback on the proposals.

1.6 Assessment of Effects in EIA

29. Insofar as practicable, a common approach is proposed in undertaking and reporting on individual environmental assessments.

1.6.1 Impact Prediction and Assessment

30. Impacts comprise identifiable changes to the baseline environment. These can be either beneficial (e.g., introduction of planting to screen visually detracting elements) or adverse (e.g., loss of an attractive environmental component), and can take the following forms:

- direct [primary] (e.g., loss of habitat to accommodate a proposed development);
- indirect [secondary] (e.g., pollution downstream arising from silt deposition during earthworks);
- transboundary;
- short-term/temporary (e.g., dust generated during construction);
- medium-term (e.g., cutting back of planting which is subsequently allowed to regenerate);
- long-term/permanent (e.g., improvement in air quality); and
- cumulative (e.g., incremental changes caused by other past, present or reasonably foreseeable actions together with those associated with a proposed development, or where a receptor or resource is subject to a combination of individual impacts such as air pollution, noise and visual impact associated with a proposed development.

31. Impact assessments are both quantitative and qualitative in nature, and based on comparisons between the environmental conditions immediately prior to the assumed construction of the proposed Development and the predicted environment conditions resulting from its implementation.

32. Each environmental factor chapter of the EIAR will describe the forecasting methods used to identify and assess the significant effects on the environment, including details of difficulties encountered when compiling the report, and the main uncertainties involved. Impacts will be defined in accordance with accepted terminology and standardised methodologies to predict the magnitude of impacts (or change) resulting from the proposed Development for each environmental factor.

1.6.2 Environmental Effects

33. Effects are defined as the consequence of impacts. They are formulated as a function of the receptor/resource value and sensitivity, and the predicted magnitude of impacts.

34. Professional judgement, defined thresholds, established criteria and standards will be used to report the environmental effects of impacts, which can be referred to as either being prior to or following establishment of environmental mitigation.

1.6.3 Environmental Mitigation

35. Environmental mitigation measures will be developed to address potentially significant environmental effects. Mitigation can take the form of agreed measures incorporated into the evolving design of a proposed development (e.g., environmental treatments); standard measures (e.g., best practice construction management to control dust emissions) that are enforceable through planning conditions; and measures proposed in outline (e.g., off-site planting to provide visual screening to nearby residential dwellings) that may require further development and formal agreement to ensure their implementation.

36. The principles adopted in the identification and development of environmental mitigation for a proposed development are avoidance (wherever possible), reduction (where avoidance cannot be achieved) and offsetting (where reduction is unachievable or would not achieve the required level of mitigation).

1.6.4 Significance of Environmental Effects

37. The significance of an environmental effect is established by way of reference to the importance/value of affected receptors; the number and sensitivity of affected receptors; impact magnitude, duration, frequency and extent of effect; and the reversibility of effect (or the extent to which the adverse effects can be effectively reduced).

38. The generic significance criteria in **Table 1.1** would apply across the environmental factors in the EIAR to ensure identified environmental effects are assessed in a comparable manner, except where there is other prevailing topic-specific guidance (e.g., ecological impact assessment) and/or established standards and thresholds (e.g., National limit values for air emissions):

Table 1.1: Generic Significance Criteria

Level of effect	Description
Major	Very large or large change in environmental or socio-economic conditions. These effects, both adverse and beneficial, are likely to be important considerations at a national to regional level because they contribute to achieving national / regional objectives or are likely to result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Intermediate change in environmental or socio-economic conditions. These effects are likely to be important considerations at a regional and local level.
Minor	Small change in environmental or socio-economic conditions. These effects may be raised as local issues, but are unlikely to be of importance in the decision-making process.
Negligible	No discernible change in environmental or socio-economic conditions i.e., variation within normal bounds or below measurable levels. An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

39. Only major and moderate effects, which are likely to be factors in deciding whether a development is acceptable, are typically considered to be significant effects. Significance assumes only incorporated and standard mitigation measures are in place, these being the measures for which delivery and implementation can be secured.

40. Refer to individual chapters of this EIA Scoping Report for details on the proposed method of assessment of impacts and the significance criteria to be applied.

02. The Proposed Development

2. The Proposed Development

2.1 Site Location and Description

41. The Site is located in the Tain and Easter Ross peninsula, approximately 12.5 km north-west of Alness, within the administrative boundary of The Highland Council (THC). The Site is privately owned (**Figure 1.1**).

42. The Site encompasses the operational Beinn nan Oighrean Wind Farm (2 turbines)[1] and Beinn Tharsuinn Wind Farm (17 turbines). The operational Coire na Cloiche Windfarm (13 turbines) is located to the south-west. The Beinn nan Oighrean and Coire na Cloiche Windfarms are separate to the Proposed Development.

43. Within the Site, the land lies between approximately 270 m AOD in the south-west, on the valley slopes of Allt Coire na Cloiche River, and 692 m AOD at the summit of Beinn Tharsuinn in the south of the Site. The Site slopes up to the summit of Beinn Tharsuinn, but is particularly steep on the eastern slopes of Meall Meadhonach in the east, draining into the Strathrory River. The access track for the Coire na Cloiche Windfarm in the south-west passes through the Site, around the northern slopes of Beinn Tharsuinn. The proposed Development would be accessed via the existing track that serves the Beinn Tharsuinn Windfarm.

44. The B9176 runs approximately 3.9 km to the east of the proposed Development Site, and the unclassified road within Strath Rusdale is approximately 2 km to the south-west and south. There are a few scattered properties in the vicinity of the Site.

45. The area of the Site is 3,125 ha and the current land cover is classified as mainly raised and blanket bogs, Temperate shrub heathland, and Dry grassland.

2.2 Repowering and Extension Explained

46. Repowering is the process to replace older first-generation wind turbines with more powerful models that use the latest technology and are capable of producing significantly more renewable electricity, more efficiently. The process is carried out within a timeframe that allows replacement of older units before they come to the end of their operational life.

47. Prior to construction of the proposed Development, the existing operational Beinn Tharsuinn Wind Farm turbines will be decommissioned[2]. Existing infrastructure will be used as far as practicable within the design of the proposed Development.

48. The proposed Development includes an extension to the existing Beinn Tharsuinn Windfarm into lands to the west. The proposed repower and extension will increase generation capacity at this location and will make a meaningful contribution to Scotland's national targets to reach Net

[1] These turbines, although within the application boundary, are owned and operated by a different developer and do not form part of the proposed Development. These turbines will remain in situ.

[2] It is therefore proposed that decommissioning of redundant infrastructure from the existing Beinn Tharsuinn Wind Farm is not included in the scope of potential impacts for consideration in the EIA as this work would be undertaken as part of the extant consent and completed prior to commencement of the proposed Development.

Zero by 2045. The proposed Development will contribute to economic growth in the Highlands and Scotland as a whole.

2.3 Description of the Proposed Development

49. The proposed Development is at an early stage in its design and will continue to be developed through the EIA process, as further environmental and technical studies are completed. The proposed Development consists of approximately 31 turbines with a tip height of up to 180 m, with 11 turbines (T1-11) comprising the repowering element of the proposed Development and 20 turbines (T12-31) comprising the western extension. The total capacity of the proposed Development is expected to be greater than 50 MW.

50. Indicative turbine locations are provided in **Table 2.1**. The scoping layout is shown on Figure 2.1.

Table 2.1: Indicative Turbine Locations

Turbine ID	Easting	Northing
1	262369	881371
2	261974	881599
3	261422	881698
4	261197	882021
5	260456	882170
6	260587	881647
7	260895	881336
8	261057	880954
9	261693	881046
10	261119	880532
11	261627	880410
12	258509	883147
13	258061	883395
14	257360	883276
15	256712	882975
16	257251	882775
17	257875	882794

Turbine ID	Easting	Northing
18	257780	882265
19	257069	882203
20	256617	882441
21	257975	881884
22	257298	881774
23	256668	881692
24	256097	881572
25	256163	881094
26	256892	881327
27	257502	881300
28	256809	880813
29	257520	880717
30	256993	880268
31	257380	879979

51. The parameters of the EIA will be such that an appropriate level of assessment is undertaken for an indicative hub height and rotor diameter of a candidate turbine model, within the envelope of a maximum tip height of 180 m. The turbine locations will evolve in response to the ongoing detailed assessment work, taking consideration of the environmental effects, terrain, current land use, technical, and health and safety issues. The parameters of the proposed Development for which consent will be sought will be explicitly identified in the EIAR. The final locations of the turbines will be 'frozen' at an appropriate time for the project team to conclude assessments and prepare the EIAR.

52. Whilst the location of the infrastructure will be determined through an iterative environmental design process, there is the potential for exact locations of the infrastructure to be further optimised through micro-siting allowances prior to construction. An appropriate micro-siting allowance will be sought in all directions in respect of each turbine and the associated infrastructure.

53. Consent will be sought for a 50 year operational life from the date of commissioning of the windfarm.

54. The Site is also considered to have potential for an associated battery energy storage system (BESS). This would involve the installation of batteries and inverters in a self-contained building which will be located on a hard standing area adjacent to the substation. The building would

house the battery storage components contained in sealed units, associated air conditioning systems, an electrical room and a maintenance room. The building housing the storage equipment would be designed to reflect the vernacular architecture of agricultural farm buildings in the wider locality and would be of similar appearance to the substation. An underground cable will connect the battery storage facility to the onsite substation. If this is to be taken forward within the proposed Development, details of the anticipated technology and location will be provided and assessed within the EIAR.

55. In addition to the turbines and potential BESS facility, there will be a requirement for ancillary infrastructure, such as:

- turbine foundations;
- crane hardstandings;
- transformer/switchgear housings located adjacent to turbines;
- access tracks (existing, upgrade of existing or new as required);
- watercourse crossings (upgrade of existing or new as required);
- underground electrical cabling;
- permanent anemometer mast and LIDAR compound;
- up to two temporary Power Performance Masts (PPM);
- one or more temporary windfarm construction compound areas;
- a substation compound comprising:
    a. closed-circuit television mast(s);
    b. communication mast(s);
    c. permanent control building;
- borrow pit search areas; and
- health & safety and other directional site signage.

2.4 Evolution of Scoping Layout

56. SPR began exploring the prospect of repowering the existing Beinn Tharsuinn Windfarm in 2019, commissioning LUC to undertake a landscape and visual feasibility study. Subsequent feasibility work was undertaken by LUC in 2024 which revisited the original turbine layout designs for the

repowering of the Site, whilst also exploring options for potential extension of the Site into land which had become available to the west. This review also took account of advances in turbine technology and availability, and the updated planning policy context introduced by NPF4 (outlined in **Chapter 3**).

57. This section provides an overview of the key design principles that have been considered in exploring the potential turbine layout options for the Site and describes the evolution of the layout of the proposed Development now presented in this EIA Scoping Report.

58. Following initial feasibility work, two provisional layouts were devised. Informed by the known site constraints and sensitivities, and NatureScot good practice guidance in wind farm design (NatureScot, 2017). The key design principles which have influenced the layout iterations include:

- limiting the encroachment of turbines into views from the Dornoch Firth NSA to the north and north-east by focusing repowering turbines within the footprint of the operational Beinn Tharsuinn Windfarm and maximising the screening opportunities afforded by intervening landform;
- limiting the encroachment of turbines into views from Strath Rusdale to the south;
- selecting a turbine size that relates favourably to the underlying landform and operational and consented windfarms within the vicinity of the Site; and
- in addition to the repowering of Beinn Tharsuinn Windfarm, introducing an extension to the west of the existing windfarm with limited additional landscape and visual effects as far as practicable.

59. **Figure 2.2** presents the evolution of the layout of the proposed Development to date, as now described.

Provisional Layout 1 – 18 turbines at 200 m blade tip height (September 2023)

60. Provisional Layout 1 included 14 repowering turbines, extending beyond the core area of the existing Beinn Tharsuinn Windfarm to the plateau edge of the Beinn Tharsuinn massif, including three turbines occupying the summit plateau of Meall a' Bhreacain (527 m AOD), and a cluster of five turbines between Cnoc Leathad na Siorramachd (565 m AOD) and an unnamed peak (515 m AOD) to the north-west of the core area. A separate extension of four wind turbines occupied the southern extent of the massif along the ridgeline of Cnoc an t-Sithean Mor (658 m AOD) which projects southwards above Strath Rusdale.

Provisional Layout 2 – 23 turbines at 180 m blade tip height (July 2024)

61. Provisional Layout 2 retained 12 turbines within the core repowering area, though drew in the location of turbines from the northern and eastern edges of the Beinn Tharsuinn massif. The southern extension of four turbines proposed along the ridgeline of Cnoc an t-Sithean Mor in Provisional Layout 1 was removed in favour of siting turbines within an additional land holding, which enabled a cluster of 11 turbines to be located in a low-lying bowl to the west of the massif (western extension).

62. Benefits of Provisional Layout 2 included:

- Reduction in the visibility of turbines in views from the Dornoch Firth NSA to the north by drawing in turbines away from the plateau edge and maximising the screening opportunities afforded by intervening landform such as Beinn nan Oighrean (538 m AOD);
- Reduction in the visibility of turbines in views from Strath Rusdale to the south due to the removal of the southern extension in favour of a lower-lying western extension;
- Limited visibility of turbines in the western extension area from the Dornoch Firth NSA to the north, and Strath Rusdale to the south; and
- Reduction in maximum turbine blade tip heights (reduced to 180 m from 200 m) to maximise screening afforded by intervening landform, reduce scale differences with operational and consented windfarms within the Site and surrounding area, and reduce prominence of turbines and the potential extents of visible aviation lighting seen in views from the Dornoch Firth NSA.

Scoping Layout – 31 turbines at 180 m blade tip height (December 2024)

63. Additional land was made available to SPR in Autumn 2024, which allowed the introduction of further turbines within the western extension area. The devised Scoping Layout retains 11 turbines in the core repowering area, though removes four turbines from the north-western extent of the Beinn Tharsuinn massif, between Cnoc Leathad na Siorramachd (565 m AOD) and an unnamed peak (515 m AOD). An additional nine turbines are accommodated in the western extension cluster, with limited encroachment of these turbines into views from Strath Rusdale, and the barely perceptible change to views from the Dornoch Firth NSA to the north.

64. Benefits of the Scoping Layout include:

- Reduction in the visibility and prominence of turbines in views from the Dornoch Firth NSA due to the removal of turbines from the north-western extent of the Beinn Tharsuinn massif; and
- Addition of wind turbines into the southern extents of the western extension area with limited encroachment into views from Strath Rusdale, and no discernible change to views from the Dornoch Firth NSA.

2.5 Cumulative Developments

65. Regulation 5 and Schedule 4 of the EIA Regulations detail the information for inclusion in the EIAR. Schedule 4, paragraph 5(e) requires an assessment of the likely significant effects resulting from:

> *"the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources".*

66. Consultation and discussion with THC, NatureScot and other stakeholders (as required) will be carried out to determine which nearby windfarms have the potential to cause significant cumulative effects and therefore should be included within the EIAR. The approach taken to identify the nearby windfarms and other major projects for inclusion in the cumulative impact assessment will be tailored so that it is appropriate to each environmental factor.

67. The list of windfarms and other major developments of relevance will be considered in the cumulative assessment. The record of cumulative projects will be updated throughout the EIA process up to a point prior to submission of the application. The final list of projects for the cumulative assessment will be agreed with THC.

68. In respect of Landscape and Visual, the methodology to be adopted for assessing the cumulative effects of wind energy developments will be in accordance with the NatureScot Guidance 'Assessing Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments' (NatureScot, 2021). The scope of the cumulative assessment will be agreed through consultation with THC and NatureScot as required.

69. Table 2.2 contains the current list of windfarms within 25 km that will be included in the EIAR.

Table 2.2:Cumulative windfarms within 45 km

Windfarm	No. of Turbines	Tip Height (m)	Status	Approximate Distance to Nearest Turbine (km)
Beinn Tharsuinn	17	80	Operational	0.1
Beinn nan Oighrean	2	99.5	Operational	0.3
Coire na Cloiche	13	99.5	Operational	0.9
Strathrory	7	180	Under Construction	2.6
Novar Phase 1	34	55.5	Operational	7.7
Novar Phase 2	16	106	Operational	8
Lairg	3	99.5	Operational	20.6
Achany	19	102	Operational	21.1
Rosehall	19	90	Operational	21.9
Corriemoillie	17	125	Operational	25
Lochluichart Extension	6	125	Operational	26.8
Lochluichart	17	125	Operational	27.1
Kilbraur Extension	8	125	Operational	29.2
Kilbraur	19	115	Operational	29.6

Windfarm	No. of Turbines	Tip Height (m)	Status	Approximate Distance to Nearest Turbine (km)
Fairburn	20	100	Operational	31.5
Auchmore	2	79	Operational	32.5
Gordonbush Extension	11	149.9	Operational	38.8
Gordonbush	35	110	Operational	40
Creag Riabhach	22	125	Operational	44
Meall Buidhe	8	149.9	Consented	15.2
Braemore	18	125	Consented	17.5
Lairg II	10	200	Consented	18.9
Strath Oykel	11	200	Consented	19.5
Kirkan	17	175	Consented	23
Lochluichart Extension II	5	149.9	Consented	25.4
Achany Extension	18	149.9	Consented	25.8
Strath Tirry	4	135	Consented	30.9
Chleansaid	16	200	Consented	32.7
Sallachy	9	149.9	Consented	38.7
Creag Riabhach Extension	2	149.9	Consented	44.7
Garvary	25	180	Appeal/Public Inquiry	15
Abhainn Dubh	9	149.9	Application Submitted	13
Acheilidh (Lairg III)	12	230	Application Submitted	18
Allt An Tuir	9	180-200	Application Submitted	24
Shinness	16	200	Application Submitted	33.5
Creachan	21	220	Design/Scoping	1.6
Ceislein	20	250	Design/Scoping	7.7
Braelangwell	17	220	Design/Scoping	10
Inveroykel	29	230	Design/Scoping	11
Balblair	9	180	Design/Scoping	13.4

Windfarm	No. of Turbines	Tip Height (m)	Status	Approximate Distance to Nearest Turbine (km)
Coille Beith	19	200	Design/Scoping	20.1
Carn Fearna	14	200	Design/Scoping	22
Invercassley	22	230	Design/Scoping	26.5
Tarvie	11	200	Design/Scoping	26.9
Fairburn Extension	14	200	Design/Scoping	33.1
Ballach	36	230	Design/Scoping	34
Fiag	22	230	Design/Scoping	39.8

70. In addition to the windfarms above, a planning application has been submitted by ScottishPower Energy Retail Ltd for a hydrogen production and storage facility at a location along the existing Beinn Tharsuinn Windfarm access track (23/05242/FUL). Also, SSEN Transmission are proposing a new 400 kV transmission line between Beauly and Spittal by 2030,and have submitted a Scoping Report (ECU00006008) to the ECU. Section D of the route would cross the western extent of the Site.

2.6 Scoping Information Request

71. The Applicant would welcome any further information from stakeholders on proposed windfarms and major developments that should be considered in the cumulative assessment for the EIAR.

03. Planning and Energy Policy Context

3. Planning and Energy Policy Context

3.1 Introduction

73. The proposed Development will have an installed capacity in excess of 50 MW. Applications for onshore renewable energy developments with a generation capacity over 50 MW require an application to be made to the Scottish Ministers under Section 36 of the Electricity Act 1989 along with a direction for deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended).

74. In applications submitted under Section 36 of the Electricity Act 1989, the role of the Development Plan is not the same as in applications submitted under the Town and Country Planning (Scotland) Act 1997. The test set out in Section 25 of the Town and Country Planning (Scotland) Act 1997 which requires that development must accord with the terms of the Development Plan unless material considerations indicate otherwise, is not engaged in the case of a Section 36 application. The Development Plan is a relevant consideration in the determination of a Section 36 application.

75. Furthermore, where deemed permission is sought under Section 57 of the Town and Country Planning (Scotland) Act 1997 (as amended), it must be noted that Section 25 'Status of the Development Plan' is not engaged. In this way, it is now well established that in the case of an electricity licence application, under the Act, deemed planning permission is 'directed' and therefore not considered to be 'determined' and in this respect, proposals are not determined under the relevant local authority's Local Development Plan (LDP). The LDP, however, remains as a key relevant consideration in the decision-making process.

76. The Planning, Climate Change and Energy legislation, policy and guidance relevant to the Proposed Development will be set out within the Planning Policy Context chapter of the EIAR. However, the assessment of the Proposed Development against the policy and legislative framework will be undertaken in a standalone Planning Statement which will be separate to the EIAR.

3.2 Climate Change and Energy Policy

77. The following climate change and energy policies are considered to be relevant to the proposed Development and are considered relevant considerations in the decision-making process.

78. In terms of the International Context, the following documents are considered to be relevant to the application:

- The Paris Agreement (UN Climate change Conference (COP21) 2015)
- The United Nations Gap Emissions Report 2024 (October 2024)

79. In considering the United Kingdom Government Context, climate change legislation addressing the climate emergency, and relevant policies and reports seek to avoid the current trajectory of a temperature increase beyond 2°C and set out the approach to reducing GHG emissions targets and delivering net zero strategy by 2050.

80. The Scottish Government is legally committed to achieving Net Zero by 2045. The Net Zero target for Scotland is set out in and defined in the Climate Change (Scotland) Act 2009 as amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. In 2024, the Scottish Government introduced legislation to replace the current, annual targets with multi-year 'Carbon budgets.' The 2030 target will no longer be statutory, but still requires achieving the target of at least 90% lower than the baseline target of 1990 by 2040 and Net Zero by 2045. The Scottish Greenhouse Gas Statistics 2022 published by the Scottish Government on 18 June 2024 confirmed that the interim target for 2022 was not met.

81. It is considered the most relevant policy and statements published by the UK and Scottish Governments include:

- HM Government The Climate Change Act 2008 as amended (2019);
- Scottish Government The Scottish Energy Strategy (December 2017);
- Scottish Government's declaration of a Climate Emergency (April 2019);
- Scottish Government Update to the Climate Change Plan 2018 -2032: Securing a Green Recovery on a Path to Net Zero (December 2020);
- HM Government The Energy White Paper: Powering our Net Zero Future (December 2020);
- HM Government Net Zero Strategy: Build Back Greener (October 2021);
- HM Government British Energy Security Strategy (April 2022);
- Scottish Government, Onshore Wind Policy Statement (December 2022);
- Scottish Government, Draft Energy Strategy and Just Transition Plan (January 2023);
- HM Government, Powering up Britain, Energy Security Plan (March 2023) and Powering Up Britain: Net Zero Growth Plan (March 2023);
- Scottish Government, Onshore Wind Sector Deal for Scotland (September 2023);
- Scottish Government, Equality, Opportunity, Community Our Programme for Government (September 2023);
- The Climate Change (Emissions Reduction Targets) (Scotland) Act (September 2024); and

- Scottish Government Green Industrial Strategy (September 2024).

82. The Scottish Government has set a minimum target of 20 GW of onshore wind deployed by 2030 which is detailed in the Onshore Wind Policy Statement.

83. Section 5.3 of the Onshore Wind Policy Statement relates to Repowering. Paragraph 5.3.1 states:

> *"Not all onshore wind development needs to take place on new sites. As some of Scotland's first Windfarms reach the end of their consented life, we can consider multiple options that either enable the use of modern, more efficient turbines or maintain the current turbines to ensure they continue to generate beyond their anticipated life."*

84. A comprehensive review of the renewable energy policy framework will be provided in a standalone Planning Statement which will be submitted with the application and will be separate to the EIAR.

3.3 National Planning Policy and The Development Plan

85. The Development Plan for the Site comprises:

- National Planning Framework 4 (NPF4) adopted 2023;
- Highland-wide Local Development Plan (HwLDP) adopted 2012 and the Highland Council Supplementary Planning Guidance which of relevance to the Site includes the Onshore Wind Energy Supplementary Guidance (OWESG) (2016) and its Addendum (2017);
- Caithness and Sutherland Local Development Plan (CaSPlan) adopted 2018; and
- Inner Moray Firth Local Development Plan 2 (IMFLDP2) adopted 2024.

3.3.1 The National Planning Framework 4 (2023)

86. The Scottish Government adopted and published NPF4 on 13 February 2023. NPF4 now forms part of the statutory Development Plan along with Local Development Plans (LDPs) and supersedes both National Planning Framework 3 (NPF3) and Scottish Planning Policy (SPP).

87. Section 24(3) of the Town and Country Planning (Scotland) Act 1997 states:

> *"In the event of any incompatibility between a provision of the National Planning Framework and a provision of a local development plan, whichever of them is the later in date is to prevail."*

88. Therefore, at present, in this instance, the NPF4 would prevail if there is any incompatibility.

Spatial Strategy and National Development

89. The NPF4 sets out in its introduction that 'Scotland's future places will be Net Zero.' In Part 1 'the National Spatial Strategy' it also sets out that the north (where the Site is located):

> *"can continue to make a strong contribution towards meeting our ambition for a net zero and nature positive country by demonstrating how natural assets can be managed and used to secure a more sustainable future."*

90. NPF4 includes a number of national developments which are detailed in Annex B – National Developments Statements of Need. NPF4 (page 99) describes national developments as:

> *"significant developments of national importance that will help us to deliver our spatial strategy."*

91. The proposed Development is categorised as a national development as part of National Development 3. Strategic Renewable Electricity Generation and Transmission Infrastructure as it is proposed to exceed 50 MW capacity of renewable energy generation.

92. The Need statement for the proposed Development is stated on NPF4 page 103 as:

> *"Additional electricity generation from renewables and electricity transmission capacity of scale is fundamental to achieving a net zero economy and supports improved network resilience in rural and island areas. Island transmission connections in particular can facilitate capturing the significant renewable energy potential in those areas as well as delivering significant social and economic benefits."*

NPF4 Relevant Policies

93. Whilst NPF4 must be read as a whole, the key policy considerations from NPF4 include:

- Policy 1 Tackling the climate and nature crises;
- Policy 3 Biodiversity;
- Policy 4 Natural Places;
- Policy 5 Soils;
- Policy 6 Forestry, Woodland and Trees;
- Policy 7 Historic Assets and Places; and
- Policy 11 Energy.

94. Policy 11 is considered the lead policy within NPF4 for renewable energy developments.

95. Policy 11 outlines that all forms of development proposals for renewable energy will be supported which includes:

> *"i. Windfarms including repowering, extending, expanding and extending the life of existing Windfarms;"*

96. Policy 11 confirms the only places windfarms will not be supported are National Parks and National Scenic Areas. All forms of renewable energy proposals will be supported under the policy. It also recognises that landscape and visual impacts are expected from some forms of renewable energy and where those impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered acceptable.

3.3.2 Local Development Plan

97. For THC, the Local Development Plan (LDP) comprises of the Highland-wide Local Development Plan (HwLDP) (adopted 2012) which includes planning policy for the Highland area, and area LDPs. The application boundary of the proposed Development spans two LDP's, the Caithness and Sutherland Local Development Plan (CaSPlan) (adopted 2018) and the Inner Moray Firth Local Development Plan 2 (IMFLDP2) (adopted 2024).

98. The HwLDP also includes associated Supplementary Guidance, including the Onshore Wind Energy Supplementary Guidance (OWESG) (adopted 2016), alongside its Addendum Supplementary Guidance: 'Part 2b' (adopted 2017).

Highland-wide Local Development Plan (HwLDP) 2012

99. The HwLDP was adopted in April 2012, before the adoption of the NPF4.

100. Policies in the HwLDP will be considered in terms of their ongoing relevance to the Proposed Development.

101. Whilst the HwLDP will be considered as a whole, key policy considerations from the HwLDP include:

- Policy 28 Sustainable Design;
- Policy 29 Design Quality and Place-Making;
- Policy 30 Physical Constraints;
- Policy 31 Developer Contributions;
- Policy 36 Development in the Wider Countryside;
- Policy 51 Trees and Development;
- Policy 52 Principle of Development in Woodland;

- Policy 55 Peat and Soils;
- Policy 57 Natural, Built and Cultural Heritage;
- Policy 58 Protected Species;
- Policy 59 Other Important Species;
- Policy 60 Other Important Habitats and Article 10 Features;
- Policy 61 Landscape;
- Policy 62 Geodiversity;
- Policy 63 Water Environment;
- Policy 64 Flood Risk;
- Policy 66 Surface Water Drainage;
- Policy 67 Renewable Energy Developments;
- Policy 69 Electricity Transmission Infrastructure;
- Policy 72 Pollution;
- Policy 77 Public Access; and
- Policy 78 Long Distance Routes.

Caithness and Sutherland Local Development Plan (CaSPlan) adopted 2018

102. CaSPlan (adopted in 2018) was adopted prior to the NPF4 and aims to ensure development helps to maintain and grow a strong and diverse Caithness and Sutherland economy. CaSPlan refers to the importance of renewable energy in achieving this aim:

> *"Investment in renewable energy generation in North Highland is not only helping to meet Council and national climate change targets but it has also delivered economic benefits for the area. Onshore wind energy has grown significantly over recent years, particularly in the south and north-east of the Plan area."*

Inner Moray Firth Local Development Plan 2 (IMFLDP2) adopted 2024

103. The Site is within the area covered by the IMFLDP2.

104. Paragraph 1 of the IMFLDP2 outlines:

"The two overarching aims of the Plan are to tackle the climate and ecological emergency and enable post pandemic economic recovery. These aims are threaded through the Plan and embedded within each of its Outcomes, Spatial Strategy, General Policies, Placemaking Priorities and development site choices."

105. It is considered that Policy 1 – Low and Zero Carbon Development is relevant to the proposed Development. According to Policy 1:

"Each new build development proposal must minimise carbon emissions. A Low and Zero Carbon Development Section must be included within the Supporting Statement submitted as part of a planning application to demonstrate how this has been achieved. The information provided should be commensurate with the nature and scale of the proposed development."

106. In addition, it is considered that Policy 2 – Nature Protection, Restoration and Enhancement is relevant to the proposed Development. Policy 2 would require national, major and EIA developments to conserve and enhance biodiversity.

Supplementary Guidance

Statutory Planning Guidance - The Onshore Wind Energy Supplementary Guidance (2016) and its Addendum (2017)

107. The HwLDP includes Supplementary Guidance for specific planning matters. To provide guidance on onshore wind proposals, the OWESG was adopted in 2016 and its Addendum adopted in 2017.

Non-Statutory Planning Guidance

108. The Highland Council adopted the Biodiversity Planning Guidance on 2 May 2024. The Guidance is a non-statutory planning guidance that provides clarity regarding the necessary supporting information to demonstrate the conservation, restoration, and enhancement of biodiversity as required under NPF4. The revised guidance requires a minimum 10% biodiversity enhancement.

Emerging Policy

109. THC are in the process of gathering evidence for the new single Highland Local Development Plan (HLDP). The Plan is anticipated to come into effect around Q3 of 2027/2028 and will replace the current HwLDP and the three individual 'area' LDPs. THC is also in the process of gathering evidence and intends to prepare an Evidence Report towards the end of 2024. The status and weight of any emerging policy will be considered in the EIAR and separate planning statement.

3.4 National Planning Guidance

110. National planning guidance and advice prepared by the Scottish Government are relevant considerations to the proposed Development. Those which are considered to be most applicable to the proposed Development are listed below:

- PAN 50 Planning Advice Note 50: controlling the environmental effects of surface mineral workings (1996) provides advice on the environmental effects from mineral working operations.

- PAN 60 Planning for Natural Heritage (2000, paragraph 47 updated 14 January 2008) provides advice on planning for natural heritage.

- PAN 61 Sustainable Urban Drainage Systems (2001) provides advice on sustainable urban drainage systems.

- PAN 75 Planning for Transport (2005) aims to increase awareness of links between planning and transport management, through the integration of development plans and transport strategies to successfully create optimal transport outcomes and prospects for sustainable development.

- PAN 51 Planning, Environmental Protection and Regulation (Revised 2006) clarifies the role of the planning system in relation to environmental protection regimes.

- PAN 79 Water and Drainage (2006) provides advice on water and drainage in a planning context.

- PAN 1/2011 Planning and Noise (2011) outlines the role of the planning system in aiding the prevention/mitigation of any potential adverse effects of noise stemming from development. The document promotes the appropriate location of potentially noisy development and highlights the principles of good acoustic design.

- PAN 2/2011 Planning and Archaeology (2011) advises developers and planning authorities on dealing with archaeological remains and outlines the planning process approach to any archaeological scope of works.

- PAN 1/2013 Environmental Impact Assessment (as amended) (2013) outlines the role of local authorities and consultees throughout the EIA process, and the impact of development management on informing the EIA process.

- Onshore Wind Turbines: Planning Advice (2014) provides guidance for planning authorities when considering onshore wind farms.

- Flood risk: Planning Advice (2015) provides advice on flood risk in a planning context.

- Biodiversity: Draft Planning Guidance (2023) sets out expectation for implementing and delivering NPF4 policies, it is considered a 'living document' and it is intended to be updated as NPF4 is implemented across Scotland.

3.5 Questions and Conclusion

111. The proposed Development would be a valuable source of renewable energy at a time when renewable energy targets and climate change mitigation policy and the need to meet challenging target encourages its growth.

112. The environmental factors which will be detailed in the Planning and energy Policy Chapter of the EIAR include the applicable legislation, policy and guidance relevant to the assessments proposed to be undertaken as noted within **Sections 3.2** and **3.3** above. Can consultees please confirm if there is any other legislation, policy and guidance which is relevant and not listed within the Scoping Report?

113. The assessment of the proposed Development against these policies will be undertaken in a standalone Planning Statement, which is separate to the Environmental Impact Assessment Report, and will be submitted with the application.

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04.

Landscape and Visual

4. Landscape and Visual

4.1 Introduction

114. This chapter sets out the proposed approach to assessing the potential effects of the proposed Development on landscape and visual amenity during construction and operation of the proposed Development. The primary guidance for Landscape and Visual Impact Assessment (LVIA) is the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) (Landscape Institute and the Institute for Environmental Management and Assessment, 2013). The assessment will also draw upon good practice guidance issued by NatureScot and the Landscape Institute.

115. In accordance with GLVIA3, landscape and visual effects will be considered separately. GLVIA3 states that the nature of landscape and visual receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to change and the value attached to the existing landscape or views. The nature of the effect, commonly referred to as the magnitude of change, should be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered to form a judgement regarding the overall significance of landscape and visual effects.

116. The LVIA will consider direct and indirect effects on landscape resources, landscape character, and designated landscapes, as well as impacts on visual receptors (people). It will examine the nature and extent of effects arising from the introduction of the proposed turbines, as well as the ancillary infrastructure (i.e., access tracks, BESS, transformers, substation, etc.). The assessment will consider the potential short-term and long-term effects which may arise during the respective construction and operational phases of the proposed Development.

