

Technical Appendix 1.3: Scoping Report

Intended for
Ravengill Energy Park Ltd

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RAVENGILL ENERGY PARK

EIA SCOPING REPORT

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GLOSSARY AND ABBREVIATIONS

Abbreviation/Terminology	Expanded Term/Possible variables
the Applicant	Ravengill Energy Park Limited
AIL	Abnormal Indivisible Load
AM	Amplitude Modulation
AOD	Above Ordnance Datum
ATC	Automatic Traffic Count
ATC	Air Traffic Control
BESS	Battery Energy Storage System
BGS	British Geological Survey
BS	British Standard
CAA	Civil Aviation Authority
CAR	Controlled Activities Regulations
CEMP	Construction Environmental Management Plan
CIfA	Chartered Institute for Archaeologists
CLVIA	Cumulative Landscape and Visual Impact Assessment
CRMS	Collision Risk Modelling
dB	decibel
DfT	UK Department for Transport
ECU	Energy Consents Unit
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EKA	Eskdalemuir Seismic Array
GDL	Gardens and Designed Landscapes
GPP	Guidance for Pollution Prevention
GWDTE	ground water dependant terrestrial ecosystems
Ha	Hectare
HEPS	Historic Environment Policy for Scotland
HER	Historic Environment Record
HES	Historic Environment Scotland
HLAMap	Historic Land-Use Assessment Data for Scotland
HRA	Habitat Regulations Appraisal
IEMA	Institute of Environmental Management and Assessment
km	kilometres
LA90	The A-weighted noise level exceeded for 90% of the time, often used to describe background or wind turbine noise as it excludes transient noises that affect the LAeq.
LCT	Landscape Character Type
LDP	Local Development Plan
LDP2	South Lanarkshire Local Development Plan 2
LUPS	Land Use Planning System
LVIA	Landscape and Visual Impact Assessment
m	metres
MoD	Ministry of Defence

Abbreviation/Terminology	Expanded Term/Possible variables
MW	megawatts
NCN	National Cycle Network
ND3	National Development 3
NERL	NATS En Route
NPF4	National Planning Policy Framework 4
NRHE	National Record for the Historic Environment
NSR	non-statutory register
NSR	noise-sensitive receptors
NVC	National Vegetation Classification
PAN	Planning Advice Note
PPG	Pollution Prevention Guidelines
PWS	Private Water Supply
RSPB	Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SIL	Seismic Impact Limit
SLA	Special Landscape Area
SLC	South Lanarkshire Council
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protection Area
SPG	Supplementary Planning Guidance
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
TA	Technical Appendix
TA	Transport Assessment
TMA	Terminal Manoeuvring Area
WFD	Water Framework Directive
WoSAS	West of Scotland Archaeology Service
VP	Vantage Point
ZTV	Zone of Theoretical Visibility

1. INTRODUCTION

This Scoping Report is provided in support of a request to the Scottish Ministers for a Scoping Opinion under the terms of Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations').

Scoping is a statutory procedure by which an Applicant may ask a competent authority for its formal opinion on the information to be supplied within an EIA Report (EIAR). This provision allows the Applicant to be clear about what the authority considers the main effects of the proposal are likely to be, and therefore the topics on which the EIAR should focus.

1.1 Background

Ravengill Energy Park Limited ('the Applicant') is seeking consent to construct and operate the Ravengill Energy Park ('the Proposed Development') on land ('the Site') located approximately 1 km to the north of Leadhills village and 1.5 km south of Abington village, with the A74(M) motorway located to the east, in South Lanarkshire, Scotland. The Site is entirely within the administrative boundary of South Lanarkshire Council (SLC) and the site location is presented on **Figure 1.1 (Appendix A)**.

The scoping layout for the Proposed Development is presented on **Figure 1.2 (Appendix A)** and shows the Site is currently anticipated to accommodate approximately 32 wind turbine generators with a maximum tip height of 220 m and with a generation capacity of >50 Megawatts (MW). In addition, the Site will accommodate a battery energy storage system (BESS) of approximately 50 MW capacity.

The layout of the Proposed Development should be considered preliminary as it will evolve as further survey information is gathered in relation to environmental and technical constraints. The evolution of the layout will also respond to stakeholder consultation feedback from the scoping process and parallel engagement with the local community.

Following on from the development of the turbine layout, the layout of the BESS and ancillary infrastructure will be developed. Ancillary infrastructure will include a crane hardstanding at the base of each turbine, a substation, control building, external transformers, new access tracks and site entrances, temporary construction compounds and laydown areas and borrow pits.

This report has been prepared by competent EIA experts, with a team of technical specialists providing inputs covering all the relevant environmental disciplines as set out in **Table 1.1**.

Table 1.1: EIA Team

Discipline	Organisation
Lead EIA Consultant	Ramboll
Planning and Policy	David Bell Planning
Landscape and Visual Amenity	MVGLA
Cultural Heritage	CFA Archaeology
Ecology and Ornithology	MacArthur Green
Hydrology, Hydrogeology and Geology	Ramboll
Traffic and Transport	Pell Frischmann
Noise	Hoare Lea
Socio-Economics	BiGGAR Economics
Telecommunications	Ramboll

Discipline	Organisation
Shadow Flicker	Ramboll

1.2 Consenting Regime

It is anticipated that the Proposed Development would have an installed capacity of >50 MW. Therefore, an application for consent would be made to the Scottish Ministers under section 36 of the Electricity Act 1989. The Applicant would also seek deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997.

The Proposed Development is of a type listed in Schedule 2 of the EIA Regulations (item (1) "a generating station"); and on the basis that "the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location" it is considered that an EIA will be required. In this case, the Applicant has volunteered to undertake an EIA rather than request a formal screening opinion.

Further detail on the policy context and legislative framework relevant to the Proposed Development is contained in **Appendix C**.

1.3 Objectives

The specific objectives of this report are to:

- seek agreement on the potential likely significant effects associated with the Proposed Development, and confirm that all potential likely significant effects have been correctly included in the proposed scope of the EIA ('scoped in');
- seek agreement where non-significant effects have been excluded ('scoped out') from further consideration in the EIA process; and
- invite comment on the proposed approach to baseline data collection, prediction of environmental effects and the assessment of significance.

Unless consultees specifically request otherwise, all responses will be collated and presented as a technical appendix to the EIAR, as a record of the results of the scoping exercise.

1.4 The Applicant

Ravengill Energy Park Ltd is a wholly owned subsidiary of Renewco Power Limited. Renewco Power is a renewable energy developer focussed on developing utility-scale wind, solar and energy storage projects across Europe and the US. Renewco Power blends experienced entrepreneurial talent with commercial, operational and technical expertise across the clean energy and environmental sectors. The team have developed and delivered wind, solar and battery energy storage systems (BESS) projects across the UK and internationally.

1.5 Programme

The Applicant intends to submit an application for a section 36 consent and deemed planning permission to Scottish Ministers in Q1 2026.

1.6 Public Consultation

The Applicant is committed to conducting extensive community consultation and engagement throughout the development process. Online communication such as a project website will strengthen traditional methods such as updates to community councils and printed advertisements.

In accordance with established good practice, the Applicant is planning to host two rounds of public consultation, each including public exhibition events. The Applicant will also work with

local community groups and businesses to seek their ongoing feedback and for consideration in the design process. Written public comments will be documented and analysed, with any adjustments incorporated to the Proposed Development design noted in the application materials.

1.7 Structure of this Report

The remainder of this report is structured as follows:

- Section 2 provides a brief description of the nature and purpose of the development, typical construction activities and decommissioning proposals.
- Section 3 describes the baseline environment conditions, the likely significant environmental effects identified and proposed method for further data collection and evaluation of effects.
- Section 4 describes the effects that are considered not to be significant, and proposes that these be excluded from the EIA, providing a rationale in each case.
- Section 5 provides information on the process for making representations on the Scoping Report.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site Selection

The Site for the Proposed Development is considered by the Applicant to be suitable for wind farm development for the following reasons:

- the Site is situated amidst a cluster of operational and proposed wind farm developments with the closest being Clyde Wind Farm (operational) to the east, Crookedstane Wind Farm (consented) to the east and Lion Hill Wind Farm (consented) to the south east;
- there is scope to deliver suitable access to the Site for both construction traffic and abnormal invisible loads (AIL) whilst minimising the potential for impacts on local road users;
- the Site has consistently high anticipated wind speeds, which will deliver excellent wind energy yields;
- the Applicant considers that the large-scale character of the landscape in and around the Site has good potential to accommodate large modern, commercial wind turbines; and
- the Site has good access to the electricity transmission network and a grid connection can be achieved in a reasonable timeframe.

2.2 Site Description and Context

The Site, covering an area of approximately 5,184 hectares (ha), is located north of Leadhills village, south of Abington village and west of the A74(M) motorway.

The Site predominantly comprises open moorland, improved grassland and semi-improved grassland, with areas of forestry located in the valleys, predominantly to the east of the B797. The Site terrain is undulating with multiple hills within the boundary such as Ravengill Dod (499 m), Great Hill (523 m) and Mid Hill (404 m). This landscape is typical of the wider location within the Southern Uplands.

There are multiple watercourses and waterbodies located within the Site, including tributaries of the River Clyde such as Glengonnar Water in the north, Snar Water in the west and Elvan Water in the south. The River Clyde runs along the eastern extents of the Site boundary.

The immediate vicinity of the Site is sparsely populated, with settlement largely confined to the valleys. Key settlements within the vicinity of the Site include the villages of Leadhills, Abington, Elvanfoot, Wanlockhead, and Crawfordjohn. Other residential properties are located sporadically in the vicinity of the Site, with three residential properties located within the Site boundary.

There is one statutory site designated for nature conservation within the Site boundary; the Raven Gill Site of Special Scientific Interest (SSSI) which is designated for geology - stratigraphy – Arenig-Llanvirn. No development would be undertaken with the SSSI. L

There are six designated heritage assets, all scheduled monuments, within the Site boundary, as well as eight sites recorded in the HER classed as being of potential national importance. Within 10 km of the Site boundary, there are 31 listed buildings, largely concentrated in the villages of Leadhills and Wanlockhead

Historically, areas of the Site were subject to lead and gold mining activity from the 16th-20th century and evidence of disused mines and mining-related assets are visible and adjacent to the Site.