117. The LVIA will also consider cumulative effects (i.e., the effect of the proposed Development in a theoretical future baseline) which includes as yet unbuilt windfarm developments.

118. The LVIA will be undertaken by Chartered Landscape Architects (Chartered Members of the Landscape Institute (CMLI)) at LUC (Land Use Consultants Ltd.) with extensive experience in the design and assessment of large-scale onshore wind energy developments.

4.2 Consultation

119. An initial meeting with the NatureScot Renewable Energy Casework Advisor was undertaken on the 8th of August 2024, to discuss key landscape and visual considerations and the design evolution of Provisional Layout 2 (see Chapter 2) to minimise effects on the Dornoch Firth NSA to the north of the proposed Development.

120. Following submission of the Scoping Report, it is proposed that THC and NatureScot will be consulted further in relation to the approach and scope of the LVIA, including:

- The approach and scope of the LVIA, and in particular the approach to be adopted for the baseline and assessment of the repowering of the existing operational wind turbines;

- The final selection of assessment viewpoints (including night-time/hours of darkness views to illustrate visible aviation lighting);
- The scope of the cumulative assessment (including the other consented and proposed wind energy developments to be considered in the assessment);
- The assessment of effects on designated landscapes and wild land areas; and
- The assessment of effects of visible aviation lighting.

4.3 Study Area

121. In accordance with current NatureScot guidance (SNH, 2017a) in relation to turbines over 149.9 m to blade tip height, it is proposed that the initial Study Area for the LVIA will cover a radius of 45 km from the outermost turbines of the proposed Development in all directions, as shown in **Figure 4.1**. The primary focus of the LVIA will be on the assessment of potential significant landscape and visual effects, and as such a more focused study area will be determined through analysis of Zone of Theoretical Visibility (ZTV) mapping as the design of the proposed Development progresses.

122. The 45 km blade tip height (180 m) ZTV (see **Figure 4.2a**) indicates that theoretical visibility within 5 km of the proposed Development is focused on elevated terrain surrounding the Site and extending to the upper reaches of Strath Rusdale to the south. Between 5 – 10 km, theoretical visibility is often subject to screening by intervening landform, though it extends to the Dornoch Firth and the settlement of Bonar Bridge to the north; forested hills in the vicinity of Strath Rory to the east; elevated terrain between Loch More and Loch Glass to the south; and the Corbett summit of Carn Chuinneag to the west.

123. Beyond 10 km, theoretical visibility is focused primarily from elevated terrain surrounding Invershin, and extending north along Achany Glen to moorland and rounded hills east of Loch Shin. To the north-east through south-east, relatively extensive theoretical visibility is indicated from the Dornoch Firth, the Cromarty Firth and Black Isle, and more distantly, the Moray Coast. Theoretical visibility of the proposed Development in the southern and western extents of the Study Area is limited due to intervening hill summits.

4.4 Data sources to Inform the EIA baseline characterisation

124. The following sources of information have informed the proposed scope of the assessment:

- Ordnance Survey (OS) base mapping at 1:50,000 scale for the 45 km Study Area and OS base mapping at 1:25,000 scale for the detailed assessment of effects and viewpoint location maps. OS AddressBase data will be used to identify any residential properties within 2.5 km of the nearest wind turbines of the proposed Development;
- NatureScot digital map-based national Landscape Character Types (NatureScot, 2019). This will be augmented by survey work to evaluate baseline conditions and assess potential effects;

- NatureScot's publication *The special qualities of the National Scenic Areas* (NSA) (Commissioned Report No.374) (NatureScot, 2010) will be used to consider the baseline conditions and special qualities of the Dornoch Firth NSA. This will be augmented by survey work to further evaluate the relevant special qualities of the NSA and assess potential effects;

- NatureScot's Wild Land Areas (WLAs) map and descriptions (NatureScot, 2014) will be used to understand the sensitivity of WLAs to the proposed Development and undertake a preliminary analysis; and

- THC's Assessment of Highland Special Landscape Areas (SLAs) (NatureScot, 2011) will be used to describe and consider the special qualities of locally designated SLAs. This will be augmented by survey work to further evaluate baseline conditions and assess potential effects.

4.5 Surveys to Inform the EIA Baseline Characterisation

125. Initial feasibility work was undertaken by LUC between June and November 2024 which revisited the original turbine layout designs for the repowering of the Site, whilst also exploring options for potential extension of the Site into land which had become available to the west. This involved a desk-based survey of the proposed Study Area, and fieldwork undertaken by Chartered Landscape Architects experienced in onshore windfarm design and assessment, including for projects within the Highland Council local authority area. . This survey work, in addition to production of Zone of Theoretical Visibility (ZTV) mapping and initial wireline visualisations, has informed the proposed scope of the assessment and the selection of the proposed assessment viewpoints.

4.5.1 Zone of Theoretical Visibility (ZTV)

126. Zone of Theoretical Visibility (ZTV) maps have been used to identify which landscape and visual receptors within the Study Area require further consideration in the assessment. Landscape and visual receptors which are unlikely to experience any or very limited theoretical visibility of the proposed Development will be scoped out of the assessment. The following figures are provided to illustrate the theoretical visibility of the proposed Development scoping layout:

- **Figure 4.2a**: Blade Tip Height ZTV (180 m) and Visual Receptors, including suggested viewpoint locations – 45 km.

- **Figure 4.2b**: Blade Tip Height ZTV (180 m) and Visual Receptors, including suggested viewpoint locations – 20 km.

- **Figure 4.3a**: Hub Height ZTV (99 m) and Visual Receptors, including suggested viewpoint locations – 45 km.

- **Figure 4.3b**: Hub Height ZTV (99 m) and Visual Receptors, including suggested viewpoint locations – 20 km.

- **Figure 4.4a**: Blade Tip Height ZTV (180 m) and Landscape Character Types (LCTs) – 45 km.
- **Figure 4.4b**: Blade Tip Height ZTV (180 m) and Landscape Character Types (LCTs) – 20 km.
- **Figure 4.5a**: Blade Tip Height ZTV (180 m) and Designated Landscapes and Wild Land – 45 km.
- **Figure 4.5b**: Blade Tip Height ZTV (180 m) and Designated Landscapes and Wild Land – 20 km.
- **Figure 4.6a**: Comparative Blade Tip Height ZTV - Beinn Tharsuinn (80 m) vs Beinn Tharsuinn Repowering and Western Extension (180m), Designated Landscapes & Wild Land – 45 km.
- **Figure 4.6b**: Comparative Blade Tip Height ZTV - Beinn Tharsuinn (80 m) vs Beinn Tharsuinn Repowering and Western Extension (180m), Designated Landscapes & Wild Land – 20 km.

4.6 Baseline Conditions

127. The Site is located at the eastern edge of the uplands of Easter Ross, rising to the south of the inner Dornoch Firth and to the north of the narrow, upper reaches of Strath Rusdale. The Site is located within the administrative boundary of THC, approximately 8 km south of Bonar Bridge, and 9 km north, north-west of Alness. The Site is described in detail in **Chapter 2**.

128. The Site encompasses the broad summit plateau and north-eastern slopes of the Beinn Tharsuinn (692 m AOD) massif, including the subsidiary summits of Meall Meadhonach (533 m AOD), Meall a' Bhreacain (527 m AOD), and Beinn nan Oighrean (538 m AOD). The eastern extent of the Site drops steeply in elevation from these summits towards the B9176, which defines its eastern boundary at approximately 200 m AOD. The western extent of the Site occupies a lower-lying basin to the west and north-west of the Beinn Tharsuinn massif before rising to the summit of Meall Bhennet (531 m AOD), which encloses this basin to the west and defines the western boundary of the Site.

129. Landcover at the Site is open upland moorland, with the exception of a small area of coniferous forestry adjacent to the lower reaches of the Allt Coire na Cloiche. A number of incised watercourses are present within the Site, draining from the Beinn Tharsuinn massif, east to the Strathrory River, and north to the Easter Fearn Burn. In the western extent of the Site, a number of watercourses converge within the lower-lying basin and drain north to the Wester Fearn Burn.

130. Man made elements within the Site include the access tracks, wind turbines, and ancillary infrastructure of the operational Beinn Tharsuinn Windfarm (17 turbines at 80 m blade tip height), and the adjacent Beinn nan Oighrean Windfarm (2 turbines at 99.5 m blade tip height) which are accessed from the east via the B9176. Coire na Cloiche Windfarm (13 turbines at 99.5 m blade tip height) is located immediately adjacent to the southern boundary of the Site and is also accessed via the operational Beinn Tharsuinn Windfarm site via the B9176. The under construction Strathrory Windfarm is located approximately 3 km to the south-east of the

proposed Development in the upper reaches of Strath Rory, upslope from parallel 132 kV and 275 kV steel lattice tower transmission lines which pass through the Site where it meets the B9176.

131. To the west and south-west of the Site, there are extensive areas of rounded hills and moorland slopes, punctuated by notable mountain massifs such as Ben Wyvis, Beinn Dearg, and the Fannichs. These remote upland areas extend north-west to Assynt, west to Torridon, and south-west to the Central Highlands, and are interspersed with wide straths, remote glens, lochs, and reservoirs such as Loch Glass, Loch Vaich, Loch Glascarnoch, and Loch Fannich. The area to the west and south-west of the Study Area is largely uninhabited with the main transport routes being the A835 Inverness - Ullapool Road, and the A832, which travels west to Achnasheen via Loch Luichart. A number of operational windfarms occupy elevated moorland between these two roads.

132. To the north of the Site, the terrain drops to the inner Dornoch Firth and Strathcarron. The coastline of the Dornoch Firth is well-settled and includes the A9 and Far North Line (Inverness to Thurso railway line), which follow the coastal shelf. The Firth is crossed at two locations, with the main crossing being in the east where the A9 crosses via the Dornoch Firth bridge and a secondary land crossing to the west at Bonar Bridge, which is the main settlement in the Study Area to the north of the Site. Beyond the more populated straths, such as Strath Oykel, Strath Fleet, and Strath Tirry, the northern extent of the Study Area is largely characterised by extensive areas of rounded hills, moorland, and coniferous forestry in Sutherland which in some places, hosts operational windfarms, including to the east and west of Achany Glen. The north-eastern extent of the Study Area is largely coastal in nature, including the outer Dornoch Firth and the coastal settlements of Dornoch, Golspie, and Brora, along the route of the A9.

133. To the east of Site, the terrain slopes down to smaller hills and large areas of coniferous forestry that extend as far as the western fringes of Tain, which is the main settlement to the south of the Dornoch Firth. East of Tain and the A9, the Easter Ross peninsula is a low-lying plain of undulating farmland which, with the exception of the coastal settlements of Tain, Portmahomack and Balintore, is characterised by a small-scale settlement pattern of scattered farmsteads and hamlets. The south-east of the peninsula is influenced by the fabrication yard at Nigg, and the hilly promontory of North Sutor is a local landmark that, along with South Sutor, marks the entrance to the Cromarty Firth where floating oil platforms and offshore windfarm components are commonly visible.

134. To the south and south-east of the Site, there are large areas of coniferous forestry at the head of Strath Rusdale, Strath Rory, and to the north of Alness. The northern side of the Cromarty Firth is well-settled with the main settlements being Alness, Invergordon and Dingwall. Across the Cromarty Firth, the Black Isle is characterised by open farmed slopes and scattered settlement along its north-western coastline, with a large tract of coniferous forestry inland at Millbuie, where the Mount Eagle transmitter is a notable landmark including during hours of darkness owing to the installed visible aviation warning lights.

135. Between Dingwall and Inverness, the land is relatively low-lying and fertile with a denser settlement pattern. Transport infrastructure is more evident and larger scale in this area with the A9 being a key route, with several A roads converging at Muir of Ord at the head of the Beauly Firth. Inverness is the main settlement of the wider Study Area and of the Highlands. The coastal shelf to the north-east of Inverness is well-settled and contains the A96, which is the main route between Inverness and Aberdeen, the Inverness to Aberdeen railway line, and Inverness Airport. The settlement of Nairn is a key settlement to the east of Inverness. The Inner Moray Firth area is busy with settlement and infrastructure including transmission lines on lattice pylons which are

particularly evident at Balblair to the south-west of Beauly where several overhead lines converge from the north and east.

4.6.1 Landscape Character Context

136. The majority of the Site lies within the NatureScot Landscape Character Type (LCT) 330: Rounded Hills and Moorland Slopes – Ross and Cromarty (NatureScot, 2019a). Key characteristics include:

- "Broad, rounded hills and upland moorlands with smooth, gentle slopes down to broad straths, creating an undulating skyline;
- Occurs in a large tract which weaves around and between the adjoining Rounded Mountain Massif and Rugged Mountain Massif – Ross & Cromarty and unifies the mountain groups;
- Large areas of uniform moorland vegetation with occasional surface detail of rivers, lochs, riparian woodland, woodland patches, and regenerating trees;
- Large coniferous forests on accessible lower slopes;
- Broad straths with natural, meandering rivers and occasionally highlighted by green, unenclosed, improved pastures and riparian trees;
- Occasional major trunk roads curve through the lowest major straths, with very little associated service development;
- Small groups of mainly traditional buildings around road junctions and at rail stations;
- Man-made structures of pylons, wind farms and reservoirs occur as occasional features within a large scale landscape;
- Many archaeological features on lower ground from prehistoric, medieval and later periods; and
- Large, remote interior areas of vast scale with wildness characteristics."

137. The north-western extent of the Site is located within LCT 135: Rounded Hills – Caithness and Sutherland (NatureScot, 2019b) which though broadly contiguous with LCT 330 in terms of character, is generally lower in elevation and comprises the majority of the northern extent of the Study Area. Key characteristics include:

- "Rolling hills forming broad, subtly rounded summits but with some more pronounced hills also occurring, these often featuring steeper slopes along the coast or where truncated by deep glens;
- Hills cut by numerous narrow burns and small lochans lie within dips, corries and on plateau summits;

- Predominantly dense heather ground cover and moorland grasses, but also some areas of bog;
- Fragments of broadleaf woodland in inaccessible locations;
- Scarcely settled with a largely uninhabited interior and widely scattered crofts and farms on lower slopes adjoining straths and farmed landscapes;
- Narrow glens and lower hill slopes often rich in archaeology with features such as standing stones, brochs and medieval townships;
- Wind farms located in more accessible and generally lower rolling hills, either close to extensive forestry or the high voltage transmission line aligned broadly parallel to the south-east Sutherland coast;
- Convex character of hill slopes limiting distant visibility and views of the hill tops when travelling through the landscape;
- Views into the interior of the hills very restricted; and
- Strong sense of wild character can be experienced within the more remote and little modified parts of this landscape."

138. In closer proximity to the Site, lower-lying LCTs include LCT: 339 – Inland Strath (NatureScot, 2019c), comprising Strath Rusdale, and LCT 341: Forest Edge Farming (NatureScot, 2019d), which marks the transition between the uplands of the host LCT 330, and the lowlands of Easter Ross peninsula and Cromarty Firth.

139. The LVIA will consider the potential for direct effects on LCT 330 and 135 as well as indirect effects upon LCTs in the Study Area within a c.20 km radius of the proposed Development, from where theoretical visibility is indicated by ZTV mapping. Where multiple units of an LCT are present within 20 km of the proposed Development, these will be defined and assessed as individual units in the LVIA where appropriate. LCTs within the 45 km Study Area are shown on **Figure 4.4a**, with those within 20 km shown on **Figure 4.2b** and listed in **Table 4.1**.

Table 4.1: LCTs within 20 km Scoped In/Out

LCT	Approximate Distance to Nearest Turbine (km)	Scoped In/Out of Assessment
Rounded Hills and Moorland Slopes – Ross & Cromarty (330)	Host LCT	Host LCT. To be **considered within the assessment**.
Rounded Hills – Caithness and Sutherland (135)	Host LCT	Host LCT. To be **considered within the assessment**.

LCT	Approximate Distance to Nearest Turbine (km)	Scoped In/Out of Assessment
Inland Strath (339)	1.8	Theoretical visibility of between 8 to 16 turbines indicated from the majority of the LCT in Strath Rusdale within 1.8 - 5 km. To be **considered within the assessment**.
Rugged Mountain Massif – Caithness & Sutherland (139)	4.1	Variable theoretical visibility indicated from localised areas of the LCT within 4.1 – 20 km. Operational windfarms are an existing feature in elevated, outward views from the LCT. **Not considered further**.
Forest Edge Farming (341)	5.2	Theoretical visibility of between 8 to 16 turbines indicated from localised areas of LCT unit to the south, and more extensive theoretical visibility across LCT unit to the west, within 4.4 – 15 km. Actual visibility will be reduced due to extensive coniferous forestry within the LCT. To be **considered within the assessment**.
Rounded Mountain Massif (329)	4.8	Theoretical visibility of up to 31 turbines indicated from LCT units to the west and LCT unit to the south-west, within 4.8 – 20 km. To be **considered within the assessment**.
Farmed and Forested Slopes with Crofting (145)	6	Variable theoretical visibility indicated from parts of the LCT within 6 – 20 km, including up to 31 turbines in the vicinity of Bonar Bridge. To be **considered within the assessment**.
Strath – Caithness & Sutherland (142)	6.2	Variable theoretical visibility indicated from parts of the LCT within 6.2 – 15 km, including up to 31 turbines in the vicinity of Invershin, Drumliah, and Ardgay. Outward views from the LCT extend across the Kyle of Sutherland and inner Dornoch Firth towards the Site. To be **considered within the assessment**.
Farmed and Forested Slopes – Ross & Cromarty (345)	7.7	Theoretical visibility of between 8 to 16 turbines indicated from localised areas of the LCT within 7.7 – 15 km. Actual visibility will be reduced by buildings, infrastructure and coniferous forestry within the LCT and the adjacent LCT 341 – Forest Edge Farming. **Not considered further.**
Coastal Shelf (343)	9	Theoretical visibility of between 8 to 16 turbines indicated from much of the LCT within 9 – 20 km. Outward views from the LCT are focused across the Dornoch Firth, away from the Site. **Not considered further.**
Coastal Farmland & Woodlands	9.5	Theoretical visibility of between 8 to 16 turbines indicated from much of the LCT within 9.5 – 20 km. Outward views from the LCT extend across the Dornoch Firth towards the Site. To be **considered within the assessment**.
Sandy Beaches and Dunes (140)	11.8	Theoretical visibility of between 8 to 16 turbines indicated from much of the LCT within 11.8 – 20 km. Outward views from the LCT extend across the Dornoch Firth towards the Site. To be **considered within the assessment**.
Open Farmed Slopes (346)	14.8	Theoretical visibility of between 8 to 16 turbines indicated from parts of the LCT in western extent of

LCT	Approximate Distance to Nearest Turbine (km)	Scoped In/Out of Assessment
		the Black Isle, within 14.8 – 20 km. Majority of LCT located beyond 20 km. **Not considered further.**
Lowland Farmed Plain – Ross & Cromarty (344)	15.8	Theoretical visibility of between 8 to 16 turbines indicated from parts of the western extent of the LCT within 15.8 – 20 km. Majority of LCT located beyond 20 km. **Not considered further.**

4.6.2 Designated Landscapes

140. The Site is not located within any nationally or locally designated landscapes.

141. There are a number of designated landscapes within the Study Area, including NSAs and SLAs. Given the relatively close proximity of some of these designated landscapes, and the extent of theoretical visibility of the proposed Development indicated from them by the ZTV shown on **Figure 4.5a** and **Figure 4.5b**, an assessment of potential effects on specific relevant special qualities or the overall integrity of the designated landscapes will be included in the LVIA.

142. As for LCTs, theoretical inter-visibility with the proposed Development will be described in the LVIA and used as a means of identifying which designated landscapes require further consideration and assessment in respect of their defined special qualities and characteristics. However, as distance from the proposed Development increases, significant effects on the special qualities of the designated landscapes are less likely to occur.

143. Nationally and locally designated landscapes located within the Study Area and an indication of theoretical visibility from these designated areas are listed in **Table 4.2** and shown on **Figure 4.5a** and **Figure 4.5b**. A cumulative ZTV (CZTV) of the operational Beinn Tharsuinn Windfarm and the proposed Beinn Tharsuinn Repowering and Western Extension is shown on **Figure 4.6a** and **Figure 4.6b**.

Table 4.2: Designated Landscapes within Study Area Scoped In/Out

Designated Landscape	Approximate Distance to Nearest Turbine (km)	Scoped In/Out of Assessment
Dornoch Firth NSA	4.1	Variable theoretical visibility indicated across NSA within 4.1 – 28 km, including up to 31 turbines in the vicinity of Swordale and Migdale. To be **considered within the assessment**.
Assynt - Coigach NSA	38	Theoretical visibility indicated from localised areas of elevated terrain within the NSA, approximately 38 km to the north-west. **Not considered further.**
Glen Strathfarrar NSA	44	No theoretical visibility indicated from NSA, approximately 44 km to the south-west. **Not considered further.**

Designated Landscape	Approximate Distance to Nearest Turbine (km)	Scoped In/Out of Assessment
Beinn Dearg and Glencalvie SLA	7.5	Theoretical visibility of up to 31 turbines indicated from localised areas of elevated terrain within the SLA, primarily between 15 – 30 km to the west and south-west. To be **considered within the assessment**.
Ben Wyvis SLA	9.8	Theoretical visibility of up to 31 turbines indicated from elevated terrain within the SLA, including the summit of Ben Wyvis, within 11 – 16 km to the south-west. To be **considered within the assessment**.
Loch Fleet, Loch Brora and Glen Loth SLA	19.5	Theoretical visibility of up to 31 turbines indicated from elevated terrain, and up to 16 and 24 turbine blades from offshore waters within the SLA, approximately 24 – 45 km to the north-east. **Not considered further.**
Sutors of Cromarty, Rosemarkie and Fort George SLA	21.5	Theoretical visibility of up to 8 turbines indicated from farmland and offshore waters in the vicinity of the Sutors of Cromarty, beyond 20 km to the south-east. **Not considered further**.

4.6.3 Wild Land Areas

144. Scotland's 42 Wild Land Areas (WLA) are areas identified by NatureScot in 2014, where qualities and characteristics of wildness such as remoteness and naturalness are considered to be most extensively expressed (NatureScot, 2019). While WLAs are not a statutory designation, NPF4 states that any development proposed within a WLA must be accompanied by a wild land impact assessment. With regard to development proposals located outside of WLAs, NPF4 states that *"Buffer zones around wild land will not be applied, and effects of development outwith wild land areas will not be a significant consideration."* (Scottish Government, 2024).

145. WLAs located within the Study Area include:

- Rhiddoroch – Beinn Dearg – Ben Wyvis WLA 29, approximately 2.5 km to the west of the proposed Development at its closest point;
- Ben Klibreck – Armine Forest WLA 35, approximately 30.5 km to the north-east of the proposed Development at its closest point;
- Reay – Cassley WLA 34, approximately 25 km to the north-west of the proposed Development;
- Fisherfield – Letterewe – Fannichs WLA 28, approximately 27.5 km to the south-west of the proposed Development; and
- Central Highlands WLA 24, approximately 32 km to the south-west of the proposed Development.

146. Though a very small proportion of the western extent of the Site is located within the Rhiddoroch – Beinn Dearg – Ben Wyvis WLA 29, the proposed Development itself is located

outside of the WLA. As such, while potential effects on relevant LCTs (see **Table 4.1**) and SLAs (see **Table 4.2**) within WLA 29 will be considered in the LVIA, potential effects on the wild land characteristics and attributes of the WLA, as well as others in the Study Area noted above, will not be considered separately in the context of a Wild Land Impact Assessment. WLAs are shown overlaid with the ZTV on **Figure 4.5a** and **Figure 4.5b**, and the CZTV on **Figure 4.6a** and **Figure 4.6b** for reference.

4.6.4 Visual Amenity

147. Visual receptors to be considered will include:

- Local residents, in respect of settlements, scattered communities and individual residential properties (where relevant);
- People travelling on major roads and railways;
- People using promoted walking routes and cycle routes; and
- People visiting areas of interest such as visitor attractions, promoted scenic viewpoints, and hill summits.

148. The Site is located in a relatively unfrequented area of upland moorland and hill summits, north of the sparsely-settled wooded strath of Strath Rusdale. With the exception of recreational receptors at hill summits, the majority of visual receptors within the 45 km Study Area are concentrated in the vicinity of the Dornoch Firth, Easter Ross peninsula, and Cromarty Firth to the north through south-east.

149. While visual receptors will be considered across the 45 km Study Area, the assessment of visual effects on settlements and sequential effects from key routes (such as main transport corridors and promoted walking trails) will focus on receptors within 20 km, with actual visibility of the proposed Development. Beyond 20 km from the proposed Development, significant visual effects are considered unlikely to occur.

150. Key settlements within 20 km of the proposed Development include Ardgay, Bonar Bridge and Invershin to the north; Edderton and Dornoch to the north-east; Tain to the east; and Evanton, Alness and Invergordon to the south and south-east. In closer proximity to the proposed Development, scattered properties are located in Strath Rusdale, and the valley of the River Averon (Alness River) to the south and south-east.

151. Key transportation routes within 20 km of the proposed Development include the A836 and A949, which traverse the northern and southern coastlines of the Dornoch Firth respectively. The A9 crosses the Cromarty Firth to the south of the proposed Development before traversing the western coastline of the Cromarty Firth and crossing the Dornoch Firth north of Tain. The B9176, part of the Moray Firth Tourist Route, passes within 5 km of the proposed Development to the east. Local roads occur mainly to the east and west of the A9, traversing the farmed lowlands of Easter Ross. The route of the North Coast 500 passes within 12.5 km to the south-east of the proposed Development near Alness. The Far North Line follows the route of the A9 to Tain, before traversing the southern coastline of the Dornoch Firth adjacent to the A836.

152. The John O'Groats Trail long distance walking route follows a minor road between Alness and Tain, passing within 10.5 km of the proposed Development to the south-east, as does National Cycle Network (NCN) Route 1, before meeting the A836 at Tain.

153. There is a network of Core Paths within 10 km of the proposed Development, mainly in the vicinity of Ardross to the south; Tain and Edderton to the north-east; and Ardgay and Bonar Bridge to the north. There are also Core Paths in Strath Rory and Morangie Forest to the east of the proposed Development.

154. There are many hills, including Corbett and Munro hill summits, which are popular with hill walkers and other recreational users e.g., mountain bikers within the Study Area. This includes the Corbett hill summit of Carn Chuinneag within 10 km to the west of the proposed Development, the prominent and accessible Munro hill summit of Ben Wyvis within 20 km to the south-west of the proposed Development, and the more remote Beinn Dearg and Fannichs Munros between 30 km and 40 km to the west of the proposed Development.

4.6.5 Other Developments

155. The pattern of existing windfarm development in the Study Area comprises discrete clusters of development in the remote and elevated plateau landscapes of Easter Ross and Sutherland, generally found to the north and west of the Site.

156. The operational Beinn Tharsuinn Windfarm (17 turbines at 80 m blade tip height) and Beinn nan Oighrean (2 turbines at 99.5 m blade tip height)[3] are located within the Site. The operational Coire na Cloiche Windfarm (13 turbines at 99.5 m blade tip height) is located adjacent to the Site, while the consented Strathrory Windfarm (7 turbines at 180 m blade tip height) is located within 5 km to the south-east.

157. The operational cluster of Novar Phase 1 Windfarm (33 turbines at 55.5 m blade tip height) and Novar Phase 2 Windfarm (16 turbines at 106 m blade tip height) are located on upland moorland approximately 8 km to the south-west, east of Loch Glass.

158. Development approximately 20 – 30km to the north and north-west of the Site above Strathcarron and the inner Dornoch Firth is similarly located on upland moorland areas, and includes the operational Rosehall Windfarm (19 turbines at 90 m blade tip height), Achany Windfarm (19 turbines at 102 m blade tip height), and Lairg Windfarm (3 turbines at 99.5 m blade tip height). A number of consented schemes will extend the influence of this cluster in the future, including Achany Extension (18 turbines at 149.9 m blade tip height), Lairg II (10 turbines at 200 m blade tip height), and Meall Buidhe (8 turbines at 149.9 m blade tip height).

159. In addition to other windfarm developments, there are several existing and proposed energy infrastructure developments located within the Study Area, and the immediate context of the Site. Potential cumulative landscape and visual effects arising in combination with these other existing, consented and proposed developments will be considered in the LVIA, focused on those developments which may give rise to significant cumulative effects.

[3] *It is understood that the operational turbines of this scheme will be retained following decommissioning and repowering of the operational Bein Tharsuinn Windfarm*

160. There are two overhead transmission lines which cross the proposed site access which and comprise of a 275kV OHL which runs between the Fyrish and Loch Buidhe substations and a 132kV OHL which runs between the Beauly and Shin substations.

161. SSEN Transmission are also proposing to build a new 400 kV transmission line between Beauly and Spittal by 2030. SSEN Transmission has submitted a Scoping Report (ECU00006008) to the ECU and Section D of the route is currently proposed to cross through the west of the Site (the Western Extension).

162. In addition, ScottishPower Energy Retail Ltd as submitted a proposed for a hydrogen production and storage facility at a location along the existing Beinn Tharsuinn Windfarm access track (23/05242/FUL).

163. Other developments within the 45 km Study Area are shown on **Figure 4.7** and listed in **Table 2.2**, with an indication of status at the time of writing.

4.7 Mitigation

164. The main effects on landscape and visual receptors arising from the proposed Development would be as a result of the physical impacts of construction within the Site and the change in views across the Study Area due to the introduction of the proposed wind turbines.

165. The primary form of mitigation for landscape and visual effects arising from large scale windfarm development is through iterative design of the layout of the proposed turbines and associated infrastructure, with reference to key views and visual receptors. In line with guidance provided by NatureScot (SNH, 2017b), the design of the proposed Development will aim to achieve a coherent and balanced turbine layout that seeks to respond to its landscape setting, and which presents a simple visual image. Design evolution will be set out in detail in the design strategy that will form part of the EIAR and will demonstrate how the design of the proposed Development has sought to avoid, reduce or minimise landscape and visual effects wherever feasible, and in balance with a range of other technical and environmental considerations.

166. All elements of the infrastructure will be considered in terms of locational and design choice, and the LVIA will set out how the design of ancillary elements has evolved to minimise visual effects, especially from nearby and sensitive visual receptors.

167. THC Onshore Wind Energy Supplementary Guidance (THC, 2016a) includes ten landscape and visual criteria against which development proposals will be assessed by the Council. These criteria will be considered as part of the iterative EIA process and during the refinement of the layout of the proposed Development.

4.8 Description of Likely Significant Effects

4.8.1 Construction

168. During construction, there would be the potential for significant effects on landscape fabric and landscape character within the Site, resulting from the creation of new access tracks; excavation and creation of turbine foundations; excavation of borrow pits; creation of a temporary construction compound/s; activities associated with construction of the transformer/ switchgear housings, control building, substation and battery energy storage

system; and removal of existing wind turbines and erection of the proposed wind turbines. However, it is noted that landscape character within the Site and the surrounding area has already been altered by the presence of the operational windfarms of Beinn Tharsuinn, Beinn nan Oighrean, and Coire na Cloiche, and will be subject to further change as a consequence of Strathrory Windfarm, which is now under construction.

169. Construction effects would be of short duration, occurring over a limited geographical area.

4.8.2 Operation

170. During operation, likely significant effects would result from the presence of the wind turbines and transformers, BESS, control building, substation, access tracks and other permanent ancillary development associated with the proposed Development, noting that the existing baseline includes operational wind turbines at Beinn Tharsuinn, Beinn nan Oighrean, and Coire na Cloiche Windfarms.

171. The proposed Development would lead to direct and indirect effects on landscape character, and indirect effects on designated landscapes within the Study Area. The introduction of the proposed Development would lead to changes in views seen by visual receptors within the Study Area, as indicated by the ZTV shown on Figure 4.3a and Figure 4.3b.

4.9 Receptors/matters to be scoped into further assessment

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

173. The assessment will identify landscape and visual effects separately, as detailed in the approach to the assessment set out herein, and will set out any implications of these effects on designated landscapes. The assessment will focus on the identification and, wherever appropriate, the mitigation of potential significant landscape and visual effects.

174. At this preliminary stage, potential landscape, and visual effects, including cumulative effects, associated with the construction and/or operation of the proposed Development include:

Landscape Effects

- Effects on the landscape resource of the Site during construction and operation;
- Effects on the host Rounded Hills and Moorland Slopes - Ross & Cromarty (LCT 330) and the host Rounded Hills – Caithness & Sutherland (LCT 135), as well as other LCTs within a 20 km radius where there may be potential for significant effects during operation (including cumulative effects and night-time effects where relevant);
- Effects on the special qualities of the Dornoch Firth NSA where there is the potential for significant effects during operation (including cumulative effects and night-time/hours of darkness effects where relevant); and

- Effects on the special qualities of the Ben Wyvis SLA, and Fannichs, Beinn Dearg and Glencalvie SLA, where there is the potential for significant effects during operation (including cumulative effects and night-time/hours of darkness effects where relevant).

Visual Effects

- Effects on people (visual receptors) in settlements within 20 km of the proposed Development, including Bonar Bridge, where theoretical visibility is indicated by ZTV mapping (including cumulative effects and night-time/hours of darkness effects where relevant);

- Effects on people travelling on major roads and railways and the minor road network within 20 km of the proposed Development during operation, including the A9 (North Coast (NC) 500), A949, A836, B9176 and the Far North Line railway line (including cumulative effects and night-time/hours of darkness effects where relevant);

- Effects on people using walking routes and cycle routes within 20 km of the proposed Development during operation, including NCN Route 1: North Sea Cycle Route, and the John o' Groats Trail (including cumulative effects and night-time/hours of darkness effects where relevant);

- Effects on people using Core Paths within 10 km of the proposed Development during operation (including cumulative effects and night-time/hours of darkness effects where relevant); and

- Effects on people visiting areas of interest such as visitor attractions and scenic viewpoints within approximately 20 km of the proposed Development during operation (including cumulative effects and night-time/hours of darkness effects where relevant).

4.10 Receptors/matters to be scoped out of further assessment

175. Based on the baseline conditions, distance from the proposed Development, and ZTV analysis, it is proposed that the following effects are scoped out:

Landscape Effects

- Effects on landscape fabric and landscape character within the host LCTs during construction (including cumulative effects) given the transient nature of effects;

- Effects on LCTs (including cumulative effects and night-time/hours of darkness effects) beyond a 20 km radius of the proposed Development during construction and operation, or where little or no theoretical visibility is indicated;

- With the exception of the Dornoch Firth NSA, effects on all NSAs (including cumulative effects and night-time/hours of darkness effects) within the Study Area during construction and operation, due to intervening distance and limited theoretical visibility;

- With the exception of the Ben Wyvis SLA, and the Fannichs, Beinn Dearg and Glencalvie SLA, effects on all SLAs (including cumulative effects and night-time/hours of darkness effects) within the Study Area during construction and operation;

- Effects on all WLAs within the Study Area during construction and operation (including cumulative effects and night-time/hours of darkness effects) due to the location of the proposed Development outside of WLAs (with reference to Policy 4g of NPF4); and

- Night-time/hours of darkness effects (including cumulative effects) on landscape character and landscape designations beyond 20 km of the proposed Development during construction and operation.

Visual Effects

- Effects on visual amenity during construction (including cumulative effects) given their transient nature;

- Effects on the residential visual amenity of properties within 2.5 km of the proposed Development during construction and operation (including cumulative effects), due to very limited theoretical visibility of the proposed Development (see section **4.12.6**):

- Effects on settlements and routes beyond 20 km of the proposed Development during construction and operation (including cumulative effects); and

- Night-time/hours of darkness effects on visual amenity beyond 20 km of the proposed Development during construction and operation (including cumulative effects).

4.11 Opportunities for Enhancing the Environment

176. At this stage, there are no known landscape and visual enhancement opportunities which are intended to be considered within the EIAR, however, any proposed biodiversity enhancement measures with the potential to enhance existing landscape character or views will be considered within the LVIA.

4.12 Proposed Assessment Methodology

4.12.1 Guidance

177. The primary guidance for LVIA is the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3). In accordance with GLVIA3, landscape and visual effects will be considered separately. The assessment will also draw upon good practice guidance issued by NatureScot, THC, and the Landscape Institute.

178. The proposed Development comprises the Re-powered Beinn Tharsuinn Windfarm as well as extension in the western extent of the Site. To recognise the mutual exclusivity of the operational Beinn Tharsuinn Windfarm and the proposed Development, and in accordance with

evolving NatureScot guidance on repowering windfarms (NatureScot, 2024b), the proposed Development will be assessed against two different baseline scenarios: a 'comparative' baseline4 and a 'restored' baseline.5 The LVIA will consider both of these scenarios throughout the detailed assessment of effects on landscape and visual receptors.

179. The following guidance will be referred to where appropriate:

- Civil Aviation Authority (2016) CAA Policy and Guidelines on Wind Turbines CAP 764;
- Scottish Government (2024) National Planning Framework 4;
- Scottish Government and NatureScot (2024) Guidance on Aviation Lighting Impact Assessment;
- Landscape Institute (LI) and the Institute for Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA 3);
- Landscape Institute (2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals;
- Landscape Institute (2019) Technical Guidance Note 02/19 Residential Visual Amenity Assessment;
- Landscape Institute (2021) Technical Guidance Note 02/21 Assessing landscape value outside national designations;
- Landscape Institute (2024) Technical Guidance Note 01/24 Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3);
- NatureScot (2019) Scottish Landscape Character Types Map and Descriptions;
- NatureScot (2019a) National Landscape Character Assessment LCT 330: Rounded Hills and Moorland Slopes – Ross & Cromarty;
- NatureScot (2019b) National Landscape Character Assessment LCT 135: Rounded Hills – Caithness and Sutherland;

[4] The comparative baseline scenario assumes the presence of Beinn Tharsuinn Windfarm as a baseline feature, as it currently occupies the Site and is a physical element of the landscape seen in views. The assessment of effects under this scenario will consider the effects of the proposed Development in comparison to the operational Beinn Tharsuinn Windfarm.

[5] The restored baseline scenario assumes that Beinn Tharsuinn Windfarm has been decommissioned and the Site restored, so that the proposed Development will be added to the Site without consideration of the baseline presence of the wind turbines of Beinn Tharsuinn Windfarm (although the majority of the access track infrastructure would remain in place for reuse). The assessment of effects under this scenario will consider the effects arising from the introduction of the proposed Development to a baseline within the Site, which excludes Beinn Tharsuinn Windfarm. However, the operational wind turbines of Beinn nan Oighrean and Coire na Cloiche Windfarm within and adjacent to the Site respectively, will be considered to be present under this scenario.

- NatureScot (2019c) National Landscape Character Assessment LCT: 339 – Inland Strath;
- NatureScot (2019d) National Landscape Character Assessment LCT 341: Forest Edge Farming;
- NatureScot (2020, revised August 2023) Assessing impacts on Wild Land Areas - technical guidance;
- NatureScot (2021) Assessing the cumulative landscape and visual impact of onshore wind energy developments;
- NatureScot (2024a) Guidance for Assessment of Effects on Special Landscape Qualities (AESLQ) - draft;
- NatureScot (2024b) pre-application guidance for onshore wind farms;
- Scottish Natural Heritage (2010) The special qualities of the National Scenic Areas;
- Scottish Natural Heritage (2017) Visual Representation of Windfarms (Version 2.2);
- Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape. Version 3a;
- The Highland Council (2011) Assessment of Highland Special Landscape Area;
- The Highland Council (2016a) Onshore Wind Energy Supplementary Guidance with Part 2b Addendum (2017); and
- The Highland Council (2016b) Visualisation Standards for Wind Energy Developments.

4.12.2 Field Survey

180. Field survey work will be carried out during several visits, and records will be made in the form of field notes and photographs. Field survey work will include visits to the Site and to various locations across the Study Area to consider potential effects on landscape character and visual amenity, as experienced from hill summits, promoted viewpoints, designated landscapes and wild land areas, settlements, and routes.

4.12.3 Assessment of Effects

Landscape Effects

181. The assessment of landscape effects will take account of the sensitivity of the landscape, acknowledging any value placed on the landscape through formal designation at either a national or local level. The consideration of landscape sensitivity will also draw reference to the ten landscape and visual criteria listed in THC Onshore Wind Energy Supplementary Guidance (2016) which are used by the THC as a framework for assessing wind energy proposals.

182. Landscape effects will be determined in relation to the magnitude and type of change to the landscape, and in accordance with the Highland-wide Local Development Plan Policy 61 Landscape, with consideration of the landscape characteristics identified in the relevant NatureScot LCT descriptions (NatureScot, 2019).

183. The assessment of effects on landscape character will focus on LCTs within 20 km of the proposed Development, where significant effects are considered likely to occur (see **Table 4.1**).

Visual Effects

184. Visual effects are experienced by people (visual receptors) at different locations across the Study Area, including at static locations (for example from settlements or promoted viewpoints) and transitional locations (such as sequential views experienced from routes, including roads, railways, footpaths, cycle routes or ferry routes). Visual receptors are the people who will be affected by changes in views at these places, and they are usually grouped by what they are doing at those locations (for example residents, motorists, recreational users, etc.).

185. GLVIA3 states that the nature of visual receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to the change in views/visual amenity and the value attached to particular views. The magnitude of the effect should be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered to inform a judgement regarding the overall significance of effect.

186. Visual effects resulting from the proposed Development will be considered within the context of the existing baseline conditions, including operational and under construction windfarms.

187. The assessment of the visual effects of introducing the proposed Development will be based on an analysis of ZTVs, field studies and assessment of representative viewpoints. **Figure 4.2a** and **Figure 4.2b** illustrate a turbine blade tip height (180 m) ZTV of the proposed turbine layout with proposed assessment viewpoint locations. **Figure 4.3a** and **Figure 4.3b** illustrate a hub height (99 m) ZTV of the proposed turbine layout with proposed assessment viewpoint locations. Proposed representative viewpoints for the assessment are set out in

188. Table 4.3. These have been selected to provide a representative range of viewing distances and viewing experiences, including views from settlements, points of interest (including hill summits), sequential views from routes, and views from designated landscapes.

189. Effects on settlements and sequential effects from key routes (including roads and long-distance walking trails) will focus on those receptors within a 20 km radius and likely to experience actual visibility of the proposed Development. Receptors located within this radius of the proposed Development are considered most likely to be subject to potential significant visual effects.

Table 4.3: Proposed Assessment Viewpoints

VP	Viewpoint Name	OS Grid Reference		Distance	Reason for Selection
1	Strath Rusdale, near Inchlumpie	258901	875391	4.8 km	Represents views experienced by road users on minor road and nearby residents in Strath Rusdale
2	Minor road Loanreoch	262519	875484	5 km	Represents views experienced by road users on minor road and nearby residents
3	B9176 lay-by	265444	876233	5.7 km	Represents views experienced by road users on minor road and the Moray Firth Tourist Route
4	Minor road East of Boath (daytime and night-time/hours of darkness viewpoint)	259277	873646	6.6 km	Represents views experienced by road users on minor road and nearby residents
5	A949, Little Creich Cemetery	263536	889301	7.6 km	Represents views experienced by road users on A949 and visitors to Little Creich Cemetery, within Dornoch Firth NSA
6	Carn Chuinneag	248353	883338	7.9 km	Represents views experienced by recreational receptors at Corbett hill summit, at edge of Fannichs, Beinn Dearg and Glencalvie SLA, and within WLA 29
7	Bonar Bridge (daytime and night-time/hours of darkness viewpoint)	261004	891543	8.6 km	Represents views experienced by residents and road users in Bonar Bridge, at boundary of Dornoch Firth NSA
8	Edderton	270896	885109	9 km	Represents views experienced by residents and road users in Edderton, at edge of Dornoch Firth NSA
9	Cnoc Fyrish	260756	869796	7.7 km	Represents views experienced by recreational receptors at hill summit
10	A9 Dornoch Bridge	274771	886330	13 km	Represents views experienced by road users on the A9 (NC 500), within the Dornoch Firth NSA
11	Minor road near Loch an Lagain (daytime and night-time/hours of darkness viewpoint)	264199	896265	14.7 km	Represents views experienced by road users on minor road near Loch an Lagain
12	Ben Wyvis	246294	868375	16 km	Represents views experienced by recreational receptors at Munro summit, within the Ben Wyvis SLA and WLA 29
13	B9163, Resolis	267127	865405	15.9 km	Represents views experienced by road users on the B9163 and nearby residents

VP	Viewpoint Name	OS Grid Reference		Distance	Reason for Selection
14	Royal Dornoch Golf Course	280105	889219	19.4 km	Represents views experienced by recreational receptors at southern edge of Dornoch
15	Nigg Bay RSPB Nature Reserve	280534	873094	20 km	Represents views experienced by recreational receptors at Nigg Bay RSPB Nature Reserve
16	A832/NCN Route 1, near Cromarty	278006	866428	21.5 km	Represents views experienced by road users on A832 and recreational receptors on NCN 1
17	The Ord	257403	905487	22.1 km	Represents views experienced by recreational receptors at The Ord Scheduled Monument and viewpoint
18	Am Faochagach	225943	881218	25.8 km	Represents views experienced by recreational receptors at Munro hill summit within the Fannichs, Beinn Dearg and Glencalvie SLA, and WLA 29
19	Ben Bhraggie	281431	900897	27.3 km	Represents views experienced by recreational receptors at hill summit and the Duke of Sutherland Monument, within the Loch Fleet, Loch Brora and Glen Loth SLA
20	Portmahomack	291525	884689	29.3 km	Represents views experienced by residents and recreational receptors in Portmahomack

4.12.4 Assessment of Visible Aviation Lighting

190. In the interests of aviation safety, all structures of 150 m or greater in height such as wind turbines require visible aviation lighting (Civil Aviation Authority, 2016), typically consisting of medium intensity 2000 candela steady red lights mounted on the wind turbine nacelle and intermediate 32 candela lights mounted on the wind turbine tower.

191. As turbines over 150 m to blade to height are proposed, an Aviation Lighting Impact Assessment will be undertaken. In accordance with current Scottish Government and NatureScot guidance, a Study Area of 20 km is proposed for this assessment (Scottish Government and NatureScot, 2024). The assessment will be carried out as part of the LVIA, as a technical appendix to the EIAR, and will be informed by a hub height ZTV as a starting point, to illustrate the areas from which nacelle lighting may be visible at during hours of darkness. Visibility of turbine lighting from each LVIA assessment viewpoint will be considered, however the aviation lighting impact assessment will focus on viewpoints within 20 km, from which significant effects may be anticipated. Consideration will also be given to the potential effects of aviation lighting on landscape character within 20 km of the proposed Development.

192. The proposed representative night-time/hours of darkness viewpoints are noted above in

193. Table 4.3, and have been selected to illustrate the potential effects of visible aviation lighting experienced during hours of darkness, including views from settlements (VP7: Bonar Bridge), as well as views from relatively unpopulated areas where darker night skies may be experienced (VP4: Minor road East of Boath and VP11: Minor road near Loch an Lagain). The final selection of representative viewpoints to be considered will be agreed with NatureScot and THC.

194. The baseline night-time/hours of darkness context and presence of existing artificial lighting at these locations will be described, with the relative sensitivity of visual receptors (people) identified and the magnitude of change arising from the introduction of the proposed aviation lighting assessed. The predicted effects of aviation lighting on views and visual amenity at these viewpoints will be drawn on to provide general comment on the likely effects across the wider Study Area, including key routes and settlements where significant effects may be anticipated.

195. Night-time/hours of darkness photomontage visualisations will be prepared in accordance with NatureScot guidance (Scottish Government and NatureScot, 2024) from up to three of the final LVIA assessment viewpoints, informed by the hub height ZTV for the proposed Development layout, and the final aviation lighting scheme design.

196. The Applicant will seek to agree a reduced aviation lighting scheme with the Civil Aviation Authority (CAA) and other aviation stakeholders prior to the assessment being undertaken, and the night-time/hours of darkness visualisations will be prepared to illustrate the number and maximum lighting intensity of turbines to be lit. The Applicant is committed to adopting the full range of currently deployable mitigation measures in order to minimise the number, frequency and luminous intensity (brightness) of visible aviation lights as far as feasible in order to minimise potential landscape and visual effects.

4.12.5 Cumulative Assessment Methodology

197. The cumulative assessment will be carried out in accordance with the principles outlined in GLVIA3, and NatureScot guidance (NatureScot, 2021).

198. The 'primary assessment' will consider the potential effects of the addition of the proposed Development to the existing baseline, that includes operational windfarms and those under construction (as detailed in **Table 2.2**). The cumulative assessment will consider the potential effects of the proposed Development, in the context of increasingly uncertain future baseline scenarios.

199. The 'Scenario 1' baseline will include consented windfarms that may or may not be present in the landscape in the future alongside those schemes considered in the primary assessment.

200. The 'Scenario 2' baseline will include undetermined applications and those currently at appeal/public inquiry, alongside those schemes considered in Scenario 1 and the primary assessment. Scoping stage schemes in the early stages of the EIA process will not be considered in the detailed cumulative assessment unless it is deemed appropriate by statutory consultees and sufficient publicly available information is available to inform a robust assessment.

201. A review of the existing pattern(s) of wind energy development will be undertaken, based upon the list of cumulative schemes in the 45 km Study Area set out in **Table 2.2**. The cumulative assessment will focus on those wind energy developments considered to have potential to give rise to significant cumulative effects in conjunction with the proposed Development. This is

likely to primarily be those windfarms located in the more immediate landscape context of the proposed Development, in this instance within a circa 20 km radius. Turbines of less than 50 m to blade tip height and single turbines beyond 5 km from the proposed Development will not be included in the detailed assessment of cumulative effects.

202. The potential 'combined' cumulative effects of windfarm development on relevant landscape and visual receptors within the Study Area will also be considered, (including the proposed Development, and all current and future proposals). This higher-level summary will be separate to the detailed consideration of the effects of the proposed Development when introduced to the current baseline in the primary assessment, and the theoretical baselines of Scenario 1 and Scenario 2 respectively.

203. **Figure 4.7** illustrates the location of operational, consented, and proposed windfarms (including those at scoping) across the 45 km Study Area.

4.12.6 Residential Visual Amenity Assessment (RVAA)

204. Effects upon residential visual amenity become a matter of public rather than private interest when properties or groups of properties become widely regarded as unattractive places to live due to nearby development.

205. Due to the remote location of the Site, only four properties are located within 2.5 km to the south of the proposed Development, in the upper reaches of Strath Rusdale. Wireline visualisations indicate that theoretical visibility of the proposed Development from two of these properties consists of the hub and blades of one turbine and the blade tips of two turbines, while only one blade is theoretically visible from the remainder. Owing to the very limited theoretical visibility of the proposed Development in likely secondary views from these properties, as well as the likely additional screening of views towards the Site by adjacent woodland and coniferous forestry, it is precited that the magnitude of change to views from these properties would be low or barely perceptible. As such, and in accordance with Landscape Institute guidelines (Landscape Institute, 2019a), a detailed assessment of potential visual effects on residential properties within a 2.5 km radius of the proposed Development, within a separate Residential Visual Amenity assessment, is considered to be unnecessary.

4.12.7 Visualisations

206. Wirelines and photomontage visualisations will be used to illustrate and assess changes to views. Photomontages will involve overlaying computer-generated images of the proposed Development over baseline photography to illustrate how views will change.

207. Visualisations will be prepared in accordance with NatureScot (Nature,Scot, 2017) and THC (THC, 2016b) visualisation guidance. With regard to illustrating the Repowered Beinn Tharsuinn Windfarm, and to allow consideration of the proposed Development against a 'comparative' and 'restored' baseline, NatureScot guidance (NatureScot, 2024b) on best practice for the visualisation of repowering windfarms will be followed. This will involve the removal of the existing operational turbines of Beinn Tharsuinn Windfarm from the captured baseline viewpoint photography prior to the preparation of the photomontage visualisations.

208. Where relevant, other windfarm developments visible from each of the viewpoints will be shown on the wireline visualisations.

209. Ancillary elements such as permanent anemometer masts, access tracks, onsite substation, and BESS will be shown in photomontages for viewpoints within 5 km where they would be visible. Beyond 5 km, it is considered unlikely that these ancillary elements would form more than a minor element of the proposed Development.

210. As noted above, night-time/hours of darkness photomontages will be prepared from a selection of viewpoints to illustrate and inform the assessment of visual effects of visible aviation lighting during hours of darkness in accordance with NatureScot guidance (Scottish Government and NatureScot, 2024). Representative assessment viewpoints will be agreed with NatureScot and THC.

4.13 Difficulties and Uncertainties

211. No difficulties or uncertainties are predicted in undertaking the scope of the LVIA as outlined in this chapter. No difficulties or uncertainties were encountered when gathering information to inform the scope of work described in this chapter.

4.14 References

212. All documents cited are listed in Section **4.12.1** of this chapter.

4.14.1 Scoping Questions

213. The following questions are directed to consultees:

- Can consultees confirm that GLVIA3 is an appropriate methodological starting point for the LVIA assessment? Are there any comments on the overall methodology proposed to assess effects on landscape and visual receptors, including cumulative effects?
- Are there other sources of information which should inform the baseline and assessment of potential effects on landscape character and designated landscapes?
- Do you agree with the Study Areas proposed for the assessment of effects on landscape character (20 km), designated landscapes (20 km) settlements and transport routes (20 km)?
- Do you agree with the LCTs and designated landscapes that are proposed to be scoped in and out of the LVIA, as detailed in **Table 4.1** and **Table 4.2**?
- Are there any comments on the proposed list of representative assessment viewpoint locations listed in **Table 4.3** and shown on **Figures 4.2a - b** and **Figures 4.3a - b**?
- Do you agree with the proposal to scope out consideration of effects on residential visual amenity within a RVAA?
- Are there any comments on which representative assessment viewpoints should be used to also represent night-time/hours of darkness views?

- Are there any further existing, consented or proposed windfarms, in addition to those shown on **Figure 4.7** and included in **Table 2.2**, which should be considered as part of the cumulative assessment?

- Do you agree with the proposed approach to cumulative assessment, to focus on key interactions with other windfarm developments within 20 km?

05. Ornithology

5. Ornithology

5.1 Introduction

214. This section describes the baseline conditions, relevant guidance and legislation, proposed scope of assessment and methodology, potential significant effects and proposed mitigation and enhancement for the proposed Development in relation to ornithological features.

5.2 Consultation

215. Consultation was undertaken in January 2020 regarding available background data with the following organisations:

- The Highland Raptor Study Group (HRSG) to obtain information on the nearest known golden eagle (*Aquila chrysaetos*) territories within 6 km of the Site; and
- The Royal Society for the Protection of Birds (RSPB) Scotland to request any data they held in relation to historic raptor, owl or diver data within 3 km of the Site.

216. Updated additional data requests will be issued to the HRSG and RSPB Scotland to request updated information from 2020 onwards.

217. Preliminary consultation was also undertaken with NatureScot regarding the scope of ornithology baseline surveys in October 2020 and then August 2021, for a previous layout (comprising only the repowering). This scoping report presents an opportunity for consultation on the proposed Development in its current form i.e., the combined repowering and western extension, and the revised survey programme.

5.3 Study Area

218. The Environmental Impact Assessment Report (EIAR) will consider the following ornithological Study Areas:

- Designated sites: the Site and a 20 km Study Area (based on NatureScot guidance; SNH, 2016a);
- Collision risk modelling: the results of the flight activity surveys will be used to inform collision risk modelling. A Collision Risk Analysis Area (CRAA) will be created by buffering proposed outer turbine locations by 500 m[6] (as per SNH, 2017);

[6] *Note that given the distance between the repowering and western extension, it is likely that separate CRAAs will be defined for the two areas. Results will then be presented for the two areas and also in combination.*

- Scarce[7] breeding birds: the turbines and a 2 km Study Area (800 m for access tracks) (SNH, 2017);
- Black grouse (*Lyrurus tetrix*): the turbines and a 1.5 km Study Area (750 m for access tracks) (SNH, 2017);
- Breeding upland waders and wintering waders, raptors or owls: the turbines/access tracks and a 500 m Study Area (SNH, 2017); and
- Cumulative assessment as per NatureScot guidance (SNH 2018a), the Natural Heritage Zone (NHZ) level is considered practical and appropriate for most breeding species not connected to designated sites (for the Site, the NHZ will be NHZ 7, Northern Highlands), unless a different geographical area is considered more relevant to a particular species.

5.4 Data Sources to Inform the EIA baseline Characterisation

219. Baseline ornithology conditions have been/will be established from the following sources:

- Results of the ornithology surveys undertaken between September 2019 and August 2023 and the further surveys scheduled between March 2024 and August 2026;
- Golden Eagle Topographical (GET) modelling;
- Information provided by the HRSG;
- Information provided by RSPB Scotland;
- A desk study to inform the location and qualifying features of designated sites within potential zones of influence of the proposed Development;
- Beinn Tharsuinn Wind Farm Environmental Statement (operational from 2005);
- Coire na Cloiche Wind Farm Environmental Statement (operational from 2020);
- Data gathered from the Beinn Tharsuinn Wind Farm operational monitoring (2001 to 2019); and
- Baseline surveys independently undertaken during the 2019 and 2024 breeding seasons for potential wind farm developments (not directly by SPR) to the north

[7] *Scarce breeding birds are those listed on Annex 1 of the EU Birds Directive and/or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and in the case of the proposed Development consists of any diver, raptor and owl species listed on either Annex 1 or Schedule 1.*

and west of the operational Beinn Tharsuinn Wind Farm (note these areas are now part of the proposed Development).

5.5 Surveys to Inform the EIA baseline Characterisation

220. The western extension area was incorporated into the proposed Development in late 2024. As such, further baseline ornithology surveys are scheduled for between March 2025 and August 2026 as detailed below.

221. All surveys have been/will be undertaken in line with the appropriate guidance (SNH 2017, Hardey *et al*. 2013, Gilbert *et al*. 1998) and survey areas are detailed below. All survey areas were/will be created using survey-specific buffers based on the application boundary provided at the time of survey commencement.

5.5.1 2019-2023 Baseline Surveys (Repowering Only)

- Flight activity surveys (minimum of 36 hours per season per Vantage Point (VP) as per SNH 2017): two VP locations, September 2019 to November 2020, and four VP locations, March 2022 to August 2023 (**Figure 5.1**)
- Scarce[7] breeding bird surveys: 2 km survey area (**Figure 5.2b**), 2020, 2022 and 2023 breeding seasons
- Black grouse surveys: 1.5 km survey area (**Figure 5.2b**), April and May 2020, 2022 and 2023
- Breeding wader surveys: 500 m survey area (**Figure 5.2a**), monthly from April to July 2020, 2022 and 2023
- Winter walkover surveys: 500 m survey area (**Figure 5.2a**), 2019/2020 and 2022/2023 non-breeding seasons.

5.5.2 2025-2026 Baseline Surveys (Repowering and Western Extension)

- Flight activity surveys (minimum of 36 hours per season per VP per season, as per SNH 2017): additional viewshed analysis was undertaken to achieve suitable coverage of the updated turbine array (**Figure 5.3**). Surveys are scheduled to be undertaken from these VPs from March 2025 to August 2026 to provide an additional two breeding seasons (2025 and 2026) and one non-breeding season (2025/2026) of flight activity data to be included in the CRM;
- Scarce[7] breeding bird surveys: 2 km survey area (**Figure 5.4**): 2025 and 2026 breeding seasons, monthly surveys from February to August;
- Black grouse surveys: 1.5 km survey area (**Figure 5.4**): 2025 and 2026 breeding seasons, surveys in April and May; and

- Breeding wader surveys: 500 m survey area (**Figure 5.4**): 2025 and 2026 breeding seasons, monthly surveys from April to July.

5.6 Baseline Conditions

5.6.1 Designated Sites

222. There are no statutory designations with ornithological features within the Site. However, the Site is within 20 km of eight Special Protection Areas (SPAs), nine Sites of Special Scientific Interest (SSSIs) and three Ramsar sites, as listed below and shown on **Figure 5.5**.

- Morangie Forest SPA, approximately 3.3 km from the Site and designated for breeding capercaillie (*Tetrao urogallus*);
- Novar SPA, approximately 6.3 km from the Site and designated for breeding capercaillie;
- Dornoch Firth and Loch Fleet SPA (underpinned by Dornoch Firth SSSI, Loch Fleet SSSI, Mound Alderwoods SSSI, Morrich More SSSI and Dornoch Firth and Loch Fleet Ramsar site), approximately 6 km from the Site and designated for breeding osprey (*Pandion haliaetus*), and non-breeding bar-tailed godwit (*Limosa lapponica*), curlew (*Numenius arquata),* dunlin (*Calidris alpina*), greylag goose (*Anser anser*), oystercatcher (*Haematopus ostralegus*), redshank (*Tringa totanus*), scaup (*Aythya marila*), teal (*Anas crecca*), wigeon (*Anas penelope*), and a non-breeding waterfowl assemblage;
- Strath Carnaig and Strath Fleet Moors SPA (underpinned by Strath Carnaig and Strath Fleet Moors SSSI), approximately 8.8 km from the Site and designated for breeding hen harrier (*Circus cyaneus*);
- Ben Wyvis SPA (underpinned by Ben Wyvis SSSI), approximately 10.1 km from the Site and designated for breeding dotterel (*Charadrius morinellus*);
- Cromarty Firth SPA (underpinned by Cromarty Firth SSSI and Cromarty Firth Ramsar site), approximately 10.8 km from the Site and designated for breeding common tern (*Sterna hirundo*) and osprey, and non-breeding bar-tailed godwit, curlew, dunlin, greylag goose, knot (*Calidris canutus*), oystercatcher, pintail (*Anas acuta*), red-breasted merganser (*Mergus serrator*), redshank, scaup, whooper swan (*Cygnus cygnus*), wigeon and a non-breeding waterfowl assemblage;
- Moray Firth SPA, approximately 14.9 km from the Site and designated for breeding shag (*Gulosus aristotelis*), and non-breeding common scoter (*Melanitta nigra*), eider (*Somateria mollissima*), goldeneye (Bucephala clangula), great northern diver (*Gavia immer*), long-tailed duck (*Clangula hyemalis*), red-breasted merganser, red-throated diver (*Gavia stellata*), scaup, shag, Slavonian grebe (*Podiceps auritus*) and velvet scoter (*Melanitta fusca*);
- Loch Eye SPA (underpinned by Loch Eye SSSI and Loch Eye Ramsar site), approximately 15.6 km from the Site and designated for non-breeding greylag goose and whooper swan;

- Rosemarkie to Shandwick Coast SSSI, approximately 18.7 km from the Site and designated for breeding cormorant (*Phalacrocorax carbo*); and

- Beinn Dearg SSSI, approximately 19.9 km from the Site and designated for a breeding bird assemblage (the citation lists golden eagle, dotterel, snow bunting, ptarmigan, ring ouzel, raven, golden plover and peregrine falcon). It should be noted that the Beinn Dearg SPA (designated for breeding dotterel) is approximately 21.1 km from the Site and so is not included as it falls outwith the 20 km Study Area.

223. Capercaillie may move around 5 km within their home ranges (Fletcher and Baines 2020) and on the basis of this distance, there is potential for connectivity between the Site and the Morangie Forest SPA and Novar SPA. It should however be noted that the Site is located on open moorland at predominately higher elevation (Site is 350 m to 546 m above sea level) whereas the SPAs are located on predominately forested land at lower elevation (maximum of 450 m above sea level with much of the SPA habitat around 200-300 m elevation). Furthermore, the SPAs are both located to the south-east of the Site and so capercaillie moving between the SPAs would not be restricted by the Proposed Development. Considering this information, whilst a likely significant effect would be concluded under the Habitats Regulations, process, there is limited potential for actual connectivity with SPAs.

224. Breeding osprey has a core foraging range of 10 km (SNH, 2016a). On the basis of the distance between the Site and the Dornoch Firth and Loch Fleet SPA and Cromarty Firth SPA, there is considered to be some potential for connectivity between the Site and the Dornoch Firth and Loch Fleet SPA, however connectivity is likely to be limited to birds flying over the Site. With limited potential for connectivity between the Site and the Cromarty Firth SPA, no likely significant effect would be concluded.

225. Non-breeding greylag goose have a core foraging range of 15-20 km (SNH 2016a). On the basis of the distance between the Dornoch Firth and Loch Fleet SPA, Cromarty Firth SPA and Loch Eye SPA, there is considered to be potential for connectivity for between the Site and the SPAs. However, considering the upland moorland nature of the Site (unsuitable for foraging wildfowl) any connectivity is considered to be limited to birds overflying the Site between the SPAs and foraging areas. Further review of known foraging areas of greylag geese (**Figure 5.3**, Mitchell 2012) shows that greylag goose foraging in the region is associated with the lower elevation arable areas and estuaries and so birds moving between the SPAs and the foraging areas are unlikely to be crossing over the proposed Development, and no likely significant effect would be concluded.

226. Non-breeding whooper swan have a core foraging range of 5 km (SNH 2016a). Based on the distance between the Cromarty Firth SPA and Loch Eye SPA, there is considered to be no potential for connectivity between the Site and the SPAs, and no likely significant effect would be concluded.

227. The foraging range for breeding dotterel is unclear, however foraging ranges for similar upland breeding waders (curlew, 1 km; greenshank, 2 km; dunlin, 500 m; golden plover, 3 km; SNH 2016a) would suggest that dotterel is likely to have a foraging range of up to 3 km. Based on the distance between the Site and the Ben Wyvis SPA, there is considered to be no potential for connectivity between the Site and the SPA, and no likely significant effects would be concluded.

228. Breeding hen harrier have a core foraging range of 2 km (SNH 2016a). Considering the distance between the Site and the Strath Carnaig and Strath Fleet Moors, there is considered to be no

potential for connectivity between the Site and the SPA, and no likely significant effects would be concluded.

229. The species listed on the Moray Firth SPA, Rosemarkie to Shandwick Coast SSSI, and the remaining species listed on the Dornoch Firth and Loch Fleet SPA and Cromarty Firth SPA are all either true seabirds or wintering waders/waterfowl for which the Site is of limited to no importance as their foraging would be focussed within the estuarine habitats or out at sea. As such, there is considered to be no potential for connectivity between the Site and SPAs/SSSI for these species, and no likely significant effects would be concluded.

230. Considering the distance between the Site and the Beinn Dearg SSSI and the species listed on the designation, there is considered to be no connectivity between the Site and the SSSI and no likely significant effects would be concluded.

231. In summary, on the basis of evidence gathered to date, it is likely that the assessment would conclude no adverse effects on integrity for all SPAs, with the possible exception of Morangie Forest and Novar SPAs, where information to inform an Appropriate Assessment will be provided to determine its conclusion. It also follows that all SSSIs and Ramsar sites would be scoped out of the impact assessment within an EIA context.

5.6.2 Ornithological Activity

232. Flight activity surveys between September 2019 and August 2023 recorded twelve target species (golden eagle, golden plover, goshawk, greylag goose, hen harrier, merlin, osprey, peregrine falcon, pink-footed goose, red kite, white-tailed eagle and whooper swan), which may be included in the Collision Risk Model (CRM), depending on their location in relation to the final turbine layout.

233. Scarce breeding bird surveys during the 2020, 2022 and 2023 breeding seasons confirmed breeding hen harrier (one probable nest in 2020 and 2023, two additional potential nests in 2020) and merlin (two confirmed nests in 2020 and one confirmed nest in 2023) within the 2 km survey area. Red-throated diver was present at a potential breeding loch out with the 2 km survey area during 2020 (breeding was not confirmed), but there was no evidence of them overflying the Site and there are no waterbodies situated within the Site.

234. Black grouse surveys during 2020, 2022 and 2023 identified five leks with a maximum of nine males present at any one lek in any one year.

235. Breeding wader surveys during the 2020, 2022 and 2023 breeding seasons recorded likely breeding activity for curlew, dunlin, golden plover, greenshank and snipe.

236. Winter walkover surveys during the 2019/2020 and 2022/2023 non-breeding seasons recorded black grouse, golden plover, greylag goose (in flight), merlin and red kite.

5.6.3 Baseline Survey Period

237. It is recognised that ornithology baseline surveys are considered to be valid for five years, and so the baseline surveys undertaken between September 2019 and August 2023 for the repowering would be anticipated to be ‘out of date’ between September 2024 and August 2028.

As such it is proposed to include the repowering area in the additional baseline surveys proposed between March 2025 and August 2026.

238. Review of the baseline data gathered across the 2019/2020, 2020/2021 and 2022/2023 non-breeding seasons, has established that the Site does not form an area of ornithological importance for wintering birds (as would be expected, given the elevation and location of the Site and the habitats present). Furthermore (as detailed in Section 5.6.1 above), there are no designated sites within 20 km with wintering bird designations that would be considered to have connectivity.

239. Consequently, an 18-month additional baseline survey period (March 2025 to August 2026) across the repowering and western extension is considered to provide appropriate further baseline survey data to that gathered between September 2019 and August 2023 (on the repowering) to undertake a robust assessment of potential ornithological significant effects across the Beinn Tharsuinn Repower and Western Extension. Confirmation of this approach is sought from NatureScot as part of this scoping exercise.