There is extensive wind energy development within this part of southern Scotland and there are several wind farms at various stages in the consenting process and operational wind farms within the surrounding landscape of the Site including the operational Clyde Wind Farm to the east, and

the consented Priestgill to the northeast, Crookedstane Wind Farm to the east and Lion Hill Wind Farm to the southeast. Watchman Energy Park, at Scoping stage, is located to the southeast.

2.3 The Proposed Development

Details of the Proposed Development will not be finalised until later in the EIA process. The turbine layout will evolve in response to site survey information, environmental and technical constraints, stakeholder feedback, and feedback gathered through public engagement. To allow early engagement, the description of the Project provided herein is based on cautious maximum parameters, especially in relation to number and height of the wind turbines.

The main elements of the Proposed Development are anticipated to be as follows:

- approximately 32 wind turbines with a maximum tip height of 220 m and a combined generation capacity of >50 MW;
- permanent foundations supporting each wind turbine, and associated crane hardstanding at each wind turbine base;
- a series of new on-site access tracks with associated watercourse crossings (where the final layout dictates), which may include upgrade and/or relocation of existing access tracks across the site;
- underground power cables, generally laid in trenches alongside access tracks;
- onsite substation and control building;
- temporary construction compounds and laydown areas; and
- a BESS, including ancillary equipment and co-located with the on-site substation.

In addition, the following ancillary works are to be included in the final Proposed Development:

- extraction of rock from borrow pits;
- temporary on-site concrete batching plant;
- where necessary, off-site works to facilitate the delivery of abnormal loads (e.g. construction of over-run areas and temporary modifications to street furniture etc); and
- temporary anemometer masts for 3 to 6 months during the construction period for calibration purposes.

Biodiversity enhancement measures for the Site may include, but not be limited to, options such as peatland restoration, heathland restoration, grassland management, and riparian tree planting. An Outline Construction Environmental Management Plan (OCEMP), to be submitted as part of the EIAR, will detail how any adverse impacts on biodiversity would be managed during the construction stage. A Biodiversity Environmental Management Plan (BEMP) would be developed for the operational phase and agreed with consultees.

A scoping turbine layout is presented in **Figure 1.2 (Appendix A)** and the turbine coordinates are provided in **Appendix B**. The proposed turbines would be three bladed horizontal axis turbines with tapered tubular steel towers. The wind turbines would be installed on foundations, the detailed design of which will depend on the model of turbine procured and the specific ground conditions. A crane pad would also be required for each turbine and would consist of an area of hardstanding adjacent to the turbine.

A micro-siting allowance of 100 m for the turbines and other infrastructure would be proposed to deal with possible unfavourable site conditions or other construction constraints. These allowances will be clearly defined within the EIAR and assessed as appropriate.

The anticipated height of the wind turbines means there will be a statutory requirement for aviation lighting in accordance with Article 222 of the Air Navigation Order 2016¹. Any aviation lighting scheme will be consulted upon with the Civil Aviation Authority (CAA) and other relevant consultees.

Energy storage in the form of a BESS is proposed for inclusion as part of the Proposed Development. The BESS would comprise a number of units with ancillary equipment such as inverters. The BESS would store excess power generated by the Proposed Development and release the power to the grid when the output from the Proposed Development falls due to decreased wind speed.

2.3.1 Site Access

A detailed access review is currently underway to confirm the preferred access routes into the Site and the optimal location for these. This review aims to identify suitable access points that use the public road network and avoid settlements as far as practicable, to minimise disturbance and potential for disruption. The current access points under consideration are shown on **Figure 1.2 (Appendix A)** and include the following:

- Access for AIL traffic to the northern and western clusters will likely be direct from the A74(M) motorway, with a crossing of the B797 to access the western cluster. Consultation with the motorway operator, will be progressed to confirm the most appropriate means of achieving deliveries direct from the M74.
- AIL deliveries for the southern cluster will likely be from the A702 (having exited the A74(M) at junction 14 (northbound)).
- Construction traffic will likely use the A74(M), A 702 and B797.

Prior to submission of the application for consent, potential construction traffic routes will be fully assessed, considering both vehicle numbers and the delivery of AIL to the Site to ensure the most appropriate solution is developed.

The proposed access routes for general construction traffic and AIL will be clearly identified in the application submission.

Within the Site itself, the Proposed Development would be served by a network of both new and upgraded on-site access tracks to enable construction and maintenance once operational. Existing access tracks will be re-used where possible and any new access tracks will seek to minimise impacts on soils and peat. Where appropriate new tracks may replace existing tracks, in which case the existing track would be restored to avoid unnecessary proliferation of tracks across the Site. The layout of the access tracks will be determined based on the final turbine layout and the technical and environmental constraints on the Site.

2.3.2 Grid Connection and Cabling

The Proposed Development has a grid connection agreement in place that anticipates the project will connect to the grid at the Elvanfoot substation in 2036, though it is anticipated this could be brought forward under the connections reform processes currently being developed and implemented by the National Energy System Operator (NESO).

The consenting of the grid connection will be separately taken forward by the transmission system owner. The Proposed Development has a secured transmission voltage grid connection at the Elvanfoot substation to be located adjacent to the eastern Site boundary. Given the likely

¹ Available at: <https://www.legislation.gov.uk/uksi/2016/765/contents> [Accessed May 2026].

short distance that the grid connection would cover it is anticipated that the connection would be delivered via an underground cable).

It is anticipated that electric cabling connecting turbines and the control building and onsite substation would be laid primarily in trenches running alongside the access tracks, the layout of which would be determined by the final turbine layout and informed by consideration of relevant environmental receptors, such as on-site ecology and ground conditions. The location of the onsite substation and control building has not been confirmed and will be selected as part of the next stage of design.

2.3.3 Construction

Typical construction activities and work methods will be set out in the EIAR. Information will also be provided on an indicative construction programme, construction traffic generation and routeing, and construction phasing.

An Outline Construction Environmental Management Plan (OCEMP) will also be submitted as part of the EIAR which will contain details of appropriate environmental management measures, including pollution prevention measures (in line with Scottish Environment Protection Agency (SEPA)'s Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs)), and waste minimisation and management measures.

2.3.4 Operation and Maintenance

The anticipated operational life of the wind turbines that form a key part of the Proposed Development is approximately 40 years and the Applicant is intending to seek a 40-year consent.

A wind farm is typically visited up to four times a month by a maintenance crew, and the BESS would require maintenance at a similar frequency. There would also be a requirement for maintenance of the access tracks and other ancillary infrastructure during the operational period.

2.3.5 Decommissioning

Following the operational phase of the project, the Proposed Development would either be decommissioned or repowered. Where decommissioning is required, this is anticipated to involve:

- dismantling and removal of the turbines, met masts, site substation, BESS facility, and any other above ground infrastructure; and
- removal to at least 1 m below ground level of the turbine and met mast foundations.

Detailed decommissioning proposals would be submitted for approval by relevant authorities prior to commencement of decommissioning activities. This would take cognisance of guidance available at the time.

If the decision is taken to repower the project, any new consent would be applied for in line with the applicable regime in place at the time.

2.3.6 Community Benefits

As part of the Proposed Development the Applicant is committed to establishing a Community Benefit Fund which will be accessible to people, organisations, and businesses in local communities. The intention is to develop a suite of Community Benefit opportunities and pathways to access funds and support, around the following broad themes:

- Education and Skills
- Health and Well-Being
- Economy and Jobs

- Environment
- Culture and Heritage
- Facilities and Amenities
- Transport

The Applicant has an established working relationship with BizGive, a specialist company delivering innovative approaches to engaging on Community Benefit packages. The Applicant has developed a set of potential benefits for another project in the wider area and will build on the experience gained on that project to define a benefits package for the Proposed Development.

2.4 Design and Alternatives

The EIAR will include a chapter detailing and illustrating the design optimisation process followed and the reasonable alternatives considered in developing the wind farm layout and setting the physical parameters of the proposed turbines.

The Proposed Development design process will seek to establish a layout and turbine typology which take account of visibility from the surrounding environment and the key environmental constraints on-site and in the surrounding area, with the design also looking to deliver mitigation of adverse effects by design as far as is practicable.

The design iteration process will take account of other environmental and technical factors to establish the final layout for the Proposed Development. Key sensitivities which are likely to influence the design process include:

- key views from surrounding settlements, landmark hills and transport corridors;
- the setting of designated cultural heritage assets in the surrounding area;
- sensitive ecological habitats, including unmodified blanket bog, dry heath, marshy grassland and acid flushes;
- groundwater dependant ecological habitats;
- watercourses and associated fisheries, riverine mammals and invertebrates;
- private water supplies; and
- breeding birds, including raptors and waders (including disturbance and collision risk for these species).

3. SCOPE OF THE EIA

3.1 Summary of Scope of EIA

3.1.1 Introduction

The EIA Regulations (Regulation 4(2) and 4(3)) requires that the EIA identifies, describes and assesses significant effects of the proposed development on the following factors:

- population and human health;
- biodiversity, and in particular species and habitats protected under Council Directive 92/43/EEC on the conservation of natural habits and wild fauna and flora and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds;
- land, soil, water, air and climate; and
- material assets, cultural heritage and the landscape.

For renewable energy projects in the UK, identification of potential impacts and assessment of those impacts to determine whether or not significant effects are likely on the above-mentioned factors is usually provided under the specialist topic categories as shown in **Table 3.1**.

The inclusion of an individual specialist topic category in an EIA process, and reporting of that assessment in the EIAR, will depend on identification of a likelihood of a significant effect occurring. This is usually confirmed by the EIA scoping process. The proposed scope of the EIAR for the Proposed Development is summarised in **Table 3.1**. For those topics proposed to be scoped out further details and justification are included in Section 4 of this report. For many of the topics that are scoped out of full assessment in the EIA, information to support the appropriate consideration of these topics will be provided within the EIAR.

For topics that are scoped in to the EIA, the EIAR will set out the baseline, then assess and report on the likely significant effects, including, where applicable, direct, indirect, cumulative, secondary, short, medium and long-term, permanent and temporary, beneficial and adverse effects.