5.7 Mitigation

240. Significant effects on birds will be avoided/minimised where possible during the design process, by considering locations of known nest, roost and lek sites, key foraging areas, and likely sensitivities of Important Ornithological Features (IOFs). Good practice (NatureScot 2024a) during construction (and operation) of the proposed Development will also be implemented, and the assessment will be undertaken on this basis. This would include the following:

- A Bird Disturbance Management Plan (BDMP) would be implemented as part of a Construction Environmental Management Plan (CEMP) or similar during the construction phase, to ensure that all reasonable precautions are taken to adhere to the relevant wildlife legislation;
- Pre- and during- construction surveys carried out by an Ecological Clerk of Works (ECoW) or suitably qualified ornithologist would take place as part of the BDMP; and
- A Biodiversity Enhancement Management Plan (BEMP) would be developed for the operational phase and agreed with consultees, to mitigate for identified impacts and enhance habitat for IOFs and to provide wider biodiversity improvements.

241. Where unmitigated significant effects on IOFs are identified, additional measures to prevent, reduce or offset these adverse effects will be proposed, to conclude a non-significant residual effect.

5.8 Description of Potential Significant Effects

242. The assessment presented within the Ornithology Chapter of the EIAR will consider the potential for significant effects upon IOFs, due to identified impacts during the construction, operation and decommissioning of the proposed Development as outlined out below. Where appropriate, construction and operational impacts will also be considered in a cumulative assessment with other relevant developments.

243. The key ornithological sensitivities identified from completed baseline studies to date include breeding moorland waders, hen harrier, merlin and black grouse. The design of the proposed Development will therefore seek to avoid existing suitable habitats for species. Opportunities to provide positive management for breeding waders, raptors and black grouse will also be identified within the Site and wider area as part of the proposed Development, in consultation with relevant landowners, and other stakeholders as necessary.

5.8.1 Construction

244. During construction of the proposed Development, in the absence of specific mitigation, potentially significant effects upon IOFs could arise from:

- Nesting and foraging habitat loss, fragmentation or change alteration associated with the installation of Proposed Development infrastructure; and
- Disturbance to and loss of nest sites, eggs and/ or dependent young.

245. In general, construction activities may be predicted to result in a temporary increase in noise, vibration and human presence within construction areas. This has the potential to displace breeding, foraging or roosting birds from the vicinity of construction areas for the duration of construction works.

246. Impacts would likely to be greatest during the breeding season, with the potential for disturbances to occur to breeding sites of specific species assessed on the basis of best available species guidance, including Goodship and Furness (2022), and which will be referred to within the EIAR.

247. Overall construction disturbance would however, be considered temporary and occurring only when construction activities are taking place. Furthermore, construction would be not expected to take place across the whole of the Site at once but phased within smaller defined working areas across the site.

5.8.2 Operation

248. The operation of the proposed Development, including maintenance activities, has the potential to cause disturbance and displacement of birds from nesting or foraging habitats throughout the proposed Development's operational lifetime. The extent of displacement is, however, highly variable between species and species-group and therefore species-specific assessments will take place on the basis of baseline studies.

249. The potential for disturbances to occur to specific species, will therefore be assessed on the basis of best available species guidance, including Goodship and Furness (2022) and which will be referred to within the EIAR Report.

250. The operation of the proposed Development also has the potential to result in the risk of collisions with operational wind turbine blades or any other permanent infrastructure. With regards to the repowering, as stipulated in NatureScot draft guidance (SNH 2018e), industry standard surveys i.e., SNH 2017, and collision risk modelling i.e., Band *et al*. 2007, may not provide meaningful results for the purposes of repowering proposals and clarification from NatureScot as to any updates to the draft guidance (SNH 2018e) or recommendations regarding

consideration of collision modelling for repowering schemes is sought. Industry standard collision modelling will be undertaken for the western extension.

5.9 Features to be Scoped In to Further Assessment

251. Whilst it is not possible to definitively scope out/in specific target species from/to the assessment prior to undertaking collision modelling and a review of the ornithological baseline against the final design, considering the information available regarding the species assemblage and distribution on Site and on the basis of the baseline data gathered between September 2019 and August 2023, it is considered that black grouse, merlin, hen harrier and golden plover are likely to be the species taken forward to assessment as IOFs. It should be noted that the additional baseline surveys scheduled for between March 2025 and August 2026 will be regularly reviewed for any further target species that may require scoping into the assessment.

252. Following the review of designated sites containing ornithological features within 20 km of the Site (Section 5.5.1), information to inform an Appropriate Assessment will be provided for Morangie Forest SPA and Novar SPA, both having capercaillie as their sole qualifying feature.

253. The EIAR will provide a full summary of all target species recorded during the baseline survey period, the results of the collision modelling and a review per species/feature as to whether it will be scoped into the assessment.

5.10 Features to be Scoped Out of Further Assessment

254. On the basis of baseline data, experience from other relevant projects and policy guidance or standards e.g., CIEEM 2022, SNH 2018b, the following features will be 'scoped out' since significant effects are unlikely:

- Common and/or low conservation species not recognised in statute as requiring special conservation measures i.e., not listed as Annex 1/ Schedule 1 species;
- Common and/or low conservation species not included in non-statutory lists i.e., not listed as Amber or Red-listed Birds of Conservation Concern species, showing birds whose populations are at some risk either generally or in parts of their range; and
- Passerine species, not generally considered to be at risk from windfarm developments (SNH 2017), unless being particularly rare or vulnerable at a national level.

255. Subject to the results of the collision risk modelling, any target species not identified to be likely breeding within the relevant Study Area will be scoped out of the assessment.

256. Following the review of designated sites (**Section 5.6.1**), it is proposed to scope out all SPAs, SSSIs and Ramsar sites, with the exception of Morangie Forest SPA and Novar SPA.

257. As is standard industry approach, a decision to refurbish, remove, or replace turbines would be made at the end of the proposed Development operational lifetime. Whilst future ornithological

baseline conditions cannot be accurately known at this stage, given the nature of decommissioning works, potential effects on ornithological features associated with the decommissioning the proposed Development can be reasonably concluded as being of equal or lesser significance to construction disturbance/displacement effects, over a reduced timeframe. Decommissioning phase impacts for any ornithological feature are therefore not proposed to be presented separately in the assessment and such effects are therefore scoped-out of assessment.

258. Once installed on-site, the proposed Development turbines would be lit with visible aviation lighting). It is acknowledged that lighting can have various effects on birds (e.g., they may be attracted to lights and thereby placed at higher risk of collisions), have migration patterns disrupted, show avoidance of lights with a consequent displacement impact, or be subject to increased predation threat. NatureScot has identified attraction (phototaxis) as posing the principal threat to birds, in relation to wind turbine developments (NatureScot 2020). In NatureScot's advice on the scope of assessment for turbine lighting (NatureScot 2024b), an assessment of the possible effects of lighting on birds may be required in the following three situations, where risk is greater:

- wind turbines on or adjacent to a seabird colony that hosts burrow nesting species;
- wind turbines that are on or adjacent to protected areas that host large concentrations of wintering waterbirds, where such sites are located within open country away from other sources of artificial light; and
- where wind farms are located on migratory corridors or bottlenecks for nocturnally migrating passerines.

259. The location of the Proposed Development does not fall into any of the above greater risk scenarios. In view of NatureScot guidance (2020 and 2024b), it is therefore highly unlikely that any species would be significantly affected by the lighting requirements of the proposed Development and such effects are therefore scoped-out of assessment.

5.11 Opportunities for Enhancing the Environment

260. Please refer to **Chapter 6: Ecology** of the Scoping Report for an overview of the potential habitat enhancement opportunities. It will be ensured that any habitat enhancement is also designed to provide benefit to key bird species.

5.12 Proposed Assessment Methodology

5.12.1 Legislation, Policy and Guidance

261. The following national legislation, which was amended as a consequence of EU exit (Scottish Government 2019, 2020), is also considered as part of the ornithology assessment:

- The Wildlife and Countryside Act 1981 (as amended);

- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) and the Conservation of Habitats and Species Regulations 2017 (hereafter the 'Habitat Regulations');
- The Nature Conservation (Scotland) Act 2004 (as amended);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations);
- Scottish Government (2000). Planning Advice Note 60: Planning for Natural Heritage; and
- Scottish Government (2017). Planning Advice Note 1/2013-Environmental Impact Assessment, Revision 1.0.

262. This assessment will consider the following relevant aspects of Scottish Government Policy, Planning Advice Notes and other relevant documentation:

- National Planning Framework 4 (NPF4) (February 2023);
- The Scottish Biodiversity List;
- Draft Planning Guidance: Biodiversity. Scottish Government (2023);
- Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland (2023);
- The Highland Council (2012) Highland-wide Local Development Plan and Supplementary Guidance;
- The Highland Council (2020) Highland Nature Biodiversity Action Plan 2021-2026; and
- The Highland Council (November 2023) Draft Biodiversity Planning Guidance.

263. Guidance on the following topics will also be considered:

- Environmental impact assessment: NatureScot (SNH 2016b, 2018b, 2018c, NatureScot 2024b), CIEEM (2022), SERAD (2000);
- Designated sites: NatureScot (SNH 2016a);
- Collision modelling: NatureScot (SNH 2000, 2018d), Band *et al*. (2007, 2024)
- Cumulative assessments: NatureScot (SNH 2018a)

- Bird populations/species specific guidance: Stanbury *et al.* (2021), NatureScot (SNH 2014, 2017), Pearce-Higgins (2021) and Wilson *et al.* (2015); and

- Construction and birds: NatureScot (NatureScot 2024a), Goodship & Furness (2022).

5.12.2 Assessment Methodology

264. The assessment will consider the potential direct, indirect, and cumulative impacts that the construction and operation of the proposed Development could have on IOFs (as per CIEEM 2022 guidance). The assessment will be supported by a technical appendix that will include details of survey methodologies, all survey data and outputs from any collision risk modelling.

265. The assessment will include the following elements:

- Baseline conditions;

- Scoping in/out of ornithological features and impacts;

- Assessment of potential impacts during construction, operational and decommissioning phases;

- Mitigation and enhancement;

- Residual impacts;

- Cumulative impact assessment; and

- Summary of effects.

266. Impacts on IOFs will be assessed in relation to the species' reference population, conservation status, range and distribution. The assessment will involve the following process:

- Identifying potential impacts of the proposed Development;

- Considering the likelihood of occurrence of potential impacts;

- Defining the nature conservation importance and conservation status of relevant populations for each IOF to determine overall sensitivity;

- Establishing the magnitude of the likely impact (both spatial and temporal) on each IOF;

- Based on the above information, making a judgement as to whether or not the consequent effect is significant with respect to the EIA Regulations;

- If a potential effect is determined to be significant, suggesting measures to mitigate or compensate the effect where required;

- Considering opportunities for enhancement where appropriate; and
- Concluding residual effects after mitigation, compensation, or enhancement.

267. Where appropriate, the assessment will take into consideration specific measures of analysis, most likely collision risk modelling using the Band *et al*. (2007) model and GET modelling.

5.13 Difficulties and Uncertainties

268. Limitations exist with regard to the knowledge base on how some species, and the populations to which they belong, react to impacts. A precautionary approach will be taken in these circumstances, and as such it is considered that these limitations will not affect the robustness of this assessment.

269. On the basis of the surveys undertaken to date (section 5.5.1) and those proposed to be undertaken (section 5.5.2), there is considered to be sufficient baseline data to undertake a robust assessment of potential ornithological significant effects across the Beinn Tharsuinn Repower and Western Extension.

5.14 References

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Scottish Natural Heritage (2016b). Environmental Statements and Annexes of Environmentally Sensitive Bird Information; Guidance for Developers, Consultants and Consultees. Version 2.

Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore Windfarms.

Scottish Natural Heritage (2018a). Assessing the cumulative impacts of onshore Windfarms on birds.

Scottish Natural Heritage (2018b). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.

Scottish Natural Heritage (2018c). Assessing significance of impacts from onshore windfarms on birds out with designated areas. Version 2.

Scottish Natural Heritage (2018d). Avoidance Rates for the onshore SNH Windfarm Collision Model. Version 2.

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5.15 Scoping Questions

270. The following questions are directed to consultees:

- Do consultees agree that the desk study and the field surveys (September 2019 to November 2020, March 2022 to August 2023 and March 2025 to August 2026) will provide sufficient data to inform a robust impact assessment?

- With regard to the repowering scheme in particular, do consultees consider the survey methodology/survey areas proposed to be appropriate?

- Do consultees agree that, subject to further information becoming available from the field surveys and desk study, the scope of IOFs to be included in the assessment is appropriate, or at this stage, should any other species be included?

- Do consultees agree that all designated sites, with the exception of Morangie Forest SPA and Novar SPA, can be scoped out from detailed assessment within an HRA or EIA context, due to no significant effects?

- Do consultees agree with the proposal to scope out effects relating to lighting/decommissioning and ornithology?

- Do consultees agree that the methodology and scope of the assessment is appropriate?

- Are there any other relevant consultees who should be contacted, or other sources of information that should be referenced with respect to the ornithology assessment?

- Does NatureScot have any update regarding the draft repowering guidance or recommendations regarding the approach to collision modelling assessments for repowering schemes?

06.
Ecology

6. Ecology

6.1 Introduction

271. The Ecology Chapter of the EIAR will assess the potential effects of the proposed Development on important ecological features and will detail any proposed mitigation and/or compensation measures required to avoid, minimise, restore or offset adverse effects.

272. This section of the Scoping Report therefore details the approach to baseline ecological information gathering and to the assessment of potential effects on non-avian ecology, in accordance with current best practice guidance.

273. Ecological features scoped into the assessment will be identified on the basis of baseline studies and will be informed by key legislative and policy drivers, as they relate to nature conservation in Scotland.

6.2 Consultation

274. Consultation will be undertaken with relevant consultees post-scoping including NatureScot, Scottish Badgers and the local fisheries trust as required.

6.3 Study Area

275. Initial high-level baseline data collection has been undertaken to understand the context of potential ecological considerations for the proposed Development.

276. The Study Area for the purpose of reporting preliminary baseline conditions for ecology comprises the application boundary with ecological receptors within 2 km and 10 km buffers referenced where applicable.

277. The proposed Study Areas for field surveys for habitats and protected species are determined in accordance with best practice guidelines. Study Areas for protected species are defined in **Section 6.5** where the proposed surveys are discussed.

278. The Study Area for surveying may be refined if the application boundary is reduced to a developable area as it would not be necessary to survey areas where there will be no development and potential impacts can be avoided.

6.4 Data Sources to Inform the EIA Baseline Characterisation

279. A background data search was undertaken in October 2023 on an initial Study Area. The Highland Biological Recording Group was contacted for records of protected species within 2 km of the Site, extended up to 10 km for bats. Records for designated sites within 2 km (including statutory, non-statutory and ancient woodlands) were also obtained, extended up to 10 km for European designated sites. The site area underwent a change in 2024 to include

additional area to the west of the existing Beinn Tharsuinn Wind Farm. As the change was not substantial and the initial Study Area covered the large majority of the area within the application boundary, it was considered that the current BDS was sufficient in terms of species records so the records centre was not contacted again. Where relevant, distances to designated sites and nearest species records that have been referenced were updated. The data sources listed in **Table 6.1** were used to inform this scoping report:

Table 6.1: Data Sources

Information obtained	Available from
Protected and noteworthy species records	Highland Biological Recording Group
Designated site locations and citations	NatureScot
Designated site locations and citations	Joint Nature Conservation Committee (JNCC) website
Designated site locations and citations	Highland Biological Recording Group
Designations and legal protection of noteworthy species	Joint Nature Conservation Committee (JNCC) website
Areas / Habitats of Strategic Significance	Highland Nature Biodiversity Action Plan https://www.highlandenvironmentforum.info/wp-content/uploads/2022/01/Highland-Nature-Biodiversity-Action-Plan-2021-2026-compressed-.pdf

280. A review of the original Environmental Statement for Beinn Tharsuinn Windfarm (Land Use Consultants, 2002) was also undertaken to gain an insight into the ecological receptors identified during previous surveys and background data searches undertaken at the Site, back in 2002.

6.5 Surveys to inform the EIA Baseline Characterisation

281. To build on the existing known baseline, a suite of surveys will be undertaken at the Site including the proposed turbine base locations plus access tracks to determine the ecological significance of the Site, presence of any ecological constraints and to enable assessment of potential effects.

282. A UK Habitats survey using the UKHab classification system methodology will be undertaken, which can be used to calculate biodiversity net gain as part of the application for the proposed Development, if required. National Vegetation Classification (NVC) surveys will then be undertaken in suitable habitat to determine the likelihood for ground water dependent terrestrial ecosystems (GWDTEs).

283. Based on existing information and local knowledge, it is proposed that surveys for the following protected species are also undertaken:

- badger (*Meles meles*) (detailed surveys within 50 m of the developable area to search for evidence such as setts, latrines and footprints followed by monitoring of setts if required);

- otter (*Lutra lutra*) (search of evidence 200 m upstream and downstream of any watercourses within the developable area);

- water vole (*Arvicola amphibius*) (search of evidence 100 m upstream and downstream of any watercourses within the developable area, two surveys may be undertaken to account for seasonal variation if required);

- pine marten (*Martes martes*) (detailed surveys of suitable habitat within 250 m of the developable area to search for evidence such as dens, scats and footprints (followed by monitoring of dens if required);

- red squirrel (*Sciurus vulgaris*) (detailed surveys of suitable habitat within 50 m of the developable area to search for evidence such as dreys, feeding remains and footprints (followed by monitoring of dreys if required);

- wild cat (*Felis silvestris*) (detailed surveys of suitable habitat within 200 m the developable area to search for evidence such as dens, scats and footprints (followed by monitoring of dens if required); and

- fish habitat walkover and freshwater pearl mussel walkover 50 m upstream and 100 m downstream of watercourses within the developable area (to determine if further surveys are required), as well as aquatic invertebrate surveys.

284. Bat surveys have already been undertaken at the Site by WSP; however, these only included the proposed repowering area. As these were undertaken in 2020, consultation will be undertaken with NatureScot to determine if updated surveys of this area are required in the 2025 bat active season. Bat surveys of the proposed western extension will be required as no bat surveys have been undertaken of this area to date. Updated surveys will be undertaken to the latest bat survey guidelines using static bat detectors. A ground level tree assessment will also be undertaken of any trees within 30 m of proposed works, since the application boundary includes a small area of trees in the south-western corner. This assessment would identify if the trees have bat roost potential.

285. Presence/absence surveys for reptiles and great crested newt (*Triturus cristatus*) have been scoped out as reptiles are assumed to be present and can be covered by a precautionary works method statement whereas great crested newt is considered to be absent from this geographical location.

286. All detailed ecology surveys will follow industry guidance and survey protocols, including, but not limited to, the use of the following guidance:

- Rodwell, J.S. (ed.) (1991 - 2000) British Plant Communities. Volumes 1 - 5. Cambridge University Press, Cambridge, UK.

- Smith, A.J.E. (2004) The Moss Flora of Britain and Ireland, 2nd Edition. Cambridge University Press, Cambridge.

- Stace, C.A. (2019) New Flora of the British Isles, 4th Edition. Cambridge University Press, Cambridge, UK.

- Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition), Bat Conservation Trust.
- Gurnell, J., Lurz, P., McDonald, R. and Pepper, H. (2009) Practical techniques for surveying and monitoring squirrels, Forestry Commission Technical Note, FCPN011.
- Neal, E. and Cheeseman, C. (1996) Badgers. T & A D Poyser Ltd, London; Andrews (2013) Badger sett classification method (In Practice, CIEEM).
- Strachan, R. (2007). National survey of otter *Lutra lutra* distribution in Scotland 2003-04. Scottish Natural Heritage Commissioned Report No. 211.
- Strachan R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook. Wildlife Conservation Research Unit.

287. In addition to the proposed surveys, information provided by relevant statutory bodies and interested parties during the consultation process for the proposed Development will be reviewed and included in the ecological assessment where appropriate. This will include consultation responses from NatureScot, as well as other consultees such as the local fisheries trust.

6.6 Baseline Conditions

288. Information on designated sites was collated and mapped by RSK to show their proximity in relation to the proposed Development. This includes Special Areas of Conservation (SACs), SPAs, Ramsar sites and SSSIs as well as ancient woodlands and Local Wildlife Sites. Designated sites located within the Study Area are shown on **Figure 6.1**.

289. The Site itself is not covered by any designations, and neither is the immediate area surrounding it. However, the following European designated sites (**Table 6.2**) lie within 10 km of the application boundary:

Table 6.2: European designated sites within 10 km of the Site

Site name	Designation	Distance (m) and orientation
Morangie Forest	SPA	3,270 SE
Dornoch Firth and Morrich More	SAC	4,190 NE
Loch Achnacloich	SAC	5,509 SE
Dornoch Firth and Loch Fleet	Ramsar, SPA	5,977 NE
Novar	SPA	6,310 S
Ledmore Wood	SAC	6,530 N
River Oykel	SAC	7,615 NW
Strath Carnaig and Strath Fleet Moors	SPA	8,805 N
Ben Wyvis	SAC, SPA	9,065 SW
Moray Firth	SAC	9,245 E

Site name	Designation	Distance (m) and orientation
Amat Woods	SAC	9350 NW

290. The following statutory designated sites (**Table 6.3**) lie within 2 km of the application boundary:

Table 6.3: Statutory designated sites within 2 km of the Site

Site name	Designation	Distance (m) and orientation
Struie Channels	SSSI	1,552 E
Black Park, Edderton	SSSI	1,879 NE

291. There are no non-statutory designated sites within 2 km of the application boundary; however, there are three areas of ancient semi-natural woodland within this distance. The closest area of ancient woodland is ancient semi-natural woodland that is approximately 455 m south of the application boundary.

292. The Highland Nature Biodiversity Action Plan lists the following habitats as local formal targets:

- Upland and moorland
- Peatland and forest
- Woodland and forest
- Freshwater: rivers, burns and lochs
- Agricultural land
- Coast and marine.

293. Habitats within the application boundary, as reported within the original Environmental Statement from 2002, comprise predominantly heather moorland and peatland. Habitats present in 2002 included semi-natural broadleaved woodland, coniferous plantation, unimproved acid grassland, continuous bracken, acid dry dwarf shrub heath, lichen/bryophyte heath, dry heath/acid grassland mosaic, sphagnum blanket bog, dry modified bog, acid flush and dysotrophic standing water.

294. The only mammal species recorded at the Site during previous surveys were brown hare (*Lepus europaeus*), fox (*Vulpes vulpes*) and roe deer (*Capreolus capreolus*). Adder (*Vipera berus*) and common lizard (*Zootoca vivipara*) were also seen on the Site during the surveys. The invertebrate community was considered at that time to be restricted due to the scarcity of

flowering herbs and absence of trees or tall shrub cover. No other protected species were recorded and dedicated bat or aquatic surveys were not undertaken at that time.

295. Bat surveys were undertaken within the repowering area by WSP, in 2020. These comprised using static bat detectors at proposed turbine locations. The static detectors were deployed three times throughout the bat active season, once in spring (April/May), once in summer (June/July) and once in autumn (August/September). Twelve detectors were deployed and left for a minimum of ten nights at each location.

296. The bat surveys revealed the presence of brown long-eared bat (*Plecotus auritus*), common pipistrelle (*pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and *Myotis sp.* (not identified to species level).

297. The background data search undertaken in October 2023 returned records of the protected species listed in Table 6.4, Table 6.5, and Table 6.6.

Table 6.4: Bat records within 10 km of the Site (no records within 2 km)

Latin name	Common name	Designation	Most recent
Chiroptera	bat	HR-1994(Sch 2)	1999
Myotis	myotis bat species	HR-1994(Sch 2), SBL	2007
Myotis daubentonii	Daubenton's bat	HR-1994(Sch 2), SBL	2013
Myotis nattereri	Natterer's bat	HR-1994(Sch 2), SBL	2011
Pipistrellus	pipistrelle bat species	HR-1994(Sch 2), SBL	2007
Pipistrellus pipistrellus	common pipistrelle	HR-1994(Sch 2), SBL	2015
Pipistrellus pygmaeus	soprano pipistrelle	HR-1994(Sch 2), SBL	2013
Plecotus auritus	brown long-eared bat	HR-1994(Sch 2), SBL	2015

Table 6.5: Protected species records within 2 km of the Site

Latin name	Common name	Designation	Most recent	Records within 100 m
Mammals				
Arvicola amphibius	water vole	WCA5, SBL, GB RDB(EN)	2004	Yes
Lutra lutra	otter	HR-1994(Sch 2), SBL	1990	
Martes martes	pine marten	WCA5, SBL	2010	Yes
Meles meles	badger	BA	2002	
Reptiles				
Vipera berus	adder	WCA5, SBL	2010	
Zootoca vivipara	common lizard	WCA5, SBL	2010	Yes

*Wildlife and Countryside Act (WCA), Habitats Regulations (HR), Schedule 2 (Sch 2), Scottish Biodiversity List (SBL), Red Data Book (RDB), endangered (EN), Badger Act (BA).

Table 6.6: Noteworthy species records within 2 km of the Site

Latin name	Common name	Designation
Amphibians		
Bufo bufo	common toad	WCA5, SBL
Rana temporaria	common frog	WCA5
Invertebrates		
Coenonympha tullia	large heath	WCA5, SBL, GB RDB(VU)
Mammals		
Lepus timidus	mountain hare	SBL

*Vulnerable VU.

6.7 Mitigation

298. As well as helping to inform the EIA process, the results of the proposed baseline surveys and desk study will also be used to determine key constraints for the windfarm design. For example, the vegetation surveys will provide data to identify sensitive habitats, including GWDTEs, that should be avoided where possible. Buffer zone sizes, required to protect the local hydrological regime supporting the habitat, will vary depending on a range of factors including the extent and depth of proposed excavation. Recommended buffer zones will be determined alongside the hydrology and hydrogeology constraints.

299. Significant effects upon ecological receptors will be avoided or minimised where possible through the iterative design process. Good practice during construction and operation of the proposed Development would also be implemented. Methods of works would be described in suitable documents as appropriate such as a habitat management and enhancement plan (HMEP) and species protection plans, as well as utilisation of an Ecological Clerk of Works (ECoW) as required.

300. Pre-construction surveys for protected species will be undertaken prior to any works commencing at the Site. Protected species resting sites (e.g., badger setts, otter holts, bat roosts) will be avoided with appropriate buffer zones where possible. Where this is not achievable, appropriate best practice mitigation measures will be proposed and the potential effects of the loss or disturbance to such sites fully considered in the EIAR and in accordance with the legislation protecting the species. Should any protected species be identified within the Study Area and cannot be avoided, licences from NatureScot will be applied for as required using the up-to-date survey information.

301. To reduce the potential for bat morality risk from the operational windfarm, minimum buffer zones around existing or proposed woodland edges and waterbodies will be proposed and will comply with current best practice guidance.

302. Where likely significant effects cannot be mitigated through design, measures to prevent and reduce adverse effects will be proposed and set out in the EIAR for each phase of the proposed Development (i.e., construction, operation and decommissioning).

6.7.1 Enhancement

303. As well as providing information on habitat management, in accordance with the requirements of the policies of NPF4, opportunities for biodiversity enhancement measures will also be identified and included within the HMEP.

6.8 Description of Likely Significant Effects

304. The assessment will concentrate on the effects of the proposed Development upon those ecological receptors identified during survey work and as advised by consultees, as follows.

6.8.1 Construction

305. The proposed Development has the potential to introduce ecological effects during construction as follows:

- effects on terrestrial habitats including direct (i.e., permanent loss of habitat within the working areas due to ground and excavation works for the new turbine bases, infrastructure and access tracks) and indirect (i.e., changes caused by effects to be supporting systems such as groundwater or overland flow);
- fragmentation of habitats or severance of ecological corridors during construction, as well as degradation of habitats that cannot easily be recreated;
- effects to aquatic habitats will be limited to the ecological effects of changes in water conditions through potential pollution. Hydrological effects such as potential impacts upon GWDTEs, hydrology and peat will be addressed separately within the Hydrology Chapter of the EIAR (as discussed in **Chapter 7** of this Scoping Report) and will be considered within the Ecology Chapter, as appropriate;
- effects to aquatic designated sites due to the potential for pollution events;
- impacts on ancient woodland, including the protected species using them, given the close proximity of some woodlands to the application boundary;
- effects on protected species (including bats) including direct (i.e., loss of life as a result of the proposed Development; loss of key habitat; barrier effects preventing movement to/from key habitats; and general disturbance from movement of personnel and machinery as well as noise and vibration) and indirect (i.e., loss/changes of/to food resources; population fragmentation; degradation of key habitat, e.g., as a result of pollution);
- temporary and potentially permanent displacement of species from within the working areas, which would be particularly relevant to species such as bats, otter, reptiles and water vole;

- impacts on adjacent habitats (and the species that use them), for example through noise and visual disturbance, especially in the area where new turbines are proposed as species will not be accustomed to disturbance here;

- environmental incidents and accidents e.g., spillages, noise, fire and emissions; and

- rainwater runoff from hard-standing or during construction, such as track-way panels or temporary stone access routes.

306. Longer-term impacts, though more likely to be avoided or reduced through mitigation, may include the following in increasing order of permanence:

    - modification of habitats and introduction of undesirable species (such as injurious weeds or invasive alien species) because of traffic movements, reinstatement works and landscaping; and

    - long-term recovery of important habitats which cannot easily be recreated, although this is considered unlikely as it should be possible to avoid important habitats given the small amount of land-take required for turbine bases and infrastructure.

307. Where such impacts occur, additional mitigation measures (beyond embedded mitigation) may be adopted to help eliminate or offset impacts, such as timing of works, micro-siting of the turbine bases and pre-construction checks for protected species, as discussed in **Section 6.7**.

6.8.2 Operation

308. There may be direct effects on protected species, namely bats, during the operation of the proposed Development, due to strikes with turbine blades or other infrastructure or barotrauma.

309. There may be local disturbance to species due to noise from the proposed Development; however, it is expected that animals will readily adapt to new levels of noise over time, especially in the proposed repowering area given that there are already operational turbines within the Site.

310. Opportunities to provide enhancements following construction in such a way as to benefit biodiversity will be explored. Areas suitable for enhancement will be identified during the site surveys and proposed measures will be clearly identified within the EIAR chapter and accompanying technical reports.

6.8.3 Decommissioning

311. At the decommissioning phase, the potential effect on ecological receptors is expected to be similar to or less than those experienced during construction.

312. The reinstatement of land will offer potential to enhance the area for biodiversity.

6.8.4 Cumulative

313. The ecological assessment will include consideration of potential cumulative effects as a result of the proposed Development in combination with other existing development and/or approved development. The scope of projects to be considered in the cumulative assessment will be agreed with The Highland Council.

6.8.5 Habitats Regulations Appraisal

314. As part of the ecological assessment process, there will be a requirement for assessment of the project under the Conservation of Habitats and Species Regulations 2017 and (depending on the details of the project design and the results of the screening) for Appropriate Assessment. This is due to the presence of internationally designated sites within 10 km of the proposed Development.

315. A Habitats Regulations Appraisal Screening Report will be prepared and submitted for the proposed Development. This document will include all European designated sites (including SPAs) and International designated Ramsar sites which are designated for birds and discussed within **Chapter 5** of this Scoping Report.

6.9 Receptors/Matters to be Scoped into further Assessment

316. In summary, the following parameters are to be scoped into the EIA:

- Construction Phase and Decommissioning Phase;
- potential temporary and permanent impacts on Dornoch Firth and Morrich More SAC, Loch Achnacloich SAC, River Oykel and Moray Firth SAC given their aquatic nature;
- potential temporary and permanent impacts on ancient woodlands;
- potential temporary and permanent impacts on habitats;
- potential temporary and permanent impacts on protected species, including bats;
- Operation Phase;
- potential impacts on species due to new levels of noise from turbines and lighting from the substation; and
- direct effect on bats due to potential for strikes with turbine blades and barotrauma.

6.10 Receptors/Matters to be Scoped Out of Further Assessment

317. Great crested newts have been scoped out of the proposed assessment due to the upland nature and the geographical location of the Site. Further to this, no records of great crested newt have been identified within 2 km of the Site during a high-level desk study. It is considered unlikely that this species will be present within the Site and the surrounding habitats.

318. Due to the size of the Site and the distance of some designated sites from the application boundary (excluding SPAs and Ramsar sites which are discussed in **Chapter 5**, and the SACs discussed in **Section 6.8),** it is considered that these will not be impacted by the proposed Development and are therefore scoped out.

319. The decommissioning phase of the proposed Development is scoped out as this is considered likely to have similar effects as construction (covered in Section 6.7 above), albeit reduced in magnitude and extent due to less predicted groundworks.

6.11 Opportunities for Enhancing the Environment

320. In accordance with the requirements of the policies of NPF4, opportunities for biodiversity enhancement measures will be identified and included within the HMEP. These may include erection of bat and bird boxes in nearby trees, planting of native species and restoration of peatland habitat, for example.

6.12 Proposed Assessment Methodology

321. Ecological impact assessment is governed by international and national legislation. In Scotland, the key legislation applicable for ecology is as follows:

- The Electricity Act 1989;
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended);
- The Conservation of Habitats and Species Regulations 2017;
- The Wildlife and Countryside Act 1981 (as amended);
- The Nature Conservation (Scotland) Act 2004;
- Wildlife and Natural Environment (Scotland) Act 2011;
- Protection of Badgers Act 1992;

- The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003; and
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

322. Planning policy relevant to the proposed Development is set out in **Chapter 3** 'Planning and Energy Policy Context' of this Scoping Report.

323. On completion of field surveys, an Ecology Chapter for the EIAR will be produced. Impacts will be assessed in accordance with the CIEEM guidance (2018) and other relevant guidance.

324. The assessment will describe the potential direct and indirect impacts of the proposed Development upon ecological receptors.