Table 3.1: Proposed Scope of EIAR

Topics to be scoped in	Topics to be scoped out
Landscape and Visual Amenity	Socio-Economics and Tourism
Cultural Heritage	Population and Human Health
Ecology	Major Accidents and Disasters
Ornithology	Ice Throw
Hydrology, Hydrogeology and Geology	Air Quality
Traffic and Transport	Climate Change
Noise and Vibration	Forestry
Aviation	Eskdalemuir Seismic Array
	Telecommunications
	Shadow Flicker

3.1.2 Cumulative Effects

The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration is also given to the cumulative effects which might arise from the proposal in conjunction with other existing and/or approved development proposals.

Cumulative effects are defined as those effects arising from the addition or combination of the Proposed Development to other developments, or those arising from synergistic effects² between factors.

The assessment of cumulative effects from the Proposed Development in combination with existing developments will be addressed during the assessment of effects of the Proposed Development alone, as pre-existing developments are part of the baseline environment. Cumulative effects will be addressed under each topic chapter.

Characteristics and thresholds of cumulative schemes proposed to be considered as part of the assessment are set out in **Table 3.2**. Proposed developments at the scoping or pre-application stage will generally not be included in the assessment, as such proposals are not fully formed and may be subject to changes that cannot be foreseen. Any differences to this approach will be detailed in each technical assessment chapter.

Table 3.2: Cumulative Planning Application Search Characteristics and Thresholds

Cumulative Scheme Characteristics	Thresholds
It is proposed that the cumulative schemes to be considered would include onshore wind developments within 15 km of the Site ³ where a turbine or turbines are greater than 50 m tip height and where those schemes are: - under construction; - have a valid consent; or - have been submitted for scoping where they have a known timescale to planning submission and where they have a potential to play an important part in the cumulative effects.	It is proposed that all cumulative schemes for inclusion would: a) comprise a construction and/or operational phase that is concurrent with the Proposed Development; b) share common sensitive receptors/resources which are assessed and described in the supporting environmental documentation, and have the potential to be significantly affected by the combination of the proposed or approved (committed) development and the Proposed Development; and c) have sufficient environmental assessment information freely and publicly available to inform a cumulative effects assessment.

It should be noted that not all of the cumulative developments would necessarily have a cumulative effect in respect of any particular environmental topic and therefore each technical assessment will provide a full justification for the list of schemes considered in their respective assessments. As the cumulative baseline is constantly evolving, the schedule of cumulative schemes to be included in the assessment will be finalised following consultation with the relevant consultees and at the point of a finalised design is reached (approximately four months prior to submission).

3.2 Consultation

Consultation alongside the EIA process is critical to the development of a comprehensive and proportionate EIAR. The views of statutory and non-statutory consultees are important to ensure that the EIA from the outset focuses on specific issues where significant environmental effects are likely, and where further investigation is required.

² A synergistic effect is the result of two or more processes interacting together to produce an effect that is greater than the cumulative effect that those processes produce when used individually.
³ It is noted that guidance includes for landscape and visual Study Areas of greater distances. However, early Zone of Theoretical Visibility (ZTV) analysis was prepared allowing analysis of the potential geographic range of landscape and visual effects, which afforded a more focussed Study Area for the Proposed Development based on likely significant effects (refer to Section 3.3 of this Scoping Report for further details).

The consultation, as an ongoing process, enables embedded and additional mitigation measures to be incorporated into the Proposed Development to limit adverse environmental effects and optimise environmental benefits. Early and ongoing engagement with consultees will be important to influence the design process of the Proposed Development by seeking an appropriate level of feedback from consultees, to ensure that comments are considered in the evolving design.

As part of the EIA process, consultation will be undertaken with a range of statutory and non-statutory consultees.

The Applicant intends to carry out community consultation, with two public exhibitions. The outcome of the consultation process will be compiled into a Pre-Application Consultation Report to accompany the application for consent, detailing the consultation undertaken and any changes made to the Proposed Development as a result of this consultation.

3.3 Landscape and Visual Amenity

3.3.1 Overview

The Landscape and Visual Amenity Chapter of the EIAR will consider the potential impacts of the Proposed Development on landscape and visual receptors during construction and operation, and evaluate whether these impacts result in potential significant effects. The chapter sets out the proposed approach to the Landscape and Visual Impact Assessment (LVIA), including consultation, Study Area, baseline conditions, and assessment methodology.

This Section of the Scoping Report is supported by the following figures:

- Figure 3.3.1 - Zone of Theoretical Visibility to 45 km;
- Figure 3.3.2 - Zone of Theoretical Visibility to 45 km at 1:1000,000 scale;
- Figure 3.3.3a - Cumulative Wind Farms within 25 km;
- Figure 3.3.3b - Cumulative Wind Farms within 25 km - List;
- Figure 3.3.4 - Zone of Theoretical Visibility with Landscape Character Types;
- Figure 3.3.5 - Zone of Theoretical Visibility with Viewpoints; and
- Figure 3.3.6 - Zone of Theoretical Visibility with Designated Landscapes.

Consultation to Date

Due to the availability of information and existing knowledge of the area within the LVIA team, no consultation on landscape and visual matters has been undertaken with South Lanarkshire Council or with NatureScot prior to submission of this scoping report.

As part of the on-going work to inform the LVIA, it is envisaged that a consultation exercise to obtain additional data and the views of statutory consultees would be necessary following receipt of the scoping opinion. A summary of the consultation process on landscape and visual matters would be included in the LVIA chapter.

3.3.2 Study Area

The Study Area to be adopted for the LVIA was initially set at approximately 45 km from the outer edges of the Site, in accordance with NatureScot guidance, which suggests that this is applicable for turbines of over 150 metres (m) to blade tip. Subsequently, a basic Zone of Theoretical Visibility (ZTV) analysis was prepared from the outermost turbines allowing some early analysis of the potential geographic range of potential landscape and visual effects. The ZTV (see Figures 3.3.1 and 3.3.2) shows areas from where any part (however small) of the turbines of the Proposed Development would theoretically be visible. It does not take account of

any screening or indicate how much of any turbine may be seen, i.e. whether visibility at any given point is of blade tips only or full turbines. This type of ZTV therefore represents the maximum theoretical visibility of the Proposed Development and is the worst case scenario.

The ZTV shows that theoretical visibility would be widespread within 5 km from the outermost turbines, thereafter, would reduce to along the M74 motorway corridor between Larkhall and Moffat, and upper slopes and ridgelines of the surrounding Southern Uplands, gradually reducing in extent beyond 10 km to summits and upper hill slopes facing the Site.

Following a review of the ZTV and fieldwork, the Study Area was reduced to allow reporting to focus on the extent of likely significant effects. The following sets out the Study Area for landscape and visual receptors, all distances are from the outermost turbines:

- Landscape character – 15 km;
- Visual receptors:
 - Routes and long distance footpaths – 25 km;
 - Settlements – 10 km;
 - Core Paths and Rights of Way – 5 km;
- Cumulative assessment (including cumulative data collection) – 25 km;
- Aviation lighting assessment – 20 km;
- Landscape designations – 15 km;
- Residential Visual Amenity Assessment – 2.5 km.

3.3.3 Baseline Conditions

Following identification of the Study Area, a preliminary review of the baseline conditions has been undertaken, and the findings are reported below.

The key sources of information to inform the baseline landscape and visual conditions of the Site and its surroundings are:

- Ordnance Survey and other leisure maps;
- Landscape Character Type (LCT) descriptions available from NatureScot⁴;
- Landscape Character Assessment: Glasgow and Clyde Valley – Landscape Evolution and Influences (NatureScot, 2019)⁵
- South Lanarkshire Landscape Character Assessment (Ironside Farrar, 2010)⁶;
- South Lanarkshire Landscape Designations (Ironside Farrar, 2010)⁷
- South Lanarkshire Landscape Capacity Study for Wind Energy (Ironside Farrar, 2016)⁸ and
- Citations for designated landscapes available from NatureScot, Historic Environment Scotland (HES), and South Lanarkshire /Dumfries and Galloway Council.

⁴ NatureScot. (2019) Scottish Landscape Character Types Map and Descriptions. Available from:

<https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions> [Accessed May 2025]

⁵ NatureScot. (2019) Landscape Character Assessment: Glasgow and Clyde Valley – Landscape Evolution and Influences. Available from: <https://www.nature.scot/doc/landscape-character-assessment-glasgow-and-clyde-valley-landscape-evolution-and-influences> [Accessed May 2025]

⁶ Ironside Farrar. (2010) South Lanarkshire Landscape Character. Available from:

https://www.southlanarkshire.gov.uk/downloads/file/4146/landscape_character_assessment_-_final_report_november_2010 [Accessed May 2025]

⁷ Ironside Farrar. (2010) South Lanarkshire Designations. Available from:

https://www.southlanarkshire.gov.uk/downloads/file/4147/landscape_designations_report_november_2010 [Accessed May 2025]

⁸ Ironside Farrar. (2015) South Lanarkshire Landscape Capacity Study for Wind Energy. Available from:

https://www.southlanarkshire.gov.uk/downloads/download/868/renewable_energy_supplementary_guidance [Accessed May 2025]

The Site

The Site covers approximately 5,184 hectares (ha) of the Southern Uplands north, northeast and northwest of the villages of Leadhills and Wanlockhead, and southwest of Abington (0.5 km at its closest point). The Site is in three distinct upland clusters:

- the first, the Western Cluster west of the B797 road includes turbines 1-8 on Brown Dod (489 m Above Ordnance Datum (AOD)), Rake Law (494 m AOD), and Hunt Law (535 m AOD);
- the second, Northern Cluster north of the B7040 road, and east of the B787, includes turbines 9-23 on Ravengill Dod (538 m AOD), Harryburn Brae (499 m AOD), Wellgrain Dodc (555 m AOD), and Peat Hill (458 m AOD); and
- the third, Southern Cluster is located to the south of the B7040 road comprising turbines 24-32 on Leadburn Rig (468 m AOD), Glen Ea's Hill (549 m AOD), Lousie Wood Law (618 m AOD), Great Law 523 m AOD, and Dun Law 677 m AOD.

All three areas comprise open moorland, some of which is used as pasture for sheep grazing and managed for game birds.