325. The first stage of an EcIA is 'determining value' of ecological features or 'receptors'. CIEEM places the emphasis on identifying different aspects of ecological value including designations, biodiversity value, potential value, secondary or supporting value, social value, economic value, legal protection and multi-functional features. These values are applied to the receptors within a defined geographical context and examples can be seen in **Table 6.7.**

Table 6.7: Resource/Receptor Evaluation Criteria

Receptor value	Example criteria
International	An internationally designated site i.e., special area of conservation (SAC) and/or Ramsar site or proposed site (or pSAC). Large areas of priority habitat listed under Annex I of the Habitats Directive, and smaller areas of such a habitat that are essential to maintain the viability of that ecological resource. A regularly occurring, nationally significant population of any internationally important species, listed under Annex II or Annex IV of the Habitats Directive.
National	A nationally designated site e.g., site of special scientific interest (SSSI), or area meeting criteria for national level designations e.g., national nature reserve. Significant extents of a priority habitat identified in the UKBAP / Scottish Biodiversity List (SBL), or smaller areas which are essential to maintain the viability of that ecological resource. A regularly occurring, regionally significant population of any nationally important species listed as a UK BAP / SBL priority species and species listed under Schedule 1 or Schedule 5 of the Wildlife and Countryside Act or Annex II or Annex IV of the Habitats Directive.
Regional	Viable areas of key semi-natural habitat identified in the UKBAP. A regularly occurring, locally significant population of any nationally important species listed as a UK BAP / SBL priority species and species listed under Schedule 5 of the Wildlife and Countryside Act or Annex II or Annex IV of the Habitats Directive. Sites which exceed the local authority-level designations but fall short of SSSI selection guidelines, including extensive areas of semi-natural woodland.
Local	Nature conservation sites selected on local authority criteria. Other species of conservation concern, including species listed under the local biodiversity action plan (LBAP). Areas of habitat or species

Receptor value	Example criteria
	considered to appreciably enrich the ecological resource within the local context e.g., species-rich flushes or hedgerows. All other species and habitats that are widespread and common and which are not present in locally, regionally or nationally important numbers or habitats which are considered to be of poor ecological value.
Site	Habitats of limited ecological value, e.g., amenity grassland, but which contribute to the overall function of the application site's ecological functions. Very small, but viable, populations of species or habitats of conservation importance, or a species or habitat in a relevant BAP which is not important for the maintenance of the local meta-population.

326. The next stage of an EcIA is to predict and characterise the likely change and impact on the ecological receptors identified. It is necessary to consider all of the following parameters;

- whether the change is positive or negative;
- the magnitude or severity of the change;
- the extent of the area subject to a predicted impact;
- the duration the impact is expected to last prior to recovery or replacement of the resource or feature;
- whether the impacts are reversible, with recovery through natural or spontaneous regeneration, or through the implementation of mitigation measures or irreversible, when no recovery is possible within a reasonable timescale or there is no intention to reverse the impact; and
- the timing and frequency of the impact, i.e., conflicting with critical seasons or increasing impact through repetition.

327. The CIEEM Guidelines also stress consideration of the likelihood that 'a change/activity will occur and also the degree of confidence in the assessment of the impact on ecological structure and function'. Likelihood is then specified using the following terms;

- certain (95% probability or higher);
- probable (50-94% probability);
- unlikely (5-49% probability); or
- extremely unlikely (less than 5% probability).

328. The assessment of potential effects will be undertaken with the inclusion of embedded mitigation for the proposed Development. Residual effects include any additional mitigation

measures required. An assessment will be made of the significance of residual effects, i.e., the significance of the effects that are predicted to remain after the implementation of all committed mitigation measures.

329. Significance will be assessed solely on an ecological basis. There are two key aspects to this. Firstly, what constitutes a significant ecological effect is determined in relation to the concept of 'integrity'. Integrity is defined as 'the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified'. Secondly, it is always stated in relation to a geographical context. Thus, an effect is described as significant at the level at which the integrity of the ecological receptor is affected. An effect may still be significant at some geographical level below that at which the receptor was deemed to be valuable, e.g., loss of common plant species may not affect the integrity of a SSSI valued at a national level, but it may still be a significant effect at the local or site level.

6.13 Difficulties and Uncertainties

330. To ensure transparency within the EIA process, the following difficultites and uncertainties have been identified:

- The impacts on ecological receptors cannot be accurately determined until completion of site surveys to gain up-to-date information on habitats and protected species at the Site; therefore, those presented in this Scoping Report are indicative at this time.

- On completion of the surveys, a more detailed assessment of effects and their significance can be made.

6.14 References

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Strachan R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook. Wildlife Conservation Research Unit.

6.15 Scoping Questions

331. The following questions are directed to consultees:

- Do you agree with the proposed Study Areas?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Do you agree that the surveys proposed to inform the EIA baseline characterisation are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of the EIA?
- Do you accept the bat data collected in 2018 for the repowering area or would you require updated information to be collected in the survey season of 2025, along with bat data for the area for the proposed extension?

07.

Geology, Soils and Peat, Hydrology and Hydrogeology

7. Geology, Soils and Peat, Hydrology and Hydrogeology

7.1 Introduction

332. This Chapter presents the key impacts likely to give rise to significant adverse environmental effects in relation to geology, soils, peat, hydrology and hydrogeology, and to obtain agreement on the approach and scope to the EIAR, including those elements that are not considered necessary to assess further.

7.2 Study Area

333. The Study Areas have been defined by professional judgement based on the upland location, nature and size of the proposed Development, and experience working on similar developments. Due consideration has been given to relevant guidance on hydrological and geological assessment.

334. The assessed area will include the Site and a buffer zone of 2 km around the application boundary. For hydrological receptors, impacts up to 5 km downstream of the Site would be considered, as impacts, such as pollution events, can be transmitted to distances greater than 2 km downstream.

7.3 Data Sources to Inform the EIA Baseline Characterisation

335. The following data sources will be used to inform the EIAR baseline characterisation:

- geological maps, including both bedrock and superficial geology;
- hydrogeological maps, including productivity and groundwater vulnerability;
- Scotland's Soils maps, including Carbon and Peatland mapping;
- high-resolution aerial or satellite imagery of the project area and its immediate surroundings;
- SEPA water quality and flood risk data for the project area;
- vegetation mapping and the Functional Wetland Typology for Scotland;
- borehole records, where available. These will be sourced from records held by the British Geological Survey (BGS) and other sources as available;
- local authority private water supply records;

- any available utilities and Scottish Water investigations and details of public water supplies and assets;
- previous assessments carried out in relation to neighbouring windfarm projects and previous studies undertaken in the project area; and
- data gathered from site visits, including peat depth and vegetation surveys and any material arising from future surveys that may be relevant.

7.4 Surveys to Inform the EIA Baseline Characterisation

336. Surveys planned to inform the EIAR include:

- a hydrological and geological walkover to obtain site-specific detail on ground conditions and water environment features within the Site and immediate surroundings;
- a Phase 1 peat depth survey across the Site; and
- a Phase 2 peat survey focusing on locations of proposed infrastructure.

7.5 Baseline Conditions

7.5.1 Hydrology

337. The Site is located in an upland region, with areas of steeply sloping ground. The Site lies across the watershed for a number of river systems. The main rivers are the River Averon to the south-west, the Strathrory River to the south-east, the Easter Fearn Burn to the north-east and Wester Fearn Burn to the north. A small part of the Site to the east lies within the Craigroy Burn catchment.

338. There are a number of named watercourses within the Site:

- The Black Water and its main tributaries Allt Coire a' Chaorainn Mòr and Allt Coire na Cloiche, all form part of the River Averon catchment;
- The Strathrory River and its tributaries, which form the Strathrory River catchment;
- The Allt Mòr and its tributaries, which form part of the Easter Fearn Burn catchment;
- The Allt Leathad na Siorramachd, Allt Coire Thorcaill, Allt Coire Bhenneit and their tributaries, which form part of the Wester Fearn Burn catchment; and
- The Allt na Meine and its tributaries, which form part of the Craigroy Burn catchment.

7.5.2 Geology

339. The Site is underlain by varied bedrock (BGS, 2024). The north-eastern corner of the Site is underlain by small amounts of the Raddery Sandstone Formation and the Braemore Mudstone Formation, with the majority of this part of the Site underlain by the Fearn Granite Pluton. The west of the Site is mostly underlain by Crom Psammite with small areas of the Diebidale Pelite Formation and the Carn Chuinneag and Inchbae Augen Gneiss present in the far west. Part of the south-central region of the Site is underlain by the Ben Wyvis Pelite Formation. A thrust (compression) fault with a south-west to north-east orientation occurs across the Site.

340. Previous site works have identified that the Fearn Granite is strongly weathered and breaks down very readily, and as a result is not generally considered useful for aggregate.

341. Superficial deposits across the Site are dominated by peat, but there are also small areas of till and morainic deposits, alluvium and alluvial fan deposits (BGS, 2024).

342. The Site is not located within a Coal Mining Reporting Area and there are no records of mineral mining in the area. As a result there are no mining constraints (Mining Remediation Authority, 2024).

7.5.3 Peat and Soils

343. The Site is indicated to be underlain by peat, peaty gleys and peaty podzol soils (Scotland's Soils, 2023a).

344. In terms of peatland and carbon, the Site is largely underlain by Class 1 peat, with isolated areas of Classes 2, 3 and 5 also present throughout the Site (Scotland's Soils, 2024b). Classes 1 and 2 peatland are considered to be nationally important priority peatland habitat, both of which are present on the Site. Classes 3 and 5 are not considered priority peatland, although Class 3 peatland is associated with carbon-rich soils with some potential areas of deep peat.

345. Peat is expected to form a key constraint for the proposed Development.

7.5.4 Hydrogeology

346. The low productivity Northern Highlands aquifer (ID 150701) underlies most of the Site. An isolated area of the moderately productive Invergordon aquifer (ID 150679) underlies the north-eastern region of the Site. Both these aquifers are composed of Old Red Sandstone and in the latest reporting year (2023) were classified under the Water Framework Directive (WFD) to have an Overall Status of 'Good' (Scottish Government, 2023b).

7.5.5 Groundwater-Dependent Terrestrial Ecosystems (GWDTE)

347. As identified in **Chapter 6 Ecology**, an NVC survey will be completed across the Site. Habitats identified to be potential GWDTE will be assessed on a location-by-location basis to determine their water supply and whether they are genuinely groundwater-dependent or not.

7.5.6 Private and Public Water Supplies

348. THC's private water supply (PWS) records indicate that there are a number of PWS within 5 km of the Site that will require assessment.

349. Two surface Drinking Water Protected Areas (DWPA) are indicated to be near the Site, covering the Wester Fearn Burn catchment and part of the River Averon catchment (Scottish Government, 2024a). Consultation will be undertaken with Scottish Water to confirm the presence of any abstractions or assets within the surrounding area and to ensure that all necessary protections are included in the assessment. Consultation will also be undertaken with SEPA to confirm registered water abstractions within the hydrological Study Area.

7.5.7 Flood Risk

350. The overall flood risk for the Site is low (SEPA, 2024a). There is a medium to high likelihood of fluvial flooding along Wester Fearn Burn and its tributaries Allt Coire Bhenneit and Allt Coire Thorcaill. However, this area is constrained to a small area to the north-west of the Site. There is a medium to high likelihood of flooding from the Allt Mòr in the north of the Site and the Strathrory River in the south-east but in both areas this is also confined to the watercourse channels. There are no further areas indicated to be at risk of pluvial or fluvial flooding within the Site.

7.5.8 Designated Sites

351. There are four designated sites within 5 km of the application boundary that have been designated for reasons associated with geology, soils, peat, hydrology and hydrogeology (NatureScot, 2024). These are:

- Dornoch Firth & Morrich More Special Area of Conservation;
- Kinrive - Strathrory Site of Special Scientific Interest (SSSI);
- Struie Channels SSSI and Geological Conservation Review (GCR) site; and
- Black Park, Edderton, SSSI and GCR.

352. These sites will be assessed for linkages to the proposed Development.

7.6 Mitigation

353. Following relevant guidance, mitigation measures fall into three categories (IEMA, 2016). Primary mitigation involves placing measures that help to avoid or reduce the possibility of detrimental environmental effects within the design or location of the Project. Secondary mitigation involves implementing measures to further reduce the environmental effects to 'not-significant levels', after the assessment process has been completed. Tertiary mitigation includes measures that are required to meet legislative requirements through standard practice and are implemented independently of the EIA process.

7.6.1 Construction

354. Key additional mitigation during the construction phase include:

- surface water and sediment management. Surface water quality (including turbidity/suspended solids) should be monitored before, during and after construction, in addition to regular visual inspections to ensure the effectiveness of the mitigation measures and a minimal effect on the aquatic environment;
- pollution prevention. Trigger points should be outlined, and action will be taken should a problem occur, e.g., pollution event, release of sediment etc. Trigger points should be related to monitoring activities informed by baseline data;
- watercourse crossing and drainage design;
- peat management and peat handling. Appropriate design of Site to avoid and reduce the extraction of peat or construct in areas of shallower peat if necessary; and
- peat slide risk factors and management. Avoid or reduce peat displacement from the development of excavations, if stockpiling peat, assess peat slide risk.

7.6.2 Operation

355. The main operational mitigation includes:

- ongoing monitoring of water quality, drainage infrastructure and track status;
- sediment management during maintenance; and
- pollution prevention.

7.7 Description of Likely Significant Effects

7.7.1 Potential Impacts

356. Potential impacts on geology, soils and peat, hydrology and hydrogeology will be assessed. Emphasis will be given to potential impacts on water supply assets, watercourses, peat and to changes in groundwater quality and quantity with respect to sensitive receptors.

7.7.2 Construction

357. Potential impacts from construction that will be considered include:

- physical changes to overland drainage and surface water flow paths;
- particulates and suspended solids;

- water and soil contamination from concrete, fuels, oils or foul drainage;
- changes in or contamination of water supply to vulnerable receptors (including water supply, GWDTE and designated sites);
- increased flood risk;
- soil erosion and compaction; and
- peat instability.

358. There is potential for significant effects on the following receptors;

- peat, peat soil and peatland;
- surface watercourses and waterbodies;
- groundwater;
- private water supplies;
- potential GWDTE;
- designated sites; and
- downstream infrastructure and property arising from increased flood risk.

7.7.3 Operation

359. Operational impacts are anticipated to be considerably reduced relative to the construction phase. The main potential impacts during operation would be due to pollution events that may affect the quality of water supply intakes, surface water, groundwater, soil and peat.

360. Potentially significant effects are:

- particulates and suspended solids;
- water and soil contamination from fuels, oils or foul drainage; and
- increased flood risk.

7.7.4 Decommissioning

361. At the decommissioning phase, the potential effects are expected to be similar to or less than those experienced during construction.

7.7.5 Cumulative

362. An assessment of the impacts of the proposed Development in combination with, and sequential to, other windfarms within 5 km of the application boundary will be undertaken. The assessment will include windfarms under construction, consented windfarms and windfarms at application stage. Windfarms at scoping stage will not be included. Windfarms that are already operational will be included as part of the baseline description.

363. The effects of the proposed Development on the hydrology, hydrogeology, geology, and soil will be combined with those of other windfarms and will be assessed based on several factors. Due to the static nature of geology and soils, cumulative effects are likely to be negligible, although cumulative effects arising from peat loss or disturbance would be considered. Hydrogeological and hydrological effects will be assessed by the distance between the developments and flow directions/catchment areas. Designated sites will be assessed on their position in relation to all relevant developments.

7.8 Receptors/Matters to be Scoped into Further Assessment

364. **Table 7.1** lists the receptors/matters to be scoped into further assessment.

Table 7.1: Receptors and matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
Physical changes to overland drainage and surface water flows	Construction	Construction works will require ground works and installation of temporary and long-term drainage to protect the working area and long-term infrastructure. This drainage will have an effect on the natural surface water flow patterns and could change catchment flow levels if not designed and installed appropriately.
Particulates and suspended solids	Construction & Operation	Construction works will require considerable ground works, all of which have potential to mobilise particulate and soil materials. Particulates and suspended solids can cause significant damage to watercourses and waterbodies if not adequately managed. Operational phase infrastructure and drainage will require maintenance to ensure that particulates and suspended solids are managed appropriately in order to avoid particulate release to watercourses.
Water and soil contamination from concrete, fuel, oils or foul drainage	Construction & Operation	A range of potentially polluting materials will be present on site throughout construction, and to a lesser extend during operation. These will all require careful handling in

Receptor/Matter	Phase	Justification
		order to prevent spills and pollution events.
Changes in or contamination of water supply to vulnerable receptors	Construction	Excavation works will change shallow groundwater flow paths and could adversely impact receptors reliant on groundwater. Spills of polluting materials could also adversely affect sensitive receptors.
Increased flood risk downstream	Construction & Operation	Although the Site has low flood risk, changes to water flow paths and focusing of flows could increase risk of flooding in areas downstream if drainage is not suitably designed, constructed and maintained.
Soil erosion and compaction	Construction	Excavation, storage, reinstatement and plant movements can all contribute to soil erosion, compaction and loss of quality. This is particularly important in relation to peat and peat soils, which are especially sensitive to handling.
Peat instability	Construction	Excavation works and site activity can contribute to increased risk of induced peat instability, leading to peat landslides. These can cause massive damage to the peat body and to sensitive receptors affected by the runout path.

7.9 Receptors/Matters to be Scoped Out of Further Assessment

365. Table 7.2 lists the receptors/matters to be scoped out of further assessment.

Table 7.2: Receptors and matters to be scoped out of further assessment

Receptor/Matter	Phase	Justification
Flood risk within the Site	Construction & Operation	The overall flood risk at the Site is low (SEPA, 2024). Flood risk is mostly confined to watercourse channels and would be managed by avoidance of construction within 50 m of watercourses except where crossings are required. Increased flood risk to areas downstream would be assessed as part of the drainage design process.

Receptor/Matter	Phase	Justification
Mining & mineral extraction	Construction & Operation	There are no mine workings within the Site or within 5 km of the application boundary. No active quarrying or mineral extraction has been identified within the Site or within 2 km of the application boundary.

7.10 Opportunities for Enhancing the Environment

366. The widespread coverage of peat at the Site suggests that peatland restoration may be appropriate for parts of the Site, particularly in areas with eroding peat or locations where attempts have been made to drain peaty areas. This would be discussed with the terrestrial ecology team as there is overlap with habitat management and potential net gains from a co-ordinated approach.

7.11 Proposed Assessment Methodology

7.11.1 Guidance and Legislation

367. Relevant legislation documents reviewed and considered as part of this assessment include:

- Water Environment and Water Services (Scotland) Act 2003;
- Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- The Water Resources (Scotland) Regulations 2006;
- The Water Intended for Human Consumption (Private Supplies) Regulations 2017;
- Flood Risk Management (Scotland) Act 2009;
- Environmental Protection Act 1990;
- Environment Act 1995; and
- The Contaminated Land (Scotland) Regulations 2000 (as amended).

368. Relevant policy documents reviewed and accounted for as part of the assessment include:

- PAN 51: Planning, Environmental Protection and Regulation (Scottish Executive, 2006);

- PAN 61: Planning and Sustainable Urban Drainage Systems (Scottish Executive, 2001);
- Flood Risk: Planning Advice (Scottish Government, 2015);
- PAN 79: Water and Drainage (Scottish Executive, 2006);
- National Planning Framework 4 (Scottish Government, 2023);
- The Highland-wide Local Development Plan (HwLDP) (THC, 2012); and
- Groundwater protection policy for Scotland (SEPA, 2009).

369. Relevant guidance documents reviewed and included within this assessment include:

- Guidance for Pollution Prevention (GPPs; SEPA, 2024b);
- Land Use Planning System Guidance Note 4 (LUPS GU4) Planning guidance on onshore windfarm developments (SEPA, 2017c);
- Land Use Planning System Guidance Note 31 (LUPS GU31) Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems (SEPA, 2017b);
- Supporting Guidance (WAT-SG-75) Sector Specific Guidance: Water Run-Off from Construction Sites (SEPA, 2021);
- Technical Flood Risk Guidance for Stakeholders, Version 12 (SEPA, 2019);
- Peatland Survey, Guidance on Developments on Peatland (Scottish Government, SNH and SEPA, 2017);
- Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste (Scottish Renewables and SEPA, 2012);
- Groundwater Protection Policy for Scotland, Version 3 (SEPA, 2009);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
- CIRIA C532: 'Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors' (CIRIA, 2001);
- CIRIA C741: 'Environmental Good Practice onsite' (CIRIA, 2015);

- Good practice during windfarm construction, 4th edition (Scottish Renewables *et al.*, 2019);
- The Conservation of Habitats and Species Regulations 2017;
- Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments (Scottish Government, 2017);
- The Scottish Soil Framework (Scottish Government, 2009); and
- BS5930:2015 – Code of Practice for Site Investigation (British Standards Institute, 2015).

7.11.2 Desk-Based Assessment

370. The proposed assessment method involves a combination of desk-based data gathering, site visits and site-specific data collection followed by data analysis to determine the potential significance of effects.

371. Data will be gathered from the following sources:

- geological maps, including bedrock and superficial geology;
- hydrogeological maps, including productivity and groundwater vulnerability;
- Soil Survey of Scotland maps, including carbon and peatland mapping;
- high-resolution aerial or satellite imagery of the project area and its immediate surroundings;
- SEPA water quality and flood risk data for the project area;
- vegetation mapping as available from the ecology consultants;
- borehole records, where available, including BGS online records;
- local authority private water supply records;
- any available utilities and Scottish Water investigations and details of public water supplies and assets;
- previous assessments carried out in relation to neighbouring windfarm projects and previous studies undertaken in the project area; and
- data gathered from site visits, including peat depth and condition surveys, hydrology surveys, vegetation surveys and any material arising from future surveys that may be relevant.

7.11.3 Site-Based Assessment

372. Following the desk study and data gathering exercise, a site reconnaissance and walkover survey will be undertaken.

373. A Phase 1 peat probing and peat condition survey on a 100 m grid will be undertaken across the proposed development area to gain an understanding of the peat depth, variability and condition.

374. A constraints map will then be produced to identify areas of higher sensitivity within the Site that should be avoided during the design process. This will include areas of deeper peat, sensitive wetlands, steep slopes, watercourses and waterbodies and other relevant constraints to development that are identified during the desk study, such as public and private water supply sources and infrastructure.

375. Once an infrastructure layout is available, a Phase 2 peat probing survey will be undertaken. This survey will target all areas with proposed infrastructure or development, including borrow pit locations and all turbine bases. Data from the peat probing surveys will be used to inform a peat management plan (PMP) and peat slide risk assessment (PSRA). The Phase 2 survey will be undertaken in compliance with the Scottish Government, NatureScot and SEPA guidance (2017). Key elements are:

- New tracks: probing at 50 m intervals along the centreline, plus offset probes at 10-25 m to both sides;
- Existing tracks to be upgraded: offset probing on both sides at 50 m intervals; and
- Turbines, crane hardstandings, borrow pits, construction compounds and other infrastructure areas: probing on a 10 m grid across the proposed footprint with an agreed buffer, usually 10-20 m wide, around the footprint.

376. The PMP will estimate volumes of peat for excavation, and options for reuse of this excavated peat within the proposed Development. Reuse options will include consideration of peat for reinstatement and restoration purposes, as well as habitat enhancement opportunities, where suitable. The PMP will also provide outline methods for peat and soil handling and storage.

377. The PSRA will provide a formal assessment of the risk of natural or induced peat failure within and adjacent to the project area during the proposed Development's lifespan. The PSRA will be undertaken in compliance with relevant guidance (Scottish Government, 2017; Scottish Government, NatureScot and SEPA, 2017). Other relevant guidance will be used where appropriate.

378. A drainage impact assessment and watercourse crossing inventory will be provided, to ensure that appropriate drainage is designed into the proposed Development from the outset. This will consider suitable sustainable drainage systems (SuDS) to manage and treat runoff arising from the proposed Development crossing designs will be prepared, to ensure that suitable crossing structures are proposed for each location.

7.11.4 Assessment of Effects and Mitigation

379. An assessment will be made of the potential direct, indirect, cumulative and in-combination effects of the proposed Development on hydrology, hydrogeology, geology and soils. Where relevant, mitigation and control measures will be put forward to manage or mitigate any potential impacts to sensitive receptors that may arise from the proposed Development. Mitigation strategies will be devised and will follow best practice guidance (SEPA, 2024b; SEPA 2024c).

380. Effects significance is assessed using a matrix based on the sensitivity of the receptor, the magnitude of effect and likelihood of effect. Four levels of significance are applicable: Negligible, Low, Moderate and High. Moderate and High are deemed significant in terms of the EIAR Regulations. Details of the significance criteria are provided in **Table 7.3**.

Table 7.3: Significance of effect matrix

Sensitivity	Magnitude	Likelihood	Significance
Very High	Substantial	Likely	Major
		Possible	Major
		Unlikely	Moderate
	Moderate	Likely	Major
		Possible	Moderate
		Unlikely	Moderate
	Slight	Likely	Moderate
		Possible	Minor
		Unlikely	Minor
	Negligible/no change	Likely	Minor
		Possible	Negligible
		Unlikely	Negligible
High	Substantial	Likely	Major
		Possible	Major
		Unlikely	Moderate
	Moderate	Likely	Moderate
		Possible	Moderate
		Unlikely	Minor
	Slight	Likely	Minor
		Possible	Minor
		Unlikely	Minor
	Negligible/no change	Likely	Minor
		Possible	Negligible
		Unlikely	Negligible
Moderate	Substantial	Likely	Major
		Possible	Moderate
		Unlikely	Minor
	Moderate	Likely	Moderate
		Possible	Minor

Sensitivity	Magnitude	Likelihood	Significance
		Unlikely	Minor
	Slight	Likely	Minor
		Possible	Minor
		Unlikely	Negligible
	Negligible/no change	Likely	Negligible
		Possible	Negligible
		Unlikely	Negligible
Low	Substantial	Likely	Moderate
		Possible	Minor
		Unlikely	Negligible
	Moderate	Likely	Minor
		Possible	Minor
		Unlikely	Minor
	Slight	Likely	Minor
		Possible	Negligible
		Unlikely	Negligible
	Negligible/no change	Likely	Negligible
		Possible	Negligible
		Unlikely	Negligible

7.12 Limitations and Uncertainties

381. To ensure transparency within the EIAR process, the following limitations and uncertainties have been identified:

- weather conditions during site surveys can affect the geographical coverage and quality of data collected. For example, under some circumstances weather conditions can make it too dangerous to access certain areas; preceding weather conditions can influence the appearance of watercourses and ground conditions e.g., very wet weather may lead to over-estimation of ground wetness or watercourse size. Use of professional judgement and field experience can help to mitigate this; also scheduling site visits outwith the main winter period (November to February) reduces the risk of dangerously stormy weather; and

- private water supply data relies on information held by THC. This has been supplied by property owners and may be incomplete. Property owners and tenants may not be aware of details of their own supplies. Attempts will be made to verify supply details. Where this is not possible, a worst-case scenario will be assessed, and contingency mitigation measures provided.

7.13 References

BS5930:2015 – Code of Practice for Site Investigation: British Standards Institute, 2015

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7.14 Scoping Questions

382. The following questions are directed to consultees:

- Do you agree with the proposed Study Area?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Do you agree that the surveys proposed to inform the EIA baseline characterisation are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of the EIA?

08. Noise and Vibration

8. Noise and Vibration

8.1 Introduction

383. During their operation, windfarms have the potential to create noise effects through both aerodynamic noise and mechanical noise. Aerodynamic noise would be caused by the interaction of the turbine blades with the air. Mechanically generated noise would be caused by the operation of internal components, such as the gearbox and generator which are housed within the nacelle of the turbine. However, the level of mechanical noise radiated from current technology wind turbines is generally engineered to a low level.

384. During construction, noise and vibration could arise from both onsite activities, such as the construction of onsite access tracks, turbine foundations, the control building (substation) etc. and from the movement of construction related traffic both on the Site and travelling on public roads to and from the Site.

385. This chapter sets out the proposed approach to the assessment of potential effects of noise and vibration on nearby noise-sensitive receptors.

8.2 Consultation

386. The approach to the derivation of baseline background noise levels, any proposed survey locations (if required), relevant noise limits and criteria will be discussed in consultation with the Environmental Health Department of THC. The assessment methodology, with regards to cumulative impacts, will also be discussed.

8.3 Study Area

387. The assessment will consider noise sensitive residential locations in the vicinity of the proposed Development. Specifically, ETSU-R-97 states that noise levels will be considered acceptable, even in the absence of measured baseline data, if predicted noise levels (including cumulative contributions from all windfarms) do not exceed 35 dB L_{A90}. This is often referred to as the simplified ETSU-R-97 noise assessment methodology.

388. Therefore, the Study Area will encompass dwellings where cumulative predicted levels exceed, approach or are likely to approach this 35 dB L_{A90} threshold, provided the specific contribution of the proposed Development is not acoustically negligible relative to that of the other nearby schemes, including those wind turbines built and operating and those which are consented or proposed within the planning system.

389. Noise sensitive residential locations will also be potentially affected by noise or vibration effects from the construction of the proposed Development infrastructure. In addition, dwellings located along the Site access track or transport route will also be considered in relation to construction traffic.

8.4 Data sources to inform the EIA baseline characterisation

390. Sources of information which would be referenced during the assessment will include:-

- Base mapping information for the area, including address information for nearby noise sensitive receptor locations.
- Noise assessments and consents / planning permissions for adjacent wind turbine developments which are acoustically relevant to include within the noise assessment.

8.5 Surveys to Inform the EIA Baseline Characterisation

391. Many of the nearby noise sensitive residential locations may have cumulative predicted noise levels below 35 dB L_{A90} and therefore potentially assessed using the simplified ETSU-R-97 assessment methodology. However, an initial review of the baseline data surveyed for other windfarm schemes, and which are publicly available for the assessments for those schemes, suggests that some were assessed using the full ETSU-R-97 assessment methodology, based upon measured background noise levels. Accordingly, existing baseline levels may have been sufficiently defined for the purposes of an assessment of operational noise in accordance with ETSU-R-97 and best practice.

392. The Beinn Tharsuinn consent noise limits are defined based on the greatest of fixed thresholds of 35 dB(A) day-time and 38 dB(A) night-time, or a margin 5 dB(A) above background noise levels. However, pre-application background noise surveys were not completed as part of the EIAR, therefore background noise levels may have had to be determined during any assessment of compliance, had this been required. Regardless of the existence of such measurements, it would be possible to define relevant noise limits without the benefit of measured baseline background noise levels, with the resulting consent noise limit equal to the simplified ETSU-R-97 noise criteria of 35 dB L_{A90}. The adjacent and consented Revised Strathrory Windfarm, currently under construction, completed a background noise survey at two locations during Dec 2019 and Jan 2020, which formed the basis of the assessment of operational noise according to ETSU-R-97 at eight noise-sensitive receptors. These measurements are likely to be representative of key relevant noise-sensitive receptors for Beinn Tharsuinn; therefore, undertaking additional noise monitoring is not anticipated to be necessary.

393. The potential implication of wind shear effects due to the heights of the turbines to be considered for the proposed Development can be considered in line with best practice, with relevant wind speed references used for existing baseline surveys and noise limits reviewed, with the application of correction factors where necessary.

394. The need for undertaking surveys and suitability of existing baseline background noise surveys to represent the proposed Development would however be subject to further review during the initial phases of assessment. Additional background noise surveys may be undertaken should these be required, in accordance with ETSU-R-97 and best practice, however at this stage this is considered unlikely to be necessary.

8.6 Baseline conditions

395. The Site is located in an area of generally low population density, with a number of individual noise-sensitive dwellings located several kilometres from the wind turbines on the proposed Development, both the proposed turbines and existing operational turbines on Ben Tharsuinn which are to be removed, as well as the two operational turbines on Beinn nan Oighrean, the operational Coire na Cloiche Windfarm and consented Revised Strathrory Windfarm. The background noise environment for these dwellings would mainly be influenced by natural noise sources such as wind-disturbed vegetation, watercourses and birdsong as well as localised activities such farming operations, with some exposed to localised road traffic noise. There could also be a varying influence in the ambient noise environment from operating windfarms and individual small scale wind turbines.

8.7 Mitigation

8.7.1 Construction

396. The following standard construction mitigation measures are assumed to be in place for the purposes of the assessment:

- Restriction of construction hours, and
- good practice management measures relating to control of construction noise and vibration.

397. The above measures would be implemented through the CEMP. The CEMP would also implement any additional site-specific management measures, which are not part of standard good practice, and these would be highlighted as part of the assessment and clearly presented in the noise EIAR chapter.

8.7.2 Operation

398. Mitigation of wind turbine operational noise will be achieved through the design of the proposed Development, such that the relevant ETSU-R-97 noise limits can be achieved at the surrounding properties with commercially available wind turbines, considering the noise emissions from other windfarms in the area. Selection of the final turbine to be installed on the proposed Development would be made on the basis of enabling the relevant site-specific noise limits to be achieved.

8.8 Description of Likely Significant effects

8.8.1 Construction

399. During construction, noise and vibration could arise from both onsite activities, such as the construction of onsite access tracks, turbine foundations, the substation/control building etc., and also from the movement of construction related traffic both onsite and travelling on public roads to and from the Site. Noise and vibration from these activities have the potential to cause temporary adverse effects at nearby noise sensitive receptors.

8.8.2 Operation

400. During operation, wind turbines have the potential to create noise effects through both aerodynamic noise and mechanical noise. Noise emitted from other operational elements of the development are likely to be negligible, and so the operational noise assessment will focus on the noise emitted from the proposed wind turbines. Noise from the wind turbines on the proposed Development, when operating with other nearby wind turbines, have the potential to cause adverse effects at nearby noise sensitive receptors.

8.9 Receptors/Matters to be Scoped into Further Assessment

401. **Table 8.1** lists the receptors/matters to be scoped into further assessment.

Table 8.1: Receptors/matters to be scoped into further assessment

Receptor/Matter	Phase	Justification
Noise and vibration impacts on nearby noise sensitive receptors	Construction	Potential for loss of amenity and annoyance
Noise impacts on nearby noise sensitive receptors	Operation	Potential for loss of amenity and annoyance

8.10 Receptors/matters to be scoped out of further assessment

402. It is recognised that vibration resulting from the operation of windfarms is imperceptible at typical separation distances. It is therefore proposed to scope out the assessment of vibration produced during the operation of the proposed Development.

403. With regard to infrasound and low frequency noise, the referenced online planning advice note, Onshore wind turbines, refers to a report for the UK Government which concluded that *"there is no evidence of health effects arising from infrasound or low frequency noise generated by the wind turbines that were tested"*. The current recommendation is that ETSU-R-97 should continue to be used for the assessment and rating of operational noise from windfarms. It is therefore not proposed to undertake specific assessments of infrasound and low frequency noise, but the noise chapter will consider the latest supporting information on these subjects and the topic of wind turbine blade swish or Amplitude Modulation (or AM).

404. It is unlikely that construction of the proposed Development would occur precisely at the same time as other windfarms, such that cumulative impacts are likely to arise. It is therefore proposed to scope out the assessment of cumulative construction noise and vibration from the proposed Development.

405. The substation, grid connection point and any co-located energy storage are likely to be well separated (at least one kilometre) from nearby noise sensitive receptors, therefore it is not proposed to undertake specific assessments of operational noise from these elements and for these to be scoped out of the assessment. Should the separation distances be smaller an assessment may be required.