The Surrounding Landscape

The 45 km initial Study Area runs from Harthill in the north, to Dumfries in the south, Ettrickbridge in the east, and Coylton in the west. The ZTV however, illustrates that theoretical visibility would not cover all of this area, and as discussed previously, the assessment would focus on a smaller Study Area where significant landscape and visual effects may occur. The landscape Study Area, of approximately 15 km radius as identified above, includes the Southern Upland Hills between Culter Fell and the Tweedsmuir valley to Lowther Hill and Cairn Table. To the north it extends to Lesmahagow beyond the Douglas Water valley.

There are numerous existing wind farms within 25 km of the Site, as shown on Figure 3.3.3, including large developments as follows:

- Clyde and extension – 4.0 km to the east;
- Middlemuir – 7.8 km to the northwest;
- Hagshaw Cluster including Galawhistle, Douglas West, Dalquhandy, Nutberry and Cumberhead – 15.8 km to the northwest;
- Harestanes and Minnygap – 15.9 km to the southeast; and
- Sandy Knowe, Hare Hill, Whiteside and Sanquhar – 17.2 km to the southwest.

Consideration of the relationship between the Proposed Development and these wind farms will be a key aspect for both design of the scheme and assessment of landscape and visual effects.

Landscape Character

The LCTs within the Site and Study Area are described in the 2019 NatureScot review of the landscape character of Scotland⁹ and illustrated on Figure 3.3.4.

The Site lies entirely within LCT 217 Southern Uplands – Glasgow & Clyde Valley where all of the proposed turbines would be located.

The extent of theoretical visibility within each LCT would be reviewed during the design evolution of the Proposed Development with the LVIA likely to include assessment of effects on landscape character of the following additional LCTs:

⁹ NatureScot landscape character assessment are found at: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions>

- Southern Uplands – Borders (LCT 95);
- Southern Uplands – Dumfries & Galloway (LCT 177);
- Southern Uplands with Forest – Glasgow & Clyde Valley (LCT 178);
- Upland River Valley – Glasgow & Clyde Valley (LCT 207);
- Broad Valley Upland (LCT 208);
- Upland Glen – Glasgow & Clyde Valley (LCT 209);
- Plateau Moorlands – Glasgow & Clyde Valley (LCT 213); and
- Rounded Landmark Hills (LCT 218);

Landscape Designations

Landscape designations within the 15 km Study Area are illustrated on Figure 3.3.6 as follows:

- Scot’s Mining Company House Garden and Designed Landscape (GDL) – 1.5 km to the south;
- Leadhills and Lowther Hills Special Landscape Area (SLA) – the Proposed Development is located within the designation;
- Upper Clyde Valley SLA – 5.1 km to the north east; and
- Thornhill Uplands Regional Scenic Area (RSA) – 0.9 km to the south.

South Lanarkshire Council documentation that accompanies the Local Development Plan would be referred to when assessing the special qualities of the two SLAs in the LVIA.

It is proposed that landscape designations between 15 km to 45 km are not included in the detailed LVIA as it is not considered that the addition of the Proposed Development would result in a likely significant effect upon the special qualities of the designation 15 km from the Proposed Development.

Visual Amenity

Effects on views and visual amenity occur when the Proposed Development changes or influences the view or visual amenity as experienced by people. Visual amenity may be described as the overall visual experience from a given location, whilst a ‘view’ reflects a specific direction. People may invariably be engaged in different activities or have different perspectives and in recognition of these differences, it is common practice to refer to ‘visual receptors’ and these include:

- residents within settlements and of individual properties;
- people who travel through the area with potential views of the Proposed Development; and
- people engaged in recreational activities including walkers on hills, core paths and visitors to tourist destinations where the visual experience is likely to include a focus on the surrounding landscape.

Visual Receptors

The ZTV shown in Figures 3.3.1 and 3.3.2 indicates theoretical visibility at several settlements within the wider 45 km Study Area including Leadhills, Wanlockhead, Abington, Crawfordjohn, Crawford, Elvanfoot and several smaller settlements. We propose that the LVIA would concentrate on the effect on views from settlements within 10 km of the Site, where there is potential for significant effects to occur. Settlements that are not within the ZTV, and those beyond 10 km, would be scoped out of the LVIA.

Residential properties within approximately 2.5 km of the Site would be assessed separately in the RVAA which would be presented in an appendix and summarized in the LVIA chapter.

Roads within the Study Area tend to follow valleys or passes, although a network of roads cover flatter land. The main routes from which theoretical visibility is identified include but are not limited to:

- M74/A74(M) motorway from Glasgow to Carlisle (which passes adjacent to the northernmost point of the Site at its closest point);
- B797 road between the Clyde and Nith valleys (which passes through the Site and is approx.0.6 km from the proposed turbines at its closest point);
- B740 road which crosses the Crawick Pass through the Lowther Hills (which lies approx. 3.5 km to the northwest of the Site); and
- B7040 road between Leadhills and Elvanfoot (which passes through the Site and is approx.0.6 km from the proposed turbines at its closest point).
- A702 road from Abington to Carronbridge (which forms part of the east and south eastern boundary of the Site)

The West Coast Main Line rail route between Glasgow and London passes through the landscape 2.0 km to the east of the Site and broadly follows the M74 corridor south of Abington.