406. As discussed above in section 8.5, it is considered likely that baseline noise monitoring would not be required to define noise limits using the ETSU-R-97 methodology, either because the neighbouring dwellings are located sufficiently far away that it is not required, or because sufficient data was already captured as part of the assessment of the Revised Strathrory Windfarm.

8.11 Proposed Assessment Methodology

8.11.1 Construction

407. In assessing the impact of noise and vibration from the construction activities, it is usual to accept that the associated works are of a temporary nature. The assessment of potential impacts due to noise emissions during construction will be undertaken in accordance with the BS 5228:2009+A1:2014 guidance. Predictions of construction noise will be made referencing typical activity emission levels and likely variations in noise levels at surrounding receiver locations, using the methodology set out in BS 5228 Part 1. This standard can be used to predict noise levels associated with the different construction activities used throughout the construction programme. Part 2 of the BS 5228 standard considers construction vibration, and this will also be referenced.

408. Any blasting, if used for rock extraction at borrow pits, may also create vibration and air overpressure which may require attention. Reference will be made to relevant guidance on the topic in Planning Advice Note 50, BS 5228-1 and BS 5228-2.

409. Consideration will also be given to the potential impact of construction traffic on sensitive receptors in the area. Depending upon the outcome of the assessment of traffic (see **Chapter 10: Transport and Access**), the impact of traffic along the Site's access route will be assessed based on the methodology within BS 5228-1, and CRTN where appropriate.

410. The assessment of the temporary effects of construction noise is primarily aimed at understanding the need for dedicated management measures and, if so, the types of measures that are required. In this respect, relevant working practices, traffic routes, and proposed working hours will be considered in the assessment.

411. The assessment of construction noise and vibration will identify if and when predicted noise levels may be above standard guideline limits, taking into account the rural character of the area. For construction traffic, the criteria set out in the Design Manual for Roads and Bridges (DMRB) are also likely to be referenced. This will be used to determine the magnitude of impact, which will translate directly to their significance, given that all residential receptors considered will be of high sensitivity, with a scale of significance from negligible, through minor to moderate and major. Major and moderate effects will be considered Significant in the context of the EIA Regulations. Construction noise management procedures will also be determined.

8.11.2 Operation

412. The methodology for the assessment of operational noise from windfarms in Scotland recommended in planning guidance is that documented in ETSU-R-97. Good practice guidance (IOA GPG) will be taken into account, including advice on baseline survey, wind shear considerations and noise prediction methodology in completing the ETSU-R-97 assessment. In summary, the assessment shall:

- Identify the nearest noise sensitive receptors;
- Determine the quiet day-time and night-time noise limits from measured background noise levels at the nearest neighbours (see section 8.5) or assuming the use of the ETSUR97 'simplified assessment method' of a fixed limit of 35 dB(A) L_{A90} where this would be relevant;
- Specify the type and noise emission characteristics of the wind turbines proposed for the Site;
- Calculate noise emission levels which would be due to the operation of the wind turbines as a function of site wind speed at the nearest neighbours, including the cumulative effect of all turbines;
- Compare the calculated windfarm noise emission levels with the derived noise limits.

413. When considering neighbouring cumulative windfarm noise, the potential noise emissions from the adjacent windfarm sites will be considered by examining the potential level of noise emission allowed under the respective consent for each of the sites, in line with current best practice (see IOA GPG guidance referenced above). It is proposed to discount the cumulative impacts of smaller single turbine schemes in the area, with a capacity of less than 50 kW, as their impact tends to be localised and unlikely to result in significant cumulative noise impacts.

414. The calculated windfarm noise emission levels will be compared with the noise limits derived in accordance with ETSU-R-97. The noise limits derived according to ETSU-R-97 guidance, for each noise-sensitive receptor, apply to the total noise produced by all windfarms. Therefore, potential cumulative operational noise levels, including operational, consented and application wind turbines in the area, will be assessed relative to these total ETSU-R-97 noise limits. The approach of ETSU-R-97 is inherently a cumulative assessment methodology and will therefore fully consider cumulative effects of operating the proposed Development with other windfarms which may be acoustically important.

415. For operational wind turbine noise, the assessment will determine whether noise levels (including cumulative contributions from other windfarms) are below or above the day-time and night-time noise limits set in accordance with the ETSU-R-97 criteria. Accordingly, predicted operational noise levels which are below the ETSU-R-97 criteria will be considered not significant in the context of the EIA Regulations. If predicted noise levels are above the ETSU-R-97 criteria, this will be considered significant in the context of the EIA Regulations.

416. Further consultation will be undertaken with the Environmental Health Department at The Highland Council in order to agree the methodology for the noise assessment, including in particular the use of historical baseline data where relevant.

8.12 Difficulties and Uncertainties

8.12.1 Construction

417. The level of construction noise that occurs at the surrounding properties will be highly dependent on a number of factors such as the final site programme, equipment types used for each process, and the operating conditions that prevail during construction. It is not practically feasible to specify each and every element of the factors that may affect noise levels, therefore it will be necessary to make reasonable allowance for the level of noise emissions that may be associated with key phases of the construction.

418. Representative emission levels will reference sound power data provided by BS 5228 and based on experience of the types and number of equipment usually associated with the key phases of constructing a windfarm, the scheduled sound power data will be used to deduce the upper sound emission level over the course of a working day. Generally it will be assumed that the plant will operate for between 75% and 100% of the working day. In many instances, the plant would actually be expected to operate for a reduced percentage, thus resulting in noise levels lower than will be predicted in the assessment.

419. To relate the sound power emissions to predicted noise levels at surrounding properties, the prediction methodology outlined in BS 5228 will be adopted and, on a precautionary basis, ignoring any screening effects and assuming that the ground cover is characterised as 50% hard / 50% soft. The size of the site and resulting separation distances to surrounding properties will allow calculation to be reliably based on positioning all the equipment at a single point within a particular working area (for example, in the case of turbine erection, it is reasonable to assume all associated construction plant is positioned at the base of the turbine under consideration).

8.12.2 Operation

420. Prediction of operational noise levels from the wind turbines will be completed following guidance on good practice (IOA GPG) which specifies the noise model and parameters to be used to obtain realistic predictions of noise from onshore wind turbines during worst case propagation conditions (generally in down-wind conditions from turbines to receptors). During other non-worst case conditions, noise from the wind turbines on the proposed Development could be lower than those which will be predicted.

421. The operational noise assessment will be based on a turbine which is typical of the type and size suitable for the proposed Development. This will have sound power levels used for completing operational noise predictions and comparison with the ETSU-R-97 noise limits. Once constructed, the proposed Development may choose a different turbine model with associated alternate sound power levels, this could result in different predicted noise levels. Whatever turbine is subsequently chosen to construct the proposed Development, operational noise from the proposed Development will be required to meet the site-specific noise limits derived in the assessment and these would determine the choice of turbine model required to meet these limits.

8.13 Legislation, Policy and Guidance

422. NPF4 requires consideration of potential noise impacts for developments such as this but provides no specific advice on noise. Planning Advice Note PAN1/2011 provides general advice on preventing and limiting the adverse effects of noise without prejudicing economic

development. It refers to noise associated with both construction activities and operational windfarms.

423. The web-based planning advice note on 'Onshore wind turbines' provides further advice on noise and confirms that the recommendations of ETSU-R-97 'The Assessment and Rating of Noise from Windfarms', *"should be followed by applicants and consultees, and used by planning authorities to assess and rate noise from wind energy developments"*.

424. Good practice in the application of the ETSU-R-97 methodology will be referenced, as set out in Institute of Acoustics Good Practice Guide to the Application of ETSU-R-97 (or IOA GPG). This includes guidance on the assessment of cumulative operational noise impacts from windfarms, and on this point, further guidance set out in a 2016 article in the Institute of Acoustics Noise Bulletin will also be considered.

425. Continued use of ETSU-R-97 was confirmed in the Scottish Government Onshore wind policy statement 2022 which confirms "ETSU-R-97 provides the framework for the measurement of wind turbine noise, and all applicants are required to follow the framework and use it to assess and rate noise from wind energy developments". Furthermore, the policy statement recognises the IOA GPG "as a useful tool which developers can use in conjunction with ETSU-R-97".

426. THC has Supplementary Guidance for onshore wind energy. In relation to noise from onshore wind turbines, this guidance states that *"Highland Council's expectation is that all proposals will seek to achieve noise limits at sensitive locations that are at the lower end of the range indicated in national guidance, and we may seek limits lower than that in certain circumstances"*. This refers to the guidance provided in ETSUR97 that during the fixed part of the day-time noise limit should be set between 35 dB(A) and 40 dB(A) and that during the night-time the fixed part of the noise limit should be set at 38 d(A), instead of 43 dB(A) as specified in ETSU-R-97. The expectations of THC would be considered within the noise assessment.

427. PAN1/2011 and the Technical Advice Note accompanying PAN1/2011 provide further advice on construction noise and refers to British Standard BS 5228.

8.14 References

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Bowdler et al (2016) Windfarms cumulative impact assessment, Institute of Acoustics Noise Bulletin Vol. 41 No. 1, Jan/Feb 2016.

The Highland Council, Onshore Wind Energy Supplementary Guidance, November 2016 incorporating Addendum Supplementary Guidance: 'Part 2b', December 2017.

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British Standards institute (2014) BS 5228 2:2009-A:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

Scottish Government (1996) Planning Advice Note 50: Controlling The Environmental Effects of Surface Mineral Workings.

British Standards institute (2008) BS 6472 2:2008:Guide to evaluation of human exposure to vibration in buildings - Part 2: Blast-induced vibration.

HMSO Department of Transport (1988) Calculation of Road Traffic Noise

The Highways Agency, Transport Scotland, Transport Wales and The Department for Regional Development (Northern Ireland) (2020) Design Manual for Roads and Bridges, LA 111 Noise and vibration, revision 2

8.15Scoping questions

- Can the consultees confirm that they agree with the proposed assessment methodologies, specifically the use of ETSU-R-97 and the IOA GPG to assess operational wind turbine noise and BS5228 to assess decommissioning and construction noise?
- Can the consultees confirm whether they have any concerns with the use of historical baseline noise data from the assessment of the Revised Strathrory Windfarm?
- Can consultees agree that assessment of vibration, low frequency noise and amplitude modulation can be scoped out of the EIA?

09. Cultural Heritage

9. Cultural Heritage

9.1 Introduction

428. The cultural heritage chapter of the EIAR will characterise the historic environment within the Site and in the wider area. Consultation, desk-based research including field visits, a ZTV and setting visits will be used to define proportionate Study Areas for the assessment. A baseline of designated and non-designated heritage assets will be assembled to assess the potential direct, indirect, and setting effects of the proposed Development. Where likely significant effects are identified, mitigation measures will be identified.

429. The cultural heritage of an area comprises archaeological sites, historic buildings, gardens and designed landscapes, historic battlefields and other sites, features or places in the landscape that have the capacity to provide information about past human activity, or which have cultural relevance due to associations with folklore or historic events. Sites of cultural heritage interest may derive some, or all, of that interest from their setting within the wider landscape.

430. This chapter of the EIA Scoping Report is thus intended to identify potential likely significant effects of the proposed Development upon the physical fabric and settings of heritage assets within the Site, and potential likely significant effects on the cultural significance of assets within the wider landscape through development within their setting, which would need detailed consideration through EIA.

431. Direct and indirect physical effects involve alteration or destruction of the fabric of heritage assets and could result from the construction of turbine and crane bases, new or upgraded access tracks, substation, transformers, cables etc. Effects on the setting of heritage assets can arise due to the relative scale of turbines, their potential to detract from understanding of key views from/towards an asset, or a change resulting in an adverse experience of a heritage asset.

432. Cultural significance is a quality that applies to all heritage assets and as defined by Historic Environment Scotland (HES) (NatureScot & HES 2018, Appendix 1 page 175), relates to the ways in which a heritage asset is valued both by specialists and the general public; it may derive from factors including the asset's fabric, setting, context and associations. Following NPF4 'Policy Principles', the analysis of a heritage asset's cultural significance aims to identify its 'special characteristics' which should be protected, conserved or enhanced. Such characteristics may include elements of the asset's setting, which is defined in HES's guidance as "the way in which the surroundings of a historic asset or place contribute to how it is experienced, understood and appreciated" (HES 2016, updated 2020, Section 1).

433. To assess the significance of the effect of the proposed Development upon cultural heritage, the importance of each heritage asset is assessed against the potential magnitude of change upon its cultural significance using a reasoned matrix-style approach.

434. This use of the word cultural 'significance', referring to the range of cultural values or interest attached to an asset, should not be confused with the unrelated usage in EIA where the 'significance of an effect' reflects the weight that should be attached to it in a planning decision.

435. Historic landscape is not treated as a heritage asset for the purposes of this assessment except where a defined area of landscape has been designated for its cultural heritage interest

(including Conservation Areas and areas included in the Inventory of Gardens and Designed Landscapes). It is recognised that all landscapes have a historic dimension, and this will be considered as part of the assessment of Landscape Character (covered in the LVIA chapter of the EIAR). Further, although any effects on the cultural significance and importance of heritage assets due to change in their setting are likely to be visual in nature, the assessment of these visual effects is distinct from the assessment of visual change in the LVIA. The assessment of effects on setting may be informed by visualisations prepared as part of the LVIA but the conclusions reached regarding visual change in the setting of a heritage asset are distinct.

9.2 Study Area

436. Overlapping Study Areas are proposed for the identification of heritage assets that may be affected by the proposed Development:

- the Site, to identify potential direct and indirect (physical) impacts and to identify assets within the Application Boundary that may be affected through development within their setting; and
- the Outer Study Area (OSA), based on a bare earth ZTV, to identify assets beyond the Application Boundary that may be affected through development within their setting.

437. In addition, the potential Site access route will be included in the application for consent. For the most part this will follow existing roads/tracks and no archaeological impacts are anticipated, however, any works proposed to widen the existing roads/tracks or construction of new tracks will be surveyed and assessed as part of the Application Boundary.

438. Within the OSA, assets will be included in the assessment based on the level of importance assigned to the asset so as to ensure that all likely significant effects are recognised. The overlapping OSA reflects that the more important the asset, the more likely significant effects could be generated over further distances, as follows:

- Up to 20 km from proposed turbines: World Heritage Sites, Category A Listed Buildings, Inventory Gardens and Designed Landscapes, and Scheduled Monuments;
- Up to 5 km from proposed turbines: Inventory Historic Battlefields, Conservation Areas and Category B Listed Buildings;
- Up to 2 km from proposed turbines: Category C Listed Buildings and non-designated heritage assets.

439. In addition, beyond the OSA as defined above, any other designated asset which is within the ZTV and considered exceptionally important and/or sensitive to visual change within its setting, and/or where long-distance views from or towards the asset are thought to contribute to cultural significance in the opinion of the assessor or consultees will be included in the assessment.

440. The baseline will be screened (and agreed with relevant consultees) to identify any assets of particular sensitivity or importance. Criteria for the identification of assets of particular sensitivity or importance will be based on the approach set out in Managing Change in the

Historic Environment: Setting (Historic Environment Scotland, 2016, updated 2020) that sets out a range of factors which might form part of the setting of a heritage asset as follows:

- "Current landscape or townscape context;
- Views to, from and across or beyond the historic asset or place;
- Key vistas: for instance, a 'frame' of trees, buildings or natural features that give the historic asset or place a context, whether intentional or not);
- The prominence of the historic asset or place in views throughout the surrounding area, bearing in mind that sites need not be visually prominent to have a setting;
- Aesthetic qualities;
- Character of the surrounding landscape;
- General and specific views including foregrounds and backdrops;
- Views from within an asset outwards over key elements in the surrounding landscape, such as the view from the principal room of a house, or from a roof terrace;
- Relationships with other features, both built and natural;
- Non-visual factors such as historical, artistic, literary, place name, or scenic associations, intellectual relationships (e.g., to a theory, plan, or design), or sensory factors; and
- A 'sense of place': the overall experience of an asset which may combine some of the above factors."

9.2.1 Baseline Conditions

441. The baseline information used for this EIA Scoping Report has been compiled using existing data on the historic environment:

- HES designations data available as Geographical Information Systems (GIS) datasets;
- National Record of the Historic Environment (NRHE) data comprising the Canmore database.

9.2.2 Application Boundary

442. There are no designated heritage assets within the Site. There are six known non-designated heritage assets recorded within the Site as listed in **Table 9.1**.

Table 9.1: List of Non-designated heritage assets within the Site

NRHE Ref	Name	Description	Easting	Northing
68473	ALLT COIRE BHENNEIT	BUILDING(S) (POST MEDIEVAL)	256656	883515
68474	GARBHAIRIDH	BUILDING(S) (POST MEDIEVAL)	257570	883870
68475	ALLT COIRE NA CLOICHE	BUILDING (POST MEDIEVAL) (POSSIBLE)	257489	881052
103903	MUDH-A-BLAIR	ENCLOSURE (PERIOD UNASSIGNED)	265900	882100
217999	MEALL A' BHREACAIN	NO CLASS (EVENT)	262000	881000
305333	COIRE FEARNA	ORGANIC MATERIAL (WOOD)	260885	882290

443. In March 2001, archaeological sensitivity was assessed of the area of the operational Beinn Tharsuinn Wind Farm. The desk-based assessment and subsequent walkover survey revealed few areas of archaeological interest. Some relatively modern sites were noted including a trackway and some quarrying activity (post-1976). A small farmstead was noted which comprised a series of structures including drystone enclosures, field boundaries and rig and furrow.

444. No archaeological remains were noted on the hillsides except for a number of drainage ditches. Subsequent work in the survey area ahead of the wind farm found no features of archaeological interest.

445. Known heritage assets within the Site are spread across with no defined focus of activity, although the majority are in close proximity to water courses.

446. Hitherto unknown remains may be focussed on the resource of the water courses across the Site. Any additional assets identified through desk-based assessment during EIA will be ground-truthed through field visits.

9.2.3 Outer Study Area

447. There are no Inventory Battlefields, Conservation Areas, Properties in Care, or World Heritage Sites within the OSA.

448. Within 2 km from the proposed turbine locations there are no designated heritage assets. There are six non-designated heritage assets, comprising a broch, a mound, three buildings and a findspot.

449. Within 2-5 km from the proposed turbine locations there is one Scheduled Monument (SM4753 Easter Baldoon chambered cairn).

450. Within 5-10 km from the proposed turbine locations there is one Inventory Garden and Designed Landscape (GDL00023 Ardross Castle), 30 Scheduled Monuments and six Category A Listed Buildings.

451. Within 10-20 km from the proposed turbine locations there are three Inventory Gardens and Designed Landscapes, 76 Scheduled Monuments and 24 Category A Listed Buildings.

9.3 Legislation, Policy and Guidance

452. It is proposed that the EIA will be carried out with reference to the following legislation, policy and guidance:

453. Legislation:

- The Ancient Monuments and Archaeological Areas Act 1979;
- The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997; and
- The Historic Environment Scotland Act 2014.

454. Policy:

- NPF4 Part 1 A National Spatial Strategy for Scotland 2045 and NPF4 Part 2 National Planning Policy (The Scottish Government, February 2023) Policy 7: Historic assets and places;
- Historic Environment Policy Scotland (HEPS) (HES, 2019); and
- Highland-wide Local Development Plan (HwLDP, 2012): Policy 57: Natural, Built and Cultural Heritage.

455. Guidance:

- Historic Environment Scotland Circular (HES, 2019);
- Planning Advice Note (PAN) 2/2011: Planning and Archaeology (Scottish Government);
- IEMA/CIfA/IHBC Principles of Cultural Heritage Impact Assessment in the UK (2021).;
- Designation Policy and Selection Guidance (DPSG), (HES 2019);
- Our Past, Our Future: The Strategy for Scotland's Historic Environment (HES 2023);
- Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA 2020);
- Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (CIfA 2020);
- Managing Change in the Historic Environment (MCHE): Setting (Historic Environment Scotland (HES) 2016, updated 2020), and any other relevant MCHE guidance;

- Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland (NatureScot and HES, 2018);

- Highland Council Standards for Archaeological Work (2012).

9.4 Data Sources to Inform the EIA Baseline Characterisation

456. A baseline Desk-Based Assessment will be conducted to establish the baseline condition of the Site. The principal sources of information will be THC Historic Environment Record (HER), supplemented by relevant published documentary and cartographic material as appropriate, including sources of aerial photography. Various sources will be consulted for the collation of data, including but not limited to:

- Designation data downloaded from Historic Environment Scotland;

- Historic Environment Record (HER) data, digital extract from the Highland Council Heritage Environment Team (THCHET);

- The National Record of the Historic Environment (NRHE), including the Canmore database and associated photographs, prints/drawings and manuscripts held by HES;

- Conservation Area Character Appraisals;

- Historic Landscape Assessment data;

- The National Collection of Aerial Photography (NCAP);

- Geological data available online from the British Geological Survey;

- Historic maps held by the National Library of Scotland;

- Unpublished maps and plans held by the National Records of Scotland;

- Relevant internet resources, including Google Maps, Google Earth, Bing satellite imagery and PastMap;

- Readily available published sources and unpublished archaeological reports.

- ZTV / cumulative ZTV; and

- Findings of other environmental topics (LVIA, peat depth, ground conditions, noise and vibration).

457. No LIDAR data is currently available from the Scottish Remote Sensing Portal for this Site.

9.5 Surveys to Inform the EIA Baseline Characterisation

458. A field visit will be undertaken to record site characteristics, any visible archaeology and geographical/geological features which may have a bearing on previous land use and archaeological survival, as well as those which may constrain subsequent archaeological investigation. Known heritage assets identified through desk-based assessment will be visited to record their location, extent and significance. Areas of proposed infrastructure where a potential direct impact could occur will be inspected for hitherto unknown heritage assets. The location and extent of all assets will be checked or recorded with handheld i.e., navigation grade, GPS.

9.6 Description of Likely Significant Effects

9.6.1 Stage 1 Setting Assessment

459. Likely significant effects on the settings of heritage assets will be identified from an initial desk-based appraisal of data from HES, the HER and consideration of current maps and aerial images available via online sources. The methodology adopted for the identification and assessment of potential effects on setting follows the approach set out in Managing Change in the Historic Environment: Setting (Historic Environment Scotland, 2016, updated 2020) and the Environmental Impact Assessment Handbook (Ver 5, NatureScot & HES, 2018, Appendix 1). The guidance sets out three stages in assessing the impact of development on the setting of a heritage asset or place as follows:

- "Stage 1: Identify the historic assets that might be affected by a development;
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated and experienced; and
- Stage 3: evaluate the likely significant effect of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated."

460. The Stage 1 Setting Assessment methodology considers each heritage asset in the OSA in turn to identify heritage assets in the ZTV that have a wider landscape setting that contributes to their cultural significance and whether it is likely that cultural significance would be harmed by the proposed Development. Where heritage assets are located outwith the ZTV, viewpoints within the ZTV which may provide a key view towards the heritage asset and the Site are considered.

461. Following the scoping process, consultation with national and regional curators HES and THCHET will be undertaken to agree the viewpoints for the EIAR setting assessment through provision of a desk-based assessment and Stage 1 Setting Assessment.

9.6.2 Visualisations

462. Where the Stage 1 Setting Assessment identifies the potential for a significant effect, the asset will be visited to define baseline conditions and identify key viewpoints.

463. Wireframe visualisations will be used in tandem with the ZTV to understand the likely nature of change in the setting of heritage assets. Visualisations will be prepared to illustrate changes to key views where potentially significant effects are identified.

464. Consultation with national and regional curators (HES and THCHET) will be undertaken to agree the viewpoints for the EIAR setting assessment.

9.6.3 Assessment of Environmental Impacts and their Significance

465. To assess the effect of the proposed Development upon cultural heritage, the significance of any effect is calculated through comparison of the importance of each heritage asset against the potential magnitude of change upon it. Effects on cultural heritage can arise through direct physical effects, indirect effects, or effects on setting, including cumulative effects:

- Direct physical effects describe those development activities that directly cause damage to the fabric of a heritage asset. Typically, these activities are related to construction works and will only occur within the Site.

- Indirect effects describe secondary processes, triggered by the proposed Development, that lead to the degradation or preservation of heritage assets. For example, changes to hydrology may affect archaeological preservation; or changes to the setting of a building may affect the viability of its current use and thus lead to dereliction.

- An effect on the setting of a heritage asset occurs when the presence of a development changes the surroundings of a heritage asset in such a way that it affects (positively or negatively) the cultural significance of that asset. Visual effects are most commonly encountered but other environmental factors such as noise, light or air quality can be relevant in some cases. Effects may be encountered at all stages in the life cycle of a development from construction to decommissioning, but they are only likely to lead to significant effects during the prolonged operational phase of the proposed Development.

- Effects from cumulative developments will also be considered. Cumulative impacts can relate to the physical fabric or setting of assets. They may arise because of impact interactions, either of different impacts of the proposal itself, or additive impacts resulting from incremental changes caused by the proposal together with other projects already in the planning system or allocated in a Local Development Plan.

466. Likely significant effects on unknown heritage assets will be discussed in terms of the risk that a significant effect could occur. The level of risk depends on the level of archaeological potential combined with the nature and scale of disturbance associated with construction activities and may vary between high and negligible for different elements or activities associated with a development, or for the proposed Development as a whole.

9.6.4 Potential Impacts

467. Assessment of impacts is an iterative part of the design process.

468. Data from desk-based and site-based sources will be gathered in a GIS and the cultural heritage team will work throughout the EIA process with colleagues and consultees to understand potential effects, providing input into design measures to address them.

Construction

469. Wind projects typically have minimal ground impacts compared to the Application Boundary with scope for micro siting to avoid direct physical impacts to archaeological remains during construction.

470. Any Site infrastructure associated with the proposed Development will be designed to avoid identified heritage assets. Should any previously unknown heritage assets be noted during the desk-based assessment or field visit, any infrastructure associated with the proposed Development, such as internal site access tracks, will consider the presence of these heritage assets and aim to avoid them through design.

471. Precautionary measures to avoid accidental impacts may be employed such as fencing off heritage assets during construction works. Cultural heritage constraint areas will, where appropriate, be defined to include an appropriate buffer around known heritage assets. Proposed ground works in constraint areas may lead to direct effects.

472. Whilst it is not possible to avoid unknown archaeological remains that may be within the Site at the design stage i.e., 'archaeological potential', proposed mitigation measures will include consideration of prospection during construction to address the possibility of direct impacts on buried remains. Where potential direct effects are identified, evaluation methodologies may be employed (such as intrusive works) to better understand the extent and cultural significance of archaeological remains.

473. Adverse effects may be mitigated by an appropriate level of survey, excavation, recording, analysis and publication of the results, in accordance with a written scheme of investigation (NPF4 Policy 7.o and PAN2/2011 sections 25-27).

Operation

474. Design will take into account any identified likely significant effects of the proposed Development on the settings and cultural significance of any additional heritage assets identified during Stage 1 Setting Assessment in the OSA.

475. For example, design will seek to ensure that the proposed Development will not dominate heritage assets that were intentionally constructed historically to be prominent landscape features, and will seek to maintain key intentional sightlines between, to, from or across associated and contemporary monuments, or designed vistas. It is acknowledged that there are other factors which might form part of the setting of a heritage asset as outlined in Managing Change in the Historic Environment: Setting (Historic Environment Scotland, 2016, updated 2020) summarised in this Scoping Report above.

476. Cumulative effects will be considered in cases where an effect of more than negligible significance would occur upon a heritage asset, as identified through EIA, as a result of the proposed Development. Wind energy developments (consented, under construction, or at application stage) are included in the cumulative assessment where they also feature prominently within views of or towards heritage assets identified as affected by the proposed Development, thus also have a potential to impact upon their cultural significance.

Receptors/Matters Scoped Out of Further Assessment

477. Construction phase setting effects will be temporary and are not considered to be significant in EIA due to their very short duration. Construction phase setting effects are therefore proposed to be scoped out of the assessment.

478. For Listed Buildings within towns and villages, the proposed Development would not appreciably alter the features of their settings that contribute to their cultural significance. It is therefore proposed that detailed assessment of Listed Buildings within towns and villages (other than designated conservation areas) is scoped out of the EIA.

479. The extent of ground disturbance associated with decommissioning (of the proposed repowering) will not extend beyond the construction footprint and so decommissioning effects of the proposed repowering on heritage assets within the Site will not occur. Any residual operational phase setting effects will be reversed. Decommissioning effects are therefore proposed to be scoped out of the assessment.

9.7 Proposed Assessment Methodology

480. To assess the significance of the effect of the proposed Development upon cultural heritage, the importance of each heritage asset is assessed against the potential magnitude of change upon it using a reasoned matrix-style approach.

9.7.1 Importance of a Receptor

481. As presented in **Table 9.2**, the importance of a heritage asset is the overall value assigned to it based on its cultural significance, reflecting its statutory designation or, in the case of non-designated assets, the professional judgement of the assessor.

Table 9.2: Criteria for Assessing the Importance of Heritage Assets

Sensitivity of Receptor	Criteria
Very High (Assets valued at International level)	World Heritage Sites and other assets of equal international importance, that contribute to international research objectives
High (Assets valued at National level)	Scheduled Monuments, Category A Listed Buildings, Inventory Gardens and Designed Landscapes, Inventory Battlefields, Historic Marine Protected Areas, some Conservation Areas and non-designated assets that meet the relevant criteria for designation in the opinion of the assessor. Category B or C Listed Buildings where the existing designation does not adequately reflect their value, in the opinion of the assessor.

Medium (Assets valued at Regional level)	Category B Listed Buildings, some Conservation Areas and non-designated assets of similar value in the opinion of the assessor. Category C Listed Buildings where the existing designation does not adequately reflect their value, in the opinion of the assessor.
Low (Assets valued at Local level)	Category C Listed Buildings, some Conservation Areas and non-designated assets of similar value in the opinion of the assessor (where their particular characteristics do not merit a higher level of importance). Includes assets that may already be partially damaged.

Source: NatureScot & HES 2018, Environmental Impact Assessment Handbook, v5 Appendix 1, Figure 2

482. Heritage Assets are defined as "Features, buildings or places that provide physical evidence of past human activity identified as being of sufficient value to this and future generations to merit consideration in the planning system" (NatureScot & HES 2018, Environmental Impact Assessment Handbook, v5, p.122). Thus, any feature which does not merit consideration in planning decisions due to its cultural significance may be said to have negligible heritage importance.

9.7.2 Magnitude of Impact

483. The magnitude of an impact is a measure of the degree to which the cultural significance of a heritage asset will potentially change as a result of the proposed Development (NatureScot & HES 2018, Environmental Impact Assessment Handbook, v5 Appendix 1, para 42).

484. Conclusions of the assessed magnitude of impacts are a product of the consideration of the elements of an asset and its setting that contribute to its cultural significance and the degree to which the proposed Development would change these contributing elements. The assessment therefore reflects the varying degrees of sensitivity of different assets to change brought about by different types or scale of possible developments. The extent to which a heritage asset is sensitive to change within its setting, and thus the extent to which its cultural significance may be impacted through change to this setting, will be reflected in findings regarding the magnitude of impact.

485. This definition of magnitude and assessment methodology applies to likely effects resulting from change in the setting as well as likely physical effects on the fabric of an asset.

486. The magnitude of an impact resulting from change within setting is not a direct measure of the visual prominence, scale, proximity or other attributes of the proposed Development itself, or of the extent to which the setting itself is changed. Moreover, it is necessary to consider whether, and to what extent, the characteristics of the setting which would be changed contribute to the asset's cultural significance (NatureScot & HES 2018, Environmental Impact Assessment Handbook, v5 Appendix 1, paras 42 and 43). This is summarised in **Table 9.3**.

Table 9.3: Criteria for Assessing the Magnitude of Impacts on Heritage Assets

Magnitude of Impact	Criteria
High Beneficial	Preservation of the asset in situ where it would be completely or almost completely lost in the do-nothing scenario.
Medium Beneficial	Changes to key elements of the asset's fabric or setting that result in its cultural significance being preserved, where they would otherwise be lost, or restored.
Low Beneficial	Changes that result in elements of the asset's fabric or setting that detract from its cultural significance being removed.

Magnitude of Impact	Criteria
Negligible / No Impact	Changes to fabric or setting that leave significance unchanged.
Low Adverse	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is slightly altered
Medium Adverse	Changes to the elements of the fabric or setting of the heritage asset that contribute to its cultural significance such that this is substantially altered
High Adverse	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of its cultural significance, such that it may no longer be considered a heritage asset

Source: NatureScot & HES 2018, Environmental Impact Assessment Handbook, v5 Appendix 1, Figure 1

9.7.3 Significance of Effect

487. The significance of an effect ('EIA significance') on the cultural significance of a heritage asset, resulting from a direct or indirect physical effect or an effect on its setting is assessed by combining the magnitude of the impact and the importance of the heritage asset (see **Table 9.4**).

Table 9.4: Criteria for Assessing the Significance of Effects on Heritage Assets

	Magnitude of Impact			
Importance of Receptor	*High*	*Medium*	*Low*	*Negligible/ No Impact*
Very High	Major	Major	Moderate	Negligible/ None
High	Major	Moderate	Minor	Negligible / None
Medium	Moderate	Minor	Minor	Negligible/ None
Low	Minor	Minor	Negligible	Negligible/ None

488. Effect significance conclusions are expressed in the impact assessment as 'Beneficial' or 'Adverse'.

- Beneficial effects are those that preserve, enhance, or better reveal the cultural significance or special interest of heritage assets.
- Adverse effects are those that detract from or reduce cultural significance or special interest of heritage assets.

489. Major and Moderate effects are regarded as 'significant' in EIA terms, while Minor and Negligible effects are 'not significant'.

490. In all cases conclusions will also be expressed in terms of the relevant Policy tests.

9.8 Scoping Questions

491. The following questions are directed to consultees:

- Do consultees agree with the proposals for ‘Matters Scoped Out’ in this Scoping Report?

- Are consultees content with the proposed Outer Study Area buffers presented in this Scoping Report?

- Are there any other relevant consultees other than HES and the Council who should be contacted with respect to the Cultural Heritage and Archaeology assessment?

- Do consultees wish to request any specific heritage assets to be assessed in the EIAR?

10. Transport and Access

10. Transport and Access

10.1 Introduction

492. This chapter sets out the proposed scope and approach to assessing potential direct and indirect impacts of the proposed Development on access, traffic and transport during construction, operation and decommissioning phases. Within this chapter, preliminary baseline data will be presented and potential effects that may arise as a result of the proposed Development will be outlined. The approach to the assessment of cumulative effects in the EIA will also be described.

493. The methodology presented in this chapter builds upon the general assessment methodology summarised in **Chapter 1 (EIA Process and Methodology)** of this Scoping Report.

10.2Legislation, Policy and Guidance

494. The proposed Development has the potential to introduce impacts during construction, operation and decommissioning relating to traffic. The environmental effects of traffic will be assessed in accordance with the following principal sources:

- Institute of Environmental Management and Assessment (IEMA) (2023). Guidelines for the Environmental Assessment of Traffic and Movement;
- LA104, Environmental assessment and monitoring, Design Manual for Roads and Bridges (DMRB) (Standards for Highways, 2020);
- Transport Scotland (2012) Transport Assessment Guidance;
- Scottish Government, Planning Advice Note (PAN) 75, Planning for Transport; and
- The Highland Council (2016), Adopted Onshore Wind Energy Supplementary Guidance.

10.3 Study Area

495. The indicative Study Area is outlined below (including the AIL transport routes), subject to LRA approval:

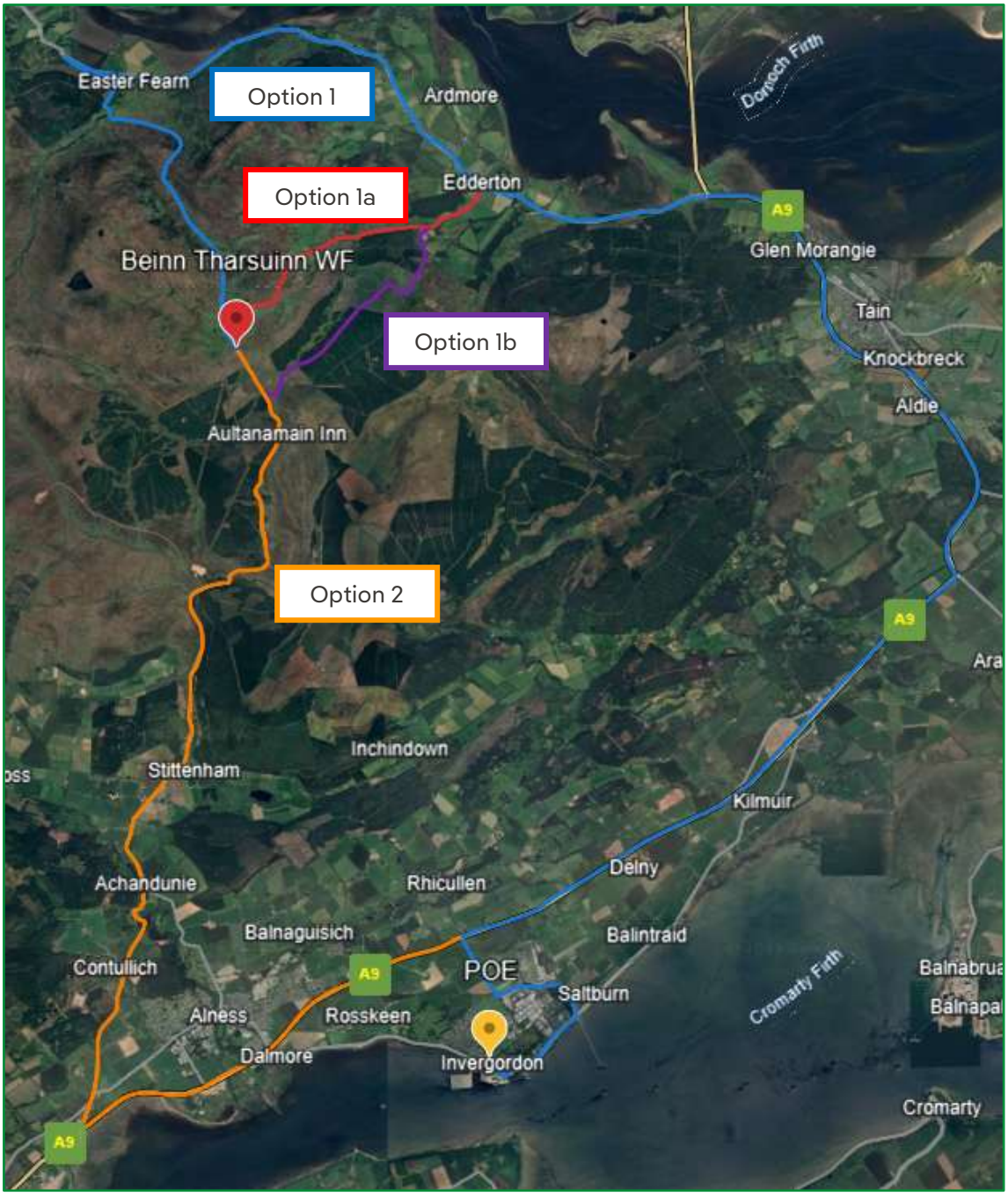

Figure 10.1: Proposed Access Route

496. Preliminary routing assessments of the Wind Turbine Generator (WTG) components – blade and tower section – have been carried out. The likely PoE has been identified as Invergordon Dock, with common routing via the B817, Academy Road, A9, A836, and B1976. Preliminary assessments have identified that proposed Development delivery of wind turbines of up to 180m tip height is feasible. However, candidate turbine is subject to review.

10.4 Data Sources to Inform the EIA Baseline Characterisation

497. The Study Area for the assessment will focus on the routes used for access by construction vehicles and AILs.

498. For the Transport Assessment, suitable baseline traffic data classified by vehicle type for the roads within the defined Study Area will be obtained from the DfT and the relevant LRA where available. Any data gaps in this information will be supplemented with specifically commissioned traffic surveys.

499. A desk-based review of the impacts arising from the construction of the proposed Development will be undertaken, including the following:

- Collection and analysis of available road traffic accident data over the Study Area;
- Determination of a construction phase programme and quantification of construction phase trips based on the quantity of material required for the proposed Development (including generation as a result of potential forestry removal, commercial or otherwise) and the duration of the construction phase;
- Determination of a traffic baseline, taking account of measured existing traffic flow and other developments that have been identified for inclusion within the cumulative assessment; and
- Quantification of material increases in traffic resulting from the construction phase of the proposed Development.

500. A visual inspection of the Study Area will be carried out to ensure a full understanding of the local area and to identify all sensitive receptors. 24-hour Automatic Traffic Counts (ATCs) data will be obtained from the DfT, Transport Scotland (TS) or the THC and where not available / suitable, ATC surveys will be undertaken.

501. The most recent available five-year injury accident data will be obtained for the local and strategic road network in the Study Area from the DfT, THC and TS to identify any existing issues which may require to be addressed as part of the study.

502. Data gathered and processed for the access, traffic and transport assessment will be prepared in a suitable format to inform the Air Quality and Noise impact subject areas which are considered separately in this Scoping Report.

503. An assessment of the Site will be undertaken to establish whether there are any suitable areas that can be used for borrow pits. The availability of suitable material from onsite borrow pits will be factored into transport movements associated with construction activities which would be reduced as a result.

10.5 Surveys to Inform EIA Baseline Characterisation

504. Traffic survey data from DfT or Transport Scotland traffic count databases are to be utilised and considered in line with traffic estimate data provided by the Applicant for the construction phase. All of the count points noted below have either data from 2019 (pre-COVID-19) or 2022 (or both):

- 50725 (A9);
- 811274 (B817);
- 20724 (A9);
- 40721 (A9);
- 10722 (A9);
- 30723 (A9);
- 721 (A9);
- 940006 (B9174);
- 80001 (A9); and
- 80004 (A836).

10.6Baseline Conditions

505. A preliminary review of the DfT online traffic data portal suggests that historic traffic counts are available for most of the main roads in the area up towards the proposed Development. Data for more local roads is less evident, therefore, depending on the chosen access routes and points, additional surveys may be required. This requirement would be refined through the project development and scoping dialogue.

506. No information on land ownership/roads boundary is known at this stage.

507. The land use surrounding the Site is generally agricultural fields, forestry and local road network.

10.7Description of Likely Significant Effects

Construction

508. Turbine components will be transported by sea to a defined Port of Entry from where components would be brought to Site by abnormal load vehicles via an agreed route.

509. General construction material will need to be transported to the Site in standard Heavy Goods Vehicles (HGV), leading to a temporary increase in traffic volumes on the surrounding road network. This will be dependent on the proposed Development construction material quantities required and their source which is unknown at this time, and this will need to be considered across the construction programme. Additionally, a small number of trips will also be generated by personnel travelling to Site.

510. Decommissioning of existing infrastructure will be required as part of the repowering programme of works and therefore will be scoped into the assessment impacts as part of the EIA.

Operation

511. Apart from occasional maintenance visits to service the proposed Development, the operational phase is not considered to introduce a significant increase in traffic. It is therefore considered that no significant effects will arise during the operational phase and therefore the operational phase is **scoped out** of further assessment.

Decommissioning

512. The levels of traffic associated with decommissioning are anticipated to be lower than those required during the construction phase, therefore will have a reduced impact compared to that assessed for construction phase.

Cumulative Impacts

513. The anticipated cumulative effects of the potential for overlapping construction programmes for the proposed Development in addition to other development proposals will be considered. The mechanism for mitigation of any cumulative effects is the implementation of a Construction Traffic Management Plan (CTMP). It should be noted that a cumulative assessment in relation to transport and traffic is reliant on the prospect of more than one development being under construction (or operation, where this is applicable) at the same time as the proposed Development.

10.8 Receptors/Matters to be Scoped into Further Assessment

514. The receptors/elements listed in **Table 10.1** are proposed to be scoped into the assessment.

Table 10.1: Receptors/elements to be scoped into the Traffic and Transport assessment

Receptor/Matter	Phase	Justification
Users of Roads	Construction / partial decommissioning	During the construction phase, traffic will be generated by a range of activities including: Construction workers arriving and leaving Site areas; • Supply of construction materials and plant associated with the Site establishment and main construction works; • Movement of plant;
Users / Residents of Locations		

		• Removal of soil resources, spoil or waste; and • Service vehicles and visitors. Construction traffic estimates are as yet unknown, as such this phase of works has been scoped in to enable consideration of impacts on receptors within the Study Area against the Environmental Assessment of Traffic and Movement (Institute of Environmental Assessment (IEMA) Guidelines) (2023).

10.9 Receptors/matters to be Scoped Out of Further Assessment

515. The receptors/elements in **Table 10.2** are proposed to be scoped out of the assessment.

Table 10.2: Receptors/elements to be scoped out of the Traffic and Transport assessment

Receptor/Matter	Phase	Justification
All	Operation	Once operational, the effect on the local road network will be minimal. Access will be required from time to time for routine maintenance, and less frequently for major maintenance and upgrades. Therefore, it is not expected that the changes in traffic on the existing network will change by more than 10% for HGVs or 30% for all vehicle movements, these being defining thresholds for environmental effects on the local transport network.

10.10 Proposed Assessment Methodology

516. Assessment of the traffic and transport environmental impacts and their significance will be based on the Guidelines for the Environmental Assessment of Traffic and Movement (Institute of Environmental Assessment, 2023). This guidance provides two broad rules to be used as a screening process to identify the appropriate extent of the assessment area and likelihood of impacts. These are:

- Rule 1 – 'Include highway links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%)'; and
- Rule 2 – 'Include any other specifically sensitive areas where traffic flows would increase by 10% or more.'

517. Where the predicted increase in traffic flow is lower than the thresholds, the Guidelines suggest the significance of the effects can be stated to be low or insignificant and further detailed assessments are not warranted.

518. Given that the day-to-day variation of traffic on a road is frequently at least plus or minus 10%, the Guidelines consider that projected changes in traffic flows of less than 10% create no discernible environmental impact, hence the second threshold as set out in Rule 2.

519. The specific traffic and movement related impacts that may be assessed are namely:

- Severance of communities;
- Road vehicle driver and passenger delay;
- Non-motorised user delay;
- Non-motorised user amenity;
- Fear and intimidation on and by road users;
- Road user and pedestrian safety; and
- Hazardous/large loads.

520. The traffic and transport assessment will also be based on LA104 Environmental assessment and monitoring, from the Design Manual for Roads and Bridges (DMRB) (2020) which sets out a framework for EIA. The significance of likely effects is determined by considering the sensitivity of receptors to change, taking account of the specific issues relating to the Study Area, and then the magnitude of that change.

521. The determining factors that need to be taken into account when assessing the impact of traffic and movement vary for each type of impact.

522. Having quantified the magnitude of the impact (i.e., the level of change), there are various ways of interpreting whether or not the resulting outcome is considered significant. There is no definition of a 'significant effect' in the EIA Regulations. Furthermore, for many effects, there are no simple rules that define appropriate assessment thresholds and therefore there is a need for interpretation and professional judgement. The EIAR will record judgements about the likely significance of effects arising from the proposed Development.

523. For specific criteria relating to the assignment of significance to the various traffic and transport impacts that may occur as a result of the proposed Development, please refer to the updated IEMA Guidelines (2023) for the Environmental Assessment of Traffic and Movement.

10.10.1 Sensitivity of Receptor

524. The potential sensitivity of receptors to change in traffic levels has been determined by considering the Study Area and the presence of receptors in relation to each potential impact.

525. The IEMA guidelines provide two thresholds when considering predicted increase in traffic, whereby a full assessment of impact would be required:

- Where the total traffic would increase by over 30% or more (10% in sensitive areas); and/or

- Where the HGV traffic would increase by over 30% or more (10% in sensitive areas).

526. At request from the THC during Scoping, the use of the threshold value for significance of 10% rather than the 30% for the traffic and transport issues has been used for roads where THC is the Local Road Authority (LRA) (i.e., A836 and A9).

527. In this context, the IEMA guidelines do not define the value placed on the receptors and therefore their sensitivity; therefore, the assessor makes a professional judgement based on experience and the nature of the Study Area. Each receptor has been assessed individually to determine its sensitivity and the assessment criteria chosen are shown in **Table 10.3**.

Table 10.3: Sensitivity of receptor criteria

	Receptor Sensitivity			
Receptor	*High*	*Medium*	*Low*	*Negligible*
Users of Roads	Where the road is a minor rural road, not constructed to accommodate frequent use by HGVs. Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measures.	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures.	Were the road is Trunk or A-road class, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures.	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable for abnormal loads and new strategic road junctions capable of accommodating abnormal loads.
Users / Residents of Locations	Where a location is a large rural settlement containing a high number of community and public services and facilities.	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.	Where a location is a small rural settlement, few community or public facilities or services.	Where a location includes individual dwellings or scattered settlements with no facilities.

10.10.2 Magnitude of Impact (Change)

528. The IEMA Guidelines identity the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development. The impacts and levels of magnitude are discussed below.

529. Based on the IEMA guidelines, the following factors have been identified as being the most discernible potential environmental impacts likely to arise from changes in traffic movements.

Therefore, these are considered in the assessment which may arise from changes in traffic flows resulting from the Proposed Development:

530. Severance of communities - The perceived division that can occur within a community when it becomes separated by major transport infrastructure. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure.

531. Road vehicle driver and passenger delay - Traffic delays impacting non-development traffic can occur at points on the road network surrounding a development site including site entrance, roads passing a development site where there is likely to be additional traffic and the flow might be affected by additional parked cars, key intersections along a road and side roads where the availability of gaps between vehicles to circumvent delay are reduced.

532. Non-motorised user delay - Changes in volume, composition or speed of traffic may affect the ability of people to cross a road. In general, increases in traffic levels are likely to lead to greater increases in delay. This is also dependent on existing level of activity, visibility and general physical conditions of the Site.

533. Non-motorised amenity - Defined as the relative pleasantness of a journey, and is affected by traffic flow, traffic composition and pavement width/separation from traffic.

534. Fear and intimidation on and by road users - IEMA guidelines states that measuring the extent of fear and intimidation as a result of development traffic is dependent on the following factors:

- The total volume of traffic;
- The heavy vehicle composition;
- The speed these vehicles are passing; and
- The proximity of traffic to people - and/or the feeling of the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping further away from moving vehicles.

535. IEMA guidelines suggest defining the degree of hazard to pedestrians in three stages:

- Fear & Intimidation (F&I) Degree of Hazard - By calculating average (a) 18hr total traffic flow, (b) 18hr heavy vehicle flow and (c) average speed (Mph). Each with suggested thresholds of traffic number flows and average vehicle speeds. These thresholds in-turn sort the assessment results into a 'degree of hazard' score of 0-30. This is calculated for baseline traffic flows and baseline + development traffic flows.
- Levels of F&I - Levels of F&I are categorized as: 'Extreme', 'Great', 'Moderate' or 'Small' according to a total hazard score provided by combining the elements of stage 1 - (a)+(b)+(c).

- F&I Magnitude of Impact - The level of impact is then approximated with reference to the changes in the level of fear and intimidation from baseline conditions. Magnitude of impact is categorized according to 'change in step/traffic flows from baseline conditions as:
  - 'high' (two step changes in level);
  - 'medium' (One step change in level with >400 vehicle increase in average 18hr all traffic flow and/or >500 increase in total 18hr HGV flow);
  - 'low' (one step change in level with <400 vehicle increase in average 18hr total vehicle flow and/or <500 HGV flow increase in total 18hr HGV flow); and
  - 'negligible' (no change in step changes).

536. Road user and pedestrian safety - Consists of an approximation of the potential for road safety impacts through the calculation of collision rates (slight, serious and fatal). Collision clusters are identified by a detailed review of the baseline characteristics to determine the road safety sensitivity of discrete areas of the road network.

537. Hazardous/large loads - Some developments may involve the transportation of dangerous or hazardous loads by road. Such movements may involve specialist loads that might be involved in the construction or decommissioning phases of the development (e.g., wind turbine generator components).

538. The magnitude of impact or change will be considered according to the criteria defined in **Table** 10.4.

Table 10.4: Magnitude of impact criteria

	Magnitude			
Impact	*Negligible*	*Minor*	*Moderate*	*Major*
Road Vehicle Driver and Passenger Delay	< 10% Increase in traffic	Quantitative assessment of road capacity based on existing traffic flows and predicted future levels		
Severance of Communities	Changes in total traffic flow of less than 30%	Changes in total traffic flow of 30%-60%	Changes in total traffic flow of 60%-90%	Change in total traffic flow over 90%
Non-Motorised User Delay	< 10 % Increase in traffic	An increase in total hourly traffic of approximately 30% can double the delay experienced by pedestrians attempting to cross a road. Whether or not the increase in traffic results in a significant effect should be determined using professional judgement.		
Non-Motorised Amenity	Assessment of this link is based on a desktop review of non-motorised user facilities on links used by construction traffic.			
Fear and Intimidation of	Negligible - No change in step changes.	Low - One step change in level, with:	Medium - One step change in level, but with:	High - Two step changes in level.

and by road users		<400 vehicles increase in average 18hr all vehicle two-way all vehicle flow; and/or <500 heavy goods vehicle increase in total 18hr HGV flow.	>400 vehicles increase in average 18hr all vehicle two-way all vehicle flow; and/or >500 heavy goods vehicle increase in total 18hr HGV flow.	
Road User and Pedestrian Safety	< 10% Increase in traffic	Professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents. Collision cluster analysis is required. A cluster corresponds to a high concentration of accidents in a specific location (e.g., a specific junction) within the analysed time frame. In this assessment, a collision cluster = 3 accidents within a 100m radius are assumed where no specific criteria for collision cluster analysis is provided by the respective Local Highway Authority. It should be noted a commonly used criterion is 5 accidents within a 100m radius over a five-year period).		
Hazardous/Large Loads	< 30 % increase in traffic	Quantitative assessment of road capacity based on existing traffic flows and predicted future levels.		

10.10.3 Significance of Effect

539. Sensitivity and magnitude of change as assessed under the detailed criteria have then been considered collectively to determine the potential effect and their significance. The collective assessment is an assessment undertaken by the assessor, based on the likely sensitivity of the receptor to the change (e.g., is receptor present which would be affected by the change), and then the magnitude of that change. **Table 10.3** sets out receptor sensitivity. **Table 10.4** sets out the levels of magnitude of impact. The Significance of Effect in **Table 10.5** is reached by combining the Sensitivity of Receptor against the Magnitude of Impact. This table is used as a guide to determine the level of effect. 'Major' and 'Moderate' effects are considered to be 'Significant' in terms of the relevant guidance.

Table 10.5: Significance of effect matrix

	Magnitude of Impact			
Sensitivity of Receptor	*High*	*Medium*	*Low*	*Negligible*
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

10.10.4 Potential Cumulative Effects

540. An assessment of the cumulative effect on the Study Area of all relevant developments, including local windfarms, within a 5 km radius of the Site (either in planning system or under construction) which may utilise the same access routes as the proposed Development, has been undertaken.

10.10.5 Difficulties and Uncertainties

541. To ensure transparency within the EIA process, the following limitations and uncertainties have been identified:

- This EIA Scoping Report has been prepared on the basis of the current design of the proposed Development, as outlined within **Chapter 2;**
- The overview of baseline conditions is based on desk-based studies only at scoping stage and is based on data available at the time of writing;
- The construction assessment will assume the use of standard construction techniques commensurate for the type of works being undertaken. The final techniques, plant selection and programme are expected to be determined by the appointed contractor, in consultation with relevant authorities prior to commencement of construction; and
- Traffic estimates for any stage of the proposed Development are not confirmed at this time and may be subject to change but will be confirmed prior to assessment.

10.11 Scoping Questions

542. The following questions are directed to consultees:

- Do you agree with the proposed list of consultees?
- Do you agree with the proposed Study Areas?
- Do you agree that the data sources listed to inform the EIA baseline characterisation are appropriate?
- Do you agree that the surveys proposed to inform the EIA baseline characterisation are appropriate?
- Are any receptors/assets/resources not identified that you would like to see included in the EIA?
- Do you agree with the proposed additional (secondary and tertiary) mitigation measures and is this mitigation appropriate?
- Do you agree with the receptors/matters that are proposed to be scoped in and out of the EIA?
- Do you agree with the proposed factor-specific assessment approach?

11. Aviation

11. Aviation

11.1 Introduction

543. This section will provide an indication of the potential effects of the construction and operation of the proposed Development on aviation. Wind turbines have the potential to cause a variety of adverse effects on aviation during the operation, including:

- Physical obstructions;
- Generation of unwanted returns on Primary Surveillance Radar (PSR); and
- Adverse effects on overall performance of Communications, Navigation and Surveillance (CNS) equipment.

11.2 Study Area

544. The aviation impact assessment will aim to identify potential issues and the associated stakeholders affected by the proposed Development. This will include where line of sight exists between turbines and air traffic control radars it is possible that the turbines may be detected by the radar, dependent on atmospheric conditions, and appear as clutter on controllers' screens. Such clutter may have an adverse impact on air traffic control operations.

11.3 Existing Baseline Conditions

545. The Site is approximately 20 km north of Inverness Airport. It lies outside the Aerodrome Traffic Zone but close to the start of some of the Instrument Flight Procedures (IFPs). The proposed Development lies in Class G (uncontrolled) airspace with Class E (controlled) airspace extending from FL95 (9500ft) above it. The site is also approximately 60km from RAF Lossiemouth.

546. Both Inverness and RAF Lossiemouth provide Air Traffic Services using Primary Surveillance Radar (PSR).

547. The proposed Development lies close to the edge of Restricted Area R610D which extends from the surface up to 2000ft. The area is used by the Ministry of Defence (MOD) for training and other activities.

11.4 Assessment Methodology

548. An assessment of civil and military aviation issues will be undertaken against the proposed turbines. Input will be obtained from specialist consultants should any issues be identified that require mitigation or detailed technical assessment, including line of sight and IFP assessments.

549. En-route obstacles over 150m require lighting in accordance with the Air Navigation Order 2016, Article 222. A suitable scheme will have to be agreed with the CAA. The MOD will also likely have requirement for Infra Red lighting.

12. Shadow Flicker

12. Shadow Flicker

12.1 Introduction

550. Shadow flicker may occur under certain combinations of geographical position and time of day when the sun passes behind the rotors of a turbine and casts a shadow over nearby properties. Rotating turbine blades can cause brightness levels to vary periodically at locations where they obstruct the sun's rays. As the blades rotate, the shadow flicks on and off, an effect known as shadow flicker. The effect is experienced inside buildings, where the flicker appears through a window opening. Shadow flicker can be a cause of annoyance at residences near turbines if it occurs for a significant period during the year.

551. The magnitude of the shadow flicker effect varies both spatially and temporally and depends on several environmental conditions coinciding at any particular point in time, including, the position and height of the sun, wind speed and direction, cloudiness, and proximity of the turbine to a sensitive receptor. To undertake a shadow flicker assessment, information on the proposed Development, the location of potential residential receptors and other parameters are included in a computer model is required in order to predict and quantify the impact shadow flicker may have on receptors within the vicinity of the proposed Development.

12.2 Policy and Guidance

552. There is currently no standard for the assessment of shadow flicker, and no formal guidelines on what exposure would be acceptable in relation to shadow flicker. The proposed assessment method, has however, been based on established best practice guidelines, including the following as published by the Scottish Government, THC, and the UK's Department of Environment and Climate Change:

- Scottish National Planning Framework 4 (NPF4) (Scottish Government. 2023);
- The Scottish Government's web-based guide relating to onshore turbines (Scottish Government, 2014);
- THC's Onshore Wind Energy Supplementary Guidance (THC, 2022); and
- Update of UK Shadow Flicker evidence base (Department of Environment and Climate Change, 2011).

553. Part e of NPF4 Policy 11 outlines that shadow flicker impacts are to be addressed in the proposed Development design and mitigation. This can be achieved through applying a minimum setback between proposed turbines and nearby receptors.

554. The Scottish Government's web-based guide relating to onshore turbines suggests that shadow flicker should not cause nuisance and annoyance to dwellings beyond a distance of 10 rotor diameters from a turbine. In line with THC's guidance on shadow flicker, the assessment conducted for the proposed Development will consider residential receptors within a distance of 11-rotor diameters plus the appropriate micrositing distance. .

555. HwLDP Policy 67 Renewable Energy Developments states that THC will support proposals where it is satisfied that turbines are located, sited and designed such that they will not be significantly detrimental overall, either individually or cumulatively with other developments, having regard in particular to a variety of interests including shadow flicker.

556. THC's Onshore Wind Energy Supplementary Guidance (SPG) states that proposals should seek to avoid significant adverse effects on the safety of any residential or regularly occupied property including shadow flicker. It goes on to state that:

> *"Wind energy schemes should always be designed to avoid causing shadow flicker, blade glint, glare and light effects to any regularly occupied buildings not associated with the development. Where this cannot be achieved, the Council will expect wind energy developments to be located a minimum distance of 11 times the blade diameter of the turbine(s) from any regularly occupied buildings not associated with the development. Within a distance less than 11 times the blade diameter, a shadow flicker assessment will be required."*

557. Therefore, if no turbines in the final design are within 11-rotor diameters (plus micro siting) of a regularly occupied building, then shadow flicker would be scoped out of the EIA.

12.3 Consultation

558. It is not proposed that additional consultation to this scoping process will be undertaken.

12.4 Study Area

559. A Study Area around each proposed turbine location, extending 11-rotor diameters (plus micro siting) distance in each direction will be established. There are no residential properties within 11-rotor diameters plus micrositing of the turbines in the proposed Development as it stands. This will be checked again at the EIA stage.

12.5 Proposed Assessment Methodology

560. If it is not possible to avoid shadow flicker effects through turbine placement, then the dates, times and durations of shadow flicker events for each property within the Study Area will be calculated using a computer model (Resoft Windfarm) and an assessment of effects at these properties included in the EIAR.

561. The software used predicts the worst-case scenario of shadow flicker effects, as it does not take into consideration ambient variables that may reduce these effects (i.e., wind direction and wind speed, as shadow flicker is not experienced if the blades are not turning; intervening obstacles and cloud cover).

562. There are no thresholdlimits for shadow flicker in UK guidance. Other countries do have guidance on shadow flicker, however, these vary from one country to another. Guidance which has been utilised in Northern Ireland, Germany and Belgium, suggests shadow flicker should not exceed 30 hours per year or 30 minutes per day. For the purposes of the assessment, an exceedance of either of these threshold limits is considered to result in a significant effect.

12.6 Mitigation

563. If shadow flicker effects cannot be avoided via design, and significant effects are predicted, appropriate mitigation will be applied.

12.7 References

Department of Environment and Climate Change (2011) Update of UK Shadow Flicker evidence base. Available at: https://assets.publishing.service.gov.uk/media/5a79770bed915d0422068aa3/1416-update-uk-shadow-flicker-evidence-base.pdf (Accessed November 2023)

HwLDP (2012), Highland-wide Local Development Plan. Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/199/highland-wide_local_development_plan (Accessed September 2023)

Northern Ireland Department of the Environment. (2009), Best Practice Guidance to Planning Policy Statement 18 'Renewable Energy', cited in Parsons Brinckerhoff (2011)

Scottish Government (2014). Onshore wind turbines: planning advice Available at: https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/ (Accessed November 2023).

Scottish Government (2023). National Planning Framework 4. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf (Accessed November 2023).

States Committee for Pollution Control – Nordrhein-Westfalen. (2002), Notes on the Identification and Evaluation of the Optical Emissions of Wind Turbines, cited in Parsons Brinckerhoff (2011).

The Highland Council. (2017) Onshore Wind Energy Supplementary Guidance, November 2016 (with addendum, December 2017). Available at: https://www.highland.gov.uk/directory_record/712079/onshore_wind_energy (Accessed November 2023)

12.8 Scoping Questions

564. The following questions are directed to consultees:

565. Are consultees content with the proposed methodology and approach to shadow flicker assessment and EIAR?

13. Climate

13. Climate

13.1 Introduction

567. This scoping chapter sets out the approach to assessment of the potential effects of the proposed Development on climate, including climate change. proposed Development

13.2 Study Area

568. The Study Area for the carbon calculation would be the proposed Development within the Site boundary.

13.3 Proposed Scope of the Assessment

569. The proposed Beinn Tharsuinn Repower project provides a further transition away from electricity that would otherwise be generated using fossil fuels, thereby reducing CO_2 emissions. The EIAR Climate Chapter will present an estimation of the amount CO_2 which could be saved, based on the assessment of electricity generated from operation of the proposed Development mixed with the displacement at any given time due to carbon being released during construction.

570. The carbon emissions and carbon savings arising from the proposed Development are assessed through the use of the Scottish Government's carbon calculator tool v1.7.0 (November 2022). This will show the savings that the windfarm development on Scottish peatlands based on a full life cycle analysis approach, using a web-based application. Data inputted into the carbon calculator would cover windfarm characteristics, baseline environmental characteristics, and habitat enhancement and restoration measures.

571. This carbon calculating tool was originally published in 2008 and the latest version (v1.7.0) published in November 2022. This tool will compare the carbon cost of the windfarm development with the carbon emissions saving attributable to the windfarm. The calculation is summarised as the length of the time (in years) it will take the carbon savings to amount to the carbon costs also referred as the "payback period" and the total emissions savings over the theoretical 50 year operational life of the proposed Development. The payback period and emissions savings will be considered in the context of national and local climate change targets in order to assess significance of effect.

13.4 Potential Mitigation

572. During the design phase, the Site will be assessed, and a suitable location will be selected for the turbines. In addition, the areas that have been classified as deep peat will be avoided. Best practice construction measures will involve minimising peat disturbance, especially during excavation, which will take place during construction and decommissioning (this will be part of the CEMP).

573. The proposed Development will also incorporate sustainable drainage design to decrease potential hydrogeological impacts that could result in dewatering of the peat. In addition to this the design process will also take into account of any woodland habitats across the Site. A HMEP

will be a part of the proposed Development. These measures will be accounted for as appropriate within the Carbon Calculator.

13.5 References

The Scottish Government (2022) Carbon Calculator for Wind Farms on Scottish peatlands: factsheet, Carbon calculator for wind farms on Scottish peatlands: factsheet - gov.scot (www.gov.scot), accessed 29/11/2023.

13.6 Scoping Questions

574. The following question is directed to consultees:

- Do consultees agree with the above methodology for assessing carbon emissions and savings as a result of the proposed Development?

14.
Other issues

14. Other Issues

14.1 Socio-Economics and Tourism

14.1.1 Introduction

575. Based on previous experience, in EIA terms, no significant socio-economic effects are expected to occur as a result of the Proposed Development. It is recognised that socio-economics, tourism and recreation are important policy considerations for the determination of renewable energy proposals. Therefore, a Socio-economic Statement (SES) which considers economic and employment generation, and other socio-economic effects will be submitted with the consent application.

14.1.2 Policy and Guidance

National Planning Framework

576. Page 6 of National Planning Framework (NPF4) addresses the delivery of sustainable places. Six National Developments (NDs) support the delivery of sustainable places, one being 'Strategic Renewable Electricity Generation and Transmission Infrastructure'. A summary description of this ND is provided at page 7 of NPF4 as follows:

> *"Supports electricity generation and associated grid infrastructure throughout Scotland, providing employment and opportunities for community benefit, helping to reduce emissions and improve security of supply".*

577. NPF Energy policy (Policy 11 c) states 'Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.' In addition, Policy 11 of NPF4 has a key policy connection with Community Wealth Building Policy (Policy 25 a) designed to help create productive places by encouraging development that supports community and place benefits that will enhance local employment and the supply chain.

Onshore Wind Policy Statement

578. Paragraph 3.6.2 of the Onshore Wind Policy Statement (OWPS) (2022), in cross-referencing NPF4, makes it clear that outside of National Parks and National Scenic Areas "*the criteria for assessing proposals have been updated, including stronger weight being afforded to the contribution of the development to the climate emergency,* ***as well as community benefits.*** Therefore, community benefit is also considered within this chapter to present a fuller picture of the economic and social impacts the proposed Development could have.

Chief Planner's Letter

579. In the Chief Planner's recent letter titled 'Planning – work programme update: Chief Planner and Ministerial letter – September 2024' (2024a), it is made clear that community benefits are a voluntary arrangement. The letter states "*The Scottish Government is clear that community benefits are a well-established and integral part of onshore renewable energy developments in Scotland, supported by the Scottish Government's Good Practice Principles. We are, however,*

clear that these are voluntary arrangements that sit independent of our planning and consenting systems, and NPF4 policy 11(c) does not alter this."

580. As per the Chief Planner's letter on the transitional arrangements for NPF4 (February, 2023), it is noted that NPF4 has primacy over the local development plan (LDP). It is further noted that tourism and recreation are not included within Policy 11 of NPF4 as factors requiring consideration in the determination of national developments. This is consistent with national energy policy as contained in the OWPS which states that:

> *"The Scottish Government is aware that some communities in Scotland are concerned that the deployment of onshore wind can have a negative effect on tourism. Current evidence suggests that whilst there may be discrete impacts in some cases, this is not the general rule."*

581. Given the focus in national planning policy on net economic impacts of renewable energy developments, the assessment would focus on socio-economic effects only.

Highland- wide Local Development Plan

582. The Highland-wide Local Development Plan (LDP) was adopted by THC in 2012 and relevant 'policy criteria' are taken forward in the LDP's Policy 67 Renewable Energy Developments and supporting supplementary guidance Onshore Wind Energy Supplementary Guidance (2017). In addition to the requirements outlined in the NPF documents described above, the guidance states that wind energy proposals within the Highlands should:

- illustrate the potential for socio-economic benefits to be derived from development proposals. A key aspect of this will be engaging with local communities to better understand local needs and issues;

Social Value Charter

583. In June 2024, THC adopted a Social Value Charter (SVC) which aims to maximise the opportunities and social value of renewable energy projects in the local community. The SVC includes a nine-point plan which articulates the expectations of the Highland area for any renewables and green energy developments, with the following stated aims:

- "Embed an approach to community wealth building into Highland;
- Maximise economic benefits from our natural environment and resources;
- Engage and involve relevant stakeholders to understand how we can continually improve our impact; and
- Unlock economic opportunities for the area".

584. One of the 9 points outlined within the SVC is the Strategic fund, which seeks to ensure that all communities across the Highlands benefit from renewable investment. THC propose that renewable developers contribute an additional £7,500 per MW for each renewable energy development to a central fund which will support and enable economic development, increase prosperity, and achieve equity for communities across the Highlands.

585. In 2024, BiGGAR Economics published the Implications of Highland Council's Social Value Charter (2024), analysing how the proposed additional expenditure of £7,500/MW per year under the Highland Council's SVC could affect the economic viability of onshore wind farms in the Highlands. The report estimates that approximately 80% of viable onshore wind projects would not proceed due to the Charter. This is attributed to the Charter's additional financial requirements, which increase the effective hurdle rate by approximately 0.6%. Since many projects are already within 0.6% of the financing threshold, this added burden could prevent most projects from moving forward. Therefore, the Applicant will provide community benefit in line with Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments (2019)without risking the long-term viability of the Proposed Development.

586. The socio-economic assessment will also take account of the wider policy context. The most relevant documents are expected to include:

- National:
  - Onshore Wind Policy Statement 2022;
  - Scotland's National Strategy for Economic Transformation 2022;
  - Scotland's Economic Action Plan 2019-20;
  - Scottish Energy Strategy;
  - Scottish Government (2023), Scotland's National Performance Framework;
  - Scotland Outlook 2030;
  - Draft Energy Strategy and Just Transition Plan (2023);
  - Onshore Wind Sector Deal (OWSD) (2023); and
  - Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments (2019) (currently under consultation).
- Local:
  - THC Net Zero Strategy (2023);
  - The Highland Council Community Benefit Policy (2013);
  - Highland Community Planning Partnership, Highland Outcome Improvement Plan (2024);

- Highlands and Islands Enterprise, Highlands and Islands Enterprise Strategy 2023 – 2028 (2023);
- The Highland Council, Community Wealth Building Strategy (2024a); and
- Action Plan for Economic Development in Highlands (2012).

14.1.3 Methodology

587. Currently, there is no specific guidance on the methodology for assessment of the socio-economic impacts of a proposed onshore windfarm development. The proposed method of assessment is based on established best practice, including UK Government and industry reports.

588. In the context of NPF4, new guidance on consideration of socio-economic impacts of onshore wind farms is anticipated to be published by the Task and Finish Group comprising private and public sector members and set up following adoption of the OWPS. The socio-economic assessment will be undertaken in accordance with any forthcoming guidance.

589. The following documents will also be considered in the assessment:

- Windfarm BVG Associates (2017), Economic benefits from onshore Windfarms;
- Windfarm Highlands and Islands Enterprise (2019), 2019-2022 Strategy;
- Highlands and Islands Area Profiles 2020 Inner Moray Firth (2020);
- Institute of Environmental Management and Assessment (IEMA) (2011), The State of Environmental Impact Assessment in the UK;
- NatureScot (2018), Environmental Impact Assessment Handbook V5;
- RenewableUK (2015), Onshore Wind: Economic Impacts in 2014;
- RenewableUK (2021), The Onshore Wind Energy Prospectus;
- Scottish Government (2016), Draft Advice on Net Economic Benefit and Planning;
- Scottish Government (2020), Towards a Robust, Resilient Wellbeing Economy for Scotland: Report of the Advisory Group on Economic Recovery;
- Scottish Renewables (2023), Scotland's Renewable Energy Industry: Supply Chain Impact Statement 2022/23;
- Scottish Renewables, Scottish National Heritage, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science and Association of

Environmental Clerks of Works (2019), Good Practice During Windfarm Construction; and

- Zero Waste Scotland (2021), The future of onshore wind decommissioning in Scotland.

14.1.4 Study Area

590. The socio-economic baseline description will encompass the areas where significant effects as a result of the proposed Development on employment and the economy could occur. Three study areas are proposed:

- the local electoral wards of Cromarty Firth and East Sutherland and Edderton;
- the Highland region; and
- Scotland.

14.1.5 Data sources to Inform the Baseline Characterisation

591. Baseline conditions will be determined by desk-based research using publicly available statistics and information, which will be referenced fully in the SES. Economic and employment statistics will be reviewed, and settlements will be identified and described using sources such as the National Online Manpower Information System (NOMIS) and National Records of Scotland.

14.1.6 Baseline Conditions

592. Before assessing the potential effects of the proposed Development on the economy, the assessment will provide a baseline describing the existing socio-economic conditions. Any changes in activity and use linked to the proposed Development will be assessed against this baseline. The baseline will consider:

- employment and economic activity in the local area within the context of regional and national economies; and
- wage levels within the regional economy compared to the national level.

14.1.7 Maximising Local Benefits

593. As noted in NPF4, there is a requirement for the Proposed Development to maximise local economic benefits and community wealth building. It is considered that the OWPS and OWSD provide the context in relation to these aims.

594. The Applicant will consider the potential measures outlined in the OWPS and OWSD for the proposed Development to deliver benefits within the local economy. Uncertainties around procurement, development timescales, and detailed project specifications make it impossible to accurately predict exactly how much local content a project will contain before development commences.

595. Community benefit proposals would be confirmed by the Applicant and would be developed with consideration given to industry best practice as contained in Scottish Government (2019), Community Benefits from Onshore Renewable Energy Developments.

14.1.8 Assessment of Impacts

596. The assessment considers the potential net employment and economic impacts (direct, indirect and induced), during construction and operation of the proposed Development. Direct, indirect and induced effects are defined as follows:

- Direct: the employment and other economic outputs directly attributable to the delivery of the proposed Development. Direct employment includes any new jobs created to manage and supervise the construction and operational phases of the proposed Development that are filled by employees of the applicant, or the appointed contractor (or subcontracted employees);
- Indirect: the employment and other outputs created in other companies and organisations that provide services to the proposed Development (i.e., procurement and other supply chain effects); and
- Induced: additional jobs and other economic outputs created in the wider economy as a result of the spending of employee incomes on locally produced goods and services (i.e., personal vehicle maintenance, food and drink, etc.), and other derived multiplier effects occurring from direct and indirect effects of the proposed Development.

14.1.9 Receptors/Matters to be included in the assessment

Net Socio-economic Impacts During Construction and Operation

597. To evaluate the economic impact from project expenditure during construction and operation, an input-output model will be used to calculate the direct, indirect and induced impacts of localised economic activity on the overall economy. The model generates the Gross Value Added (GVA) to the economy and the years of employment supported within the economy as economic indicators of impact.

598. Government and industry reports will be used to determine the expected capital and operational expenditure associated with the proposed Development, as well as the breakdown of expenditure by different contracts (e.g., turbine, balance of plant). An assumption will be made based on the share of each type of contract that can be secured locally, regionally and nationally. This increase in turnover will be used to estimate the economic impact associated with the proposed Development. To calculate the economic effect of new jobs, the GVA per head for civil engineering related projects in Highlands and Scotland will be utilised. These figures will be sourced from the Scottish Annual Business Statistics. Multiplier effects will also be built into the socio-economic impact assessment, and these will be sourced from the Type II Output, Income, Employment and GVA Multipliers, produced by the Scottish Government (Scottish Government, 2022). Additionality factors, including leakages and displacement, will be considered to provide net GVA and years of employment. The sum of direct, indirect and induced impacts equals the total GVA and employment supported by a proposed development. This is consistent with Scottish Government advice on net economic benefit.

599. A similar model will also be used for any co-located renewable technologies on the Site, with the analysis drawing on the experience of deployment of this technology elsewhere across Scotland and the UK.

14.1.10 Receptors/Matters to be excluded from the assessment

Tourism and Recreation

600. National energy and planning policy do not consider tourism and recreation to be material considerations in the determination of onshore wind development. This is consistent with the findings of several studies into the impact of wind turbines on tourism and recreation, such as:

- BiGGAR Economics (2017), Wind Farms and Tourism Trends in Scotland;
- BiGGAR Economics (2021), Wind Farms and Tourism Trends in Scotland: Evidence from 44 Wind Farms;
- ClimateXChange (2012), The Impact of Wind Farms on Scottish Tourism;
- Department for Business, Energy & Industrial Strategy (2019), BEIS Public Attitudes Tracker;
- Glasgow Caledonian University/Moffat Centre (2008), Economic impacts of wind farms on Scottish tourism; and
- Visit Scotland (2020), Key Facts: Tourism in Scotland 2019.

601. Therefore this topic will not be considered within the socio-economic assessment.

Wider economic benefits

602. While most benefits from wind farms come from the construction and operation of projects, the proposed Development also provides significant opportunities for maximising local benefits through wider economic benefits. Wider economic benefits will not be considered in the assessment of net-economic impacts as they are more speculative and reliant upon local businesses responding to the opportunities available. However, the Applicant will include a statement on how the proposed Development could deliver local benefits.

Community Services

603. It is not expected that construction workers from outside local Study Area would create an additional demand for housing, health or educational services. Once constructed, only a small workforce would be involved in the operation and maintenance of the Proposed Development. Therefore, effects on demand for such community services during construction will not be assessed.

14.1.11 Difficulties and Uncertainties

604. Data will be collated from published sources and comparable experience of similar developments. There is insufficient data relating to likely expenditure, contract types and contract spend across different Study Areas. To estimate the construction phase socio-

economic benefits, calculations relating to gross and net economic and employment benefits would be based on just the expenditure associated with the installation of the new turbines.

605. The Highlands and Islands Enterprise Statistics for Inner Moray Firth will be used as the most recent and accurate comparison of the economic baselines across the different Study Areas. If more recent and reliable date is published, including data for the local Study Area, then this would be used to inform the description of the baseline conditions in the socio-economic assessment.

14.1.12 References

606. Most documents cited are listed in section of **Section 11.3** to this chapter. In addition, the following are included:

Copper consultancy (2023), Public attitudes to renewable energy.

Department for Business, Energy & Industrial Strategy (2022), BEIS Public Attitudes Tracker.

Health and Safety Executive (2015), The Construction (Design and Management) Regulations 2015.

Highlands and Islands Enterprise (2019), Inner Moray Firth Key Statistics.

NatureScot (2018), Environmental Impact Assessment Handbook.

Scottish Government (2003), Land Reform (Scotland) Act 2003.

Scottish Government (2016), Net Economic Benefit and Planning.

Scottish Government (2022), Onshore Wind Policy Statement.

Scottish Government (2022), Supply, Use and Input-Output Tables.

Scottish Government ClimateXChange (2012), The Impact of Windfarms on Scottish Tourism.

Visit Scotland (2014), Position Statement – Windfarms.

14.1.13 Scoping Questions

607. The following questions are directed to consultees:

- Is the scope of the proposed assessments appropriate?
- Are Consultees aware of any key sensitive receptors that should be considered?
- Are Consultees aware of any additional relevant consultees?

14.2 Telecommunications, Infrastructure and Local Services

14.2.1 Introduction

608. Tall structures such as buildings and wind turbines can adversely affect the performance of fixed telecommunications links, if positioned close enough to those links.

609. The proposed Development also has the potential for impacts on buried services due to excavations required to install foundations for infrastructure.

14.2.2 Consultation

610. Consultation with stakeholders will be conducted through the Scoping process and an Airwaves Assessment. It is proposed that the following stakeholders will be consulted in relation to the assessment:

- Airwave;
- Arqiva;
- Atkins;
- BT;
- JRC;
- Mobile Broadband Network Limited;
- Telefonica; and
- Vodafone.

14.2.3 Legislation, Policy and Guidance

611. Standards for the separation of wind turbines from fixed telecommunications links are set out in an Ofcom-recommended paper 'A proposed method for establishing an exclusion zone around a terrestrial fixed radio link outside of which a wind turbine will cause negligible degradation of the radio link performance.' (Bacon (2002)). In addition, the following legislation, policy and guidance will be used to inform the telecommunication assessment:

- Wireless Telegraphy Act (UK Government, 2006);
- The Highland-wide Local Development Plan. Onshore Wind Energy Supplementary Guidance (THC, 2016);

- BBC & Ofcom (2006) 'The Impact of Large buildings and Structures, including Windfarms on Terrestrial Television Reception';
- Health and Safety Executive – GS 6 (2012) 'Avoiding Danger from Overhead Powerlines';
- Health and Safety Executive – HSG 47 (2014) 'Avoiding Danger from Underground Services';
- Planning Advice Note: PAN 62 Radio Telecommunications (Scottish Government, 2001b); and
- Tall structures and their impact on broadcast and other wireless services (Ofcom, 2009).

612. There is no standard guidance regarding setback distances between infrastructure and buried services.

14.2.4 Study Area

613. The Site will be adopted as the Study Area in order to determine the fixed telecommunications link and buried services baseline.

14.2.5 Data Sources to Inform the EIA Baseline Characterisation

614. The telecommunications baseline will be determined from consultations and by review of Ofcom data. THC's planning portal will be reviewed to identify any potential committed development. The buried services baseline will be determined through a desktop study and consultation with service providers.

14.2.6 Surveys to Inform the EIA Baseline Characterisation

615. No field surveys are proposed to inform the EIA baseline characterisation.

14.2.7 Baseline conditions

Telecommunications

616. The existing windfarm has been operating since 2005. Furthermore, the telecommunications assessment completed as part of the Coire na Cloiche Environmental Statement[8] (the other windfarm within the existing cluster) confirmed that there would be no significant impacts on telecommunications receptors in the area. This indicates that it is unlikely that there are any telecommunications links within the existing extent of windfarm development. However, the size of the turbines would be greater for the proposed Development and the geographical extent of the windfarm would increase which may result in potential impacts.

[8] *The environmental statement can be found by searching the case number (12/00479/FUL) on the Highland Council's planning portal (https://wam.highland.gov.uk/wam/)*

617. A review of the Ofcom Spectrum database, shows that there appears to be one existing fixed link operated by Vodafone within the Site Boundary, connecting with the existing substation from the south and the east. This operates in the vicinity of the existing Beinn Tharsuinn turbines so is assumed to be part of the Beinn Tharsuinn Windfarm and unaffected by turbine activity. However, it is expected the full extent of telecommunications receptors within the baseline environment would be determined through engagement with link operators as part of the EIA Scoping consultation process.

Infrastructure

618. It is noted that a planning application has been submitted by ScottishPower Energy Retail Ltd for a hydrogen production and storage facility at a location along the existing Beinn Tharsuinn Windfarm access track (23/05242/FUL). SPR were consulted during the siting and design evolution for this development and there is sufficient set back from the access track that it is considered unlikely that the swept path of any abnormal indivisible loads delivering turbine components would impact the hydrogen production and storage facility if it was consented.

Local services

619. It is noted that there are currently two overhead lines (OHLs) crossing the proposed site access which could be impacted by the delivery of turbine components. The OHLs are operated by Scottish and Southern Electricity Networks (SSEN) Transmission and consist of a 275kV OHL runs between the Fyrish and Loch Buidhe substations and a 132kV OHL between the Beauly and Shin substations. The Applicant would review, in consultation with SSEN Transmission, the vertical clearance (based on existing and proposed levels of the tracks) to the existing OHL to determine whether there is likely to be a clearance infringement.

620. SSEN Transmission are also proposing a new 400 kV overhead transmission line from Spittal – to Loch Buidhe to Beauly which is to be operational by 2030. SSEN Transmission submitted a Scoping Report (ECU00006008) to the ECU in October 2024. Section D of the route would cross the western extent of the Site.

14.2.8 Mitigation

621. Baseline studies will identify any issues requiring mitigation or detailed assessment. Fixed links, infrastructure and local services within the Study Area will be mapped and their separation distances from turbines modelled. Where possible and applicable, the turbines will be designed to take into account the minimum separation distance from identified assets. Where potential impacts cannot be mitigated by design then technical mitigation solutions will be discussed with the relevant stakeholders.

14.2.9 Receptors/Matters to be Scoped Out of Further Assessment

622. It is anticipated that any impacts on telecommunications links, infrastructure and local services will be mitigated as described above and therefore this topic can be scoped out of the EIA.

623. In addition, since the digital switchover was completed the potential impacts on television signals from windfarm developments has been significantly reduced as these digital signals are much better at coping with the signal reflections which could cause ghosting effects on an analogue signal.

624. However, if the proposed Development is found to cause interference to TV signals there are a number of options available to mitigate the effects, such as re-aligning the aerial or installing a satellite dish. As potential television reception problems are difficult to predict and identify, assurance that the Applicant will rectify any problems is normally formalised in a planning condition.

14.2.10 Proposed Assessment Methodology

625. No assessment is proposed at this stage; should the need to assess potential impacts arise following consultation with relevant stakeholders, the studies will be commissioned as necessary.

14.2.11 Scoping Questions

626. The following questions are directed to consultees:

- Do consultees agree that the scope of the proposed assessment is appropriate?
- Do consultees know of any telecommunications links in the Study Area?

14.3 Air Quality

627. Given the rural location of the proposed Development, the main source of impact on air quality would be increased traffic flows on local roads during construction and emissions from construction activities, such as movement of vehicles on site, and exhaust fumes and dust generated by quarrying activities associated with borrow pits during dry spells. These activities, however, would be short term, localised, and unlikely to have any significant effect on air quality taking into account average climate conditions and distance between construction and the nearest receptors. In addition to this, controls and best practice measures will form an integral part of the CEMP for the proposed Development.

628. The only source of emissions would be occasional vehicles accessing the Site for maintenance purposes having negligible effect on air quality.

629. Any relevant mitigation measures for air quality, dust and pollution control would be detailed within the CEMP.

630. Having all of the above under consideration, Air Quality is therefore proposed to be scoped out of the EIA.

14.4 Population and Human Health

631. As established under the EIA regulations, Population and Human Health is one of the factors that must be considered during the EIA process. The proposed Development consists of a repowering of an already existing windfarm, and there are no residential properties within or proximal to the Site, which as a result, limited interactions with human health are anticipated. The Site design and in-built buffers from sensitive receptors will minimise any risk to human health resulting from the operation of the turbines, and properly designed and maintained wind turbines are a safe technology.

632. The amenity effects of the proposed Development as related to Population and Human Health will be assessed in technical studies of the following environmental factors in the EIAR:

- Landscape and visual impacts;
- Noise and vibration;
- Shadow flicker;
- Traffic and Transportation;
- Telecommunications;
- Aviation and Radar; and
- Socio-economics

633. Any mitigation measures to avoid or reduce impact on amenity and ensure safety for the receiving community during construction will be implemented through the CEMP.

634. Where Population and Human Health will be covered through the findings of several other assessments in the EIAR, it is proposed that this is and not as this will not be a standalone EIAR chapter.

14.5 Vulnerability of the Development to Risks of Major Accidents and/or Disasters

635. The vulnerability of the development to risks of major accidents and disasters are defined in Institute of Environmental Management and Assessment (IEMA) guidance as man-made or natural events with the potential to endanger human health or the environment (such as lightning strike and structural failures). This requirement is interpreted as requiring the consideration of high consequence events (even if of low likelihood) which would result in serious harm or damage to environmental receptors. In this case, this risk would be minimised through proper design of the Proposed Development and compliance with relevant legislation and best practice.

636. The potential for effects related to the vulnerability to accidents and disasters is likely to be limited to those effects associated with extreme weather, mechanical failure or structural damage. Relevant types of accident/disaster, given the predominantly rural context of the Proposed Development, include:

- Severe weather events, including high winds, high rainfall leading to flooding, or extreme cold leading to heavy snow and ice loading;
- Fire;
- Traffic related accidents; and

- Mass movement associated with ground instability.

637. There is also the requirement to consider vulnerability of the development to the risks of climate change. None of the following climate trends identified in UKCP18 would affect the Proposed Development with the exception of increased windstorms:

- Increased temperature;
- Wildfire;
- Changes in the frequency, intensity, and distribution of rainfall events e.g., an increase in the contribution to winter rainfall from heavy precipitation events and decreases in summer rainfall;
- Increased windstorms; and
- Sea level rise.

638. Given the nature of the proposed Development, and its location, the risk of a major accident or disaster is considered to be extremely low. A Design Risk Assessment process is followed during the design phase to mitigate risks to a level deemed as low as reasonably practicable as part of the requirements of the Construction (Design and Management) Regulations (2015).

639. During the operational phase of the proposed Development, routine maintenance inspections will be completed in order to ensure the safe and compliant operation of all built infrastructure. The main risk during operational Phase would be due to increase of bad weather. However, braking mechanisms installed on turbines allow them to be operated only under specific wind speeds and should severe windstorms be experienced, then the turbines would be shut down.

640. On the basis of the foregoing, it is proposed that an assessment of the risk of major accidents and/or disasters is scoped out of the EIA.

14.6 Scoping Questions

641. The following questions are directed to consultees:

- Do consultees agree that air quality can be scoped out of the EIA?
- Do consultees agree that population and human health can be scoped out of the EIA and be covered through other chapters?
- Do the consultees agree that vulnerability of the development to risks of major accidents and/or disasters can be scoped out of the EIA?

17. Summary

15.Summary

642. The EIA Scoping Report outlines the proposed technical and environmental assessment that will be included within the EIAR for the proposed Development. The proposed scope and methodologies for each assessment have been provided and the guidance to be followed is set out. **Appendix B** summarises the environmental factors and receptors that are proposed to be scoped out of further assessment.

643. The proposed scope contained within this EIA Scoping Report is based on the characteristics of the proposed Development as described in **Chapter 2** and current understanding of the characteristics of the receiving environment. Further environmental studies, pre-application consultation, and the iterative design process could result in changes to the likelihood of significant effects and, as a result, the scope of the EIAR. Any changes to scope would be set out in a Gatecheck Report and agreed with consultees prior to submitting the EIAR.

Appendix A. List of Consultees

Statutory Consultees
The Highland Council
NatureScot
SEPA
Historic Environment Scotland
Internal Scottish Government Advisors
Scottish Forestry
Transport Scotland
Marine Scotland
Non Statutory Consultees
Highland and Islands Airports Limited
BT
Civil Aviation Authority - Airspace
Cromarty Firth District Salmon Fisheries Board
Cromarty Firth Fisheries Trust
Crown Estate Scotland
Defence Infrastructure Organisation
Fisheries Management Scotland
Kyle of Sutherland District Salmon Fisheries Board
Kyle of Sutherland Fisheries Trust

John Muir Trust
Joint Radio Company
Mountaineering Scotland
NATS Safeguarding
Office for Nuclear Regulation
RSPB Scotland
Scottish Rights of Way and Access Society (ScotWays)
Scottish Water
Scottish Wildlife Trust
Scottish Wild Land Group (SWLG)
Visit Scotland
Woodland Trust
Community Councils
Ardross Community Council
Ardgay and District Community council
Edderton Community council
Kilmuir and Logie Community Council
Creich Community Council
Dornoch Community Council
Tain Community Council
Invergordon Community Council

Alness Community Council
Kiltearn Community Council
Others
The Met Office
Health and Safety Executive
Scottish Fire and Rescue Service
Scottish and Southern Electricity Networks
Highland Raptor Study Group (HRSG)
Scottish Badgers
Arqiva
Atkins
Mobile Broadband Network Limited
Telefonica
Vodafone

Appendix B. Summary of environmental factors and receptors scoped out of EIA

Environmental Factor and Receptors Scoped Out	Justification
Landscape and Visual	
Landscape fabric (Operation)	On completion of construction effects are on landscape character.
Rugged Mountain Massif – Caithness and Sutherland LCT (139)	Variable theoretical visibility indicated from localised areas of the LCT within 4.1 – 20 km. Operational windfarms are an existing feature in elevated, outward views from the LCT.
Farmed and Forested Slopes – Ross & Cromarty LCT (345)	Theoretical visibility of between 8 to 16 turbines indicated from localised areas of the LCT within 7.7 – 15 km. Actual visibility will be reduced by buildings, infrastructure and coniferous forestry within the LCT and the adjacent LCT 341 – Forest Edge Farming.
Coastal Shelf LCT (343)	Theoretical visibility of between 8 to 16 turbines indicated from much of the LCT within 9 – 20 km. Outward views from the LCT are focused across the Dornoch Firth, away from the Site.
Open Farmed Slopes LCT (346)	Theoretical visibility of between 8 to 16 turbines indicated from parts of the LCT in western extent of the Black Isle, within 14.8 – 20 km. Majority of LCT located beyond 20 km.
Lowland Farmed Plain – Ross & Cromarty LCT (344)	Theoretical visibility of between 8 to 16 turbines indicated from parts of the western extent of the LCT within 15.8 – 20 km. Majority of LCT located beyond 20 km.
LCT beyond 25 km (Construction & Operation)	The likelihood of significant effects on landscape character would reduce considerably at this distance.
Assynt - Coigach NSA (Construction & Operation)	Significant effects highly unlikely given distance and limited theoretical visibility.
Glen Strathfarrar NSA (Construction & Operation)	Significant effects highly unlikely given distance and very limited theoretical visibility.

Environmental Factor and Receptors Scoped Out	Justification
Ben Wyvis SLA (Construction)	While construction activities would potentially be visible from the SLA, activities would be of short duration with no permanent effects.
Beinn Dearg and Glencalvie SLA (Construction)	While construction activities would potentially be visible from the SLA, activities would be of short duration with no permanent effects.
Loch Fleet, Loch Brora and Glen Loth SLA (Construction & Operation)	While construction activities would potentially be visible from the SLA, activities would be of short duration with no permanent effects.
Sutors of Cromarty, Rosemarkie and Fort George SLA (Construction & Operation)	While construction activities would potentially be visible from the SLA, activities would be of short duration with no permanent effects.
Significance of Gardens and Designed Landscapes (GDL) (Construction & Operation)	The significance of GDL as heritage assets will be undertaken by the cultural heritage specialist. The LVIA will consider the contribution that GDL make to landscape character and views.
Wild Land Areas (WLA) (Construction & Operation)	The proposed Development would not be located in a WLA and effects on WLA would therefore not be a 'significant consideration' with regard to National Planning Framework Policy 4.
Settlements within 20-25 km (Construction)	While construction activities would potentially be visible from settlements, activities would be of short duration with no permanent effects.
Key routes: A9 A832 A836 A862 A949 (Construction)	While construction activities would potentially be visible from key routes, activities would be of short duration with no permanent effects.

Environmental Factor and Receptors Scoped Out	Justification
North Coast 500 (Construction)	While construction activities would potentially be visible from key routes, activities would be of short duration with no permanent effects.
Night-time effects (Construction)	While lighting during construction would potentially be visible it would be of short duration with no permanent effects.
Night-time effects beyond 20 km (Operation)	Beyond 15 km the intensity and visibility of turbine lighting would reduce considerably.
Ornithology	
Common and/or low conservation species not recognised in statute as requiring special conservation measures (i.e., not listed as Annex 1/ Schedule 1 species);	On the basis of baseline data, experience from other relevant projects and policy guidance or standards (e.g., CIEEM 2018, SNH 2018b), the listed species will be 'scoped out' since significant effects are unlikely.
Common and/or low conservation species not included in non-statutory lists Ii.e., not listed as Amber or Red-listed BoCC species), showing birds whose populations are at some risk either generally or in parts of their range	
Passerine species, not generally considered to be at risk from Windfarm developments (SNH 2017), unless being particularly rare or vulnerable at a national level	
Dornoch Firth and Loch Fleet SPA (all species bar osprey and greylag goose),	There is considered to be no potential for connectivity with the listed SPAs and it is proposed to scope these SPAs/SSSIs out of the assessment as there is considered to be no likely significant effect.
Cromarty Firth SPA (all species bar greylag goose)	
Loch Eye SPA (all species bar greylag goose)	
Moray Firth SPA	
Strath Carnaig and Fleet Moors SPA	

Environmental Factor and Receptors Scoped Out	Justification
Ben Wyvis SPA	
Rosemarkie to Shandwick Coast SSSI	
Ecology	
Great crested newts	Due to the upland nature and the geographical location of the Site. No records of great crested newt have been identified within 2 km of the Site during a high-level desk study. It is considered unlikely that this species will be present within the Site and the surrounding habitats.
Designated sites from the application boundary (excluding SPAs and Ramsar sites.	Due to the size of the Site and the distance it is considered that these will not be impacted by the proposed Development and are therefore scoped out.
Decommissioning phase	Scoped out as this is considered likely to have similar effects as construction, albeit reduced in magnitude and extent due to less predicted groundworks.
Geology, Soils and Peat, Hydrology and Hydrogeology	
Flood risk within the Site (Construction & Operation)	The overall flood risk at the Site is low (SEPA, 2023). Flood risk is mostly confined to watercourse channels and would be managed by avoidance of construction within 50 m of watercourses except where crossings are required. Increased flood risk to areas downstream would be assessed as part of the drainage design process.
Mining & mineral extraction (Construction & Operation)	There are no mine workings within the Site or within 5 km of the application boundary. No active quarrying or mineral extraction has been identified within the Site or within 2 km of the application boundary.
Noise and Vibration	
Operational vibration assessment for the proposed Development	Vibration resulting from the operation of windfarms is imperceptible at typical separation distances.

Environmental Factor and Receptors Scoped Out	Justification
Infrasound and low frequency noise.	The referenced online planning advice note, Onshore wind turbines, refers to a report for the UK Government which concluded that "there is no evidence of health effects arising from infrasound or low frequency noise generated by the wind turbines that were tested". The current recommendation is that ETSU-R-97 should continue to be used for the assessment and rating of operational noise from windfarms. It is therefore not proposed to undertake specific assessments of infrasound and low frequency noise, but the noise chapter will consider the latest supporting information on these subjects and the topic of wind turbine blade swish or Amplitude Modulation (or AM).
Cumulative Construction and Noise and Vibration	It is unlikely that construction of the proposed Development would occur precisely at the same time as other windfarms, such that cumulative impacts are likely to arise.
Nearby noise sensitive receptors	The substation and grid connection point are likely to be well separated (at least one kilometre) from nearby noise sensitive receptors, therefore it is not proposed to undertake specific assessments of operational noise from these elements and for these to be scoped out of the assessment.
ETSU-R-97 methodology for defining noise limits	As discussed above in section 8.5, it is considered likely that baseline noise monitoring would not be required to define noise limits using the ETSU-R-97 methodology, either because the neighbouring dwellings are located sufficiently far away that it is not required, or because sufficient data was already captured as part of the assessment of the Revised Strathrory Windfarm.
Cultural Heritage	
Construction phase setting effects	Effects will be temporary and are not considered to be significant in EIA due to their very short duration. Construction phase setting effects are therefore proposed to be scoped out of the assessment.
Listed Buildings within towns and villages	The proposed Development would not appreciably alter the features of their settings that contribute to their cultural significance. It is therefore proposed that detailed assessment of Listed Buildings within towns and villages (other than designated conservation areas) is scoped out of the EIA.

Environmental Factor and Receptors Scoped Out	Justification
Ground Disturbance (Decommissioning)	Disturbance associated with decommissioning (of the proposed repowering) will not extend beyond the construction footprint and so decommissioning effects of the proposed repowering on heritage assets within the Site will not occur. Any residual operational phase setting effects will be reversed. Decommissioning effects are therefore proposed to be scoped out of the assessment.
Transport and Access	
All (Operation)	Once operational, the effect on the local road network will be minimal. Access will be required from time to time for routine maintenance, and less frequently for major maintenance and upgrades. Therefore, it is not expected that the changes in traffic on the existing network will change by more than 10% for HGVs or 30% for all vehicle movements, these being defining thresholds for environmental effects on the local transport network.
Socio-economic and Tourism	
Operation	Based on previous experience, no significant socio-economic effects are expected to occur in EIA terms as a result of the Proposed Development. Socio-economics, tourism and recreation are important policy considerations for the determination of renewable energy proposals and a Socio-economic Statement will consider economic and employment generation, and other socio-economic effects.
Telecommunications, Infrastructure and Local Services	
Telecommunications links, infrastructure and local services	It is anticipated that any impacts on telecommunications links, infrastructure and local services will be mitigated. A digital switchover was completed the potential impacts on television signals from windfarm developments has been significantly reduced as these digital signals are much better at coping with the signal reflections which could cause ghosting effects on an analogue signal.
Air Quality	

Environmental Factor and Receptors Scoped Out	Justification
	The main source of impact on air quality would be increased traffic flows on local roads during construction and emissions from construction activities, such as movement of vehicles on site, and exhaust fumes and dust generated by quarrying activities associated with borrow pits during dry spells. These activities, however, would be short term, localised, and unlikely to have any significant effect on air quality taking into account average climate conditions and distance between construction and the nearest receptors. In addition to this, controls and best practice measures will form an integral part of the CEMP for the proposed Development.
Population and Human Health	
	The proposed Development consists of a repowering of an already existing windfarm, and there are no residential properties within or proximal to the Site, which as a result, limited interactions with human health are anticipated. The Site design and in-built buffers from sensitive receptors will minimise any risk to human health resulting from the operation of the turbines, and properly designed and maintained wind turbines are a safe technology.
Vulnerability of the Development to Risks of Major Accidents and/or Disasters	
	Given the nature of the proposed Development, and its location, the risk of a major accident or disaster is considered to be extremely low. A Design Risk Assessment process is followed during the design phase to mitigate risks to a level deemed as low as reasonably practicable as part of the requirements of the Construction (Design and Management) Regulations (2015). During the operational phase of the proposed Development, routine maintenance inspections will be completed in order to ensure the safe and compliant operation of all built infrastructure. The main risk during operational Phase would be due to increase of bad weather. However, braking mechanisms installed on turbines allow them to be operated only under specific wind speeds and should severe windstorms be experienced, then the turbines would be shut down. Given the steepness of the Site, which drains directly into a river, Flooding will not pose a significant risk to the operation of the windfarm.