Recreational routes tend not to be limited to valleys, with the Annandale Way long distance path crossing the Southern Uplands 12.4 km to the southeast. The Southern Upland Way passes 3.9 km to the south of the Site across the tops of hills and through upland valleys and would be a key visual receptor assessed.

National Cycle Route 74 (NCN74) from Gretna to Glasgow runs parallel to the M74/A74(M) road to the east of the Site.

Proposed LVIA Viewpoints

Viewpoints proposed for the assessment of visual effects will be discussed with SLC and NatureScot; an initial list of locations is identified in Table 3.3.1 and shown on Figure 3.3.5. These include locations to represent:

- views from the local roads including those listed above;
- views from settlements close to the Proposed Development;
- views from key visitor locations within the surrounding landscape e.g. from the Southern Upland Way; and
- views from hilltops that are both popular with walkers and representative of designated landscapes, such as Tinto Hill, Hart Fell, and Lowther Hill.

Table 3.3.1: Preliminary Viewpoints

No.	Viewpoint Name	Grid Coordinates		Approx. Distance (km)	Visual Receptor Represented
1	Tinto Hill	295280	634350	15.1	Walkers
2	Culter Fell	305280	629080	15.6	Walkers
3	Castle Hill	294450	622280	3.4	Walkers
4	Crawfordjohn	287750	623675	5.8	Residents
5	Hart Fell	311344	613574	18.1	Walkers
6	Hods Hill	300477	609480	8.8	Walkers
7	Wintercleuch	296572	610020	5.6	Residents

No.	Viewpoint Name	Grid Coordinates		Approx. Distance (km)	Visual Receptor Represented
8	Lowther Hill	288990	610810	4.0	Walkers
9	Queensberry	298911	599747	15.3	Walkers
10	Leadhills	288667	615254	1.8	Residents
11	Upper Wanlockhead	287571	612711	4.0	Residents
12	Glengaber Hill	284377	613933	3.4	Walkers
13	B797 Road	289323	619703	1.6	Road users
14	Cairn Table	272450	624250	15.6	Walkers
15	Abington	292930	623091	3.6	Residents

Cumulative

There are existing wind farms within and around the Study Area, which would be considered as part of the baseline for the LVIA. With respect to potential cumulative landscape and visual effects with other proposed wind farms, there are numerous developments at varied stages in the planning process. Given the ever-changing situation, cumulative data is not collated exhaustively at this time but would be prepared during the LVIA. Local authority planning portals and the Energy Consents Unit website would be used to identify proposed wind farms, and the final list would be agreed with statutory consultees to give as up to date a picture as possible.

3.3.4 Potential Significant Effects

Construction

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

- temporary effects on landscape character, primarily as a result of wind turbine installation during construction, with direct physical effects on the fabric on the landscape and on the character of the Site landscape relating to ground level structures, and indirect effects on the perceived effects on the character of the surrounding landscape; and
- temporary visual effects on views, primarily as a result of visibility of ground level activity and structures as well as wind turbine installation during construction, experienced by people (visual receptors).

Operation

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

- long-term effects on landscape character, as a result of wind turbine operation and ground level structures, either affecting the pattern of elements that define the character or affecting the visual/ perceptual characteristics of landscape character;
- long-term visual effects as a result of the Proposed Development on nearby views, with effects as a result of wind turbine operation on wider views, experienced by people at places with visibility of different elements of the Proposed Development. This includes effects of aviation safety lighting after dark and effects on the visual aspects of residential amenity for properties close to the Site;

- cumulative effects of the Proposed Development in combination with consented and proposed wind farm schemes across the wider area, including combined, successive and sequential visibility; and
- implications of significant effects identified in or affecting designated landscapes, which may affect their special qualities and reasons for designation.

Decommissioning

The effects of the Proposed Development during decommissioning would be similar to those identified during construction but would reduce as decommissioning proceeds.

Matters and aspects to be Scoped out of the LVIA

To allow focusing of the assessment, the LVIA would identify where receptors are unlikely to be affected by the Proposed Development, either through having little or no theoretical visibility, or being distant from the Proposed Development, and those receptors would be scoped out of the LVIA. In addition to this, the scope of reporting would be further focused on those effects that are found to be significant or contribute to the meaningful discussion of landscape and visual effects of the Proposed Development.

The following elements (distance from the outer turbines) are likely to be scoped out of the LVIA on the basis of initial fieldwork and ZTV coverage:

- Effects on landscape character beyond approximately 15 km;
- Effects on views from viewpoints beyond approximately 25 km, although there would be locations where the Proposed Development would be visible at greater distances;
- Effects on views from routes beyond approximately 25 km;
- Effects on views from local paths (Core Paths and locally promoted paths) beyond approximately 5 km;
- Effects on views from settlements beyond approximately 10 km;
- Effects on designated landscapes beyond approximately 25 km;
- Cumulative effects with turbines of less than 50 m to blade tip; and
- Decommissioning effects, which are similar to, but in reverse of construction effects, reducing on completion.

No other potential receptors or impacts would be scoped out prior to the confirmation of the final layout, details on aviation lighting requirements and turbine tip height to be included in the Proposed Development.

3.3.5 Assessment Methodology

The most widely visible elements of the Proposed Development would be the wind turbines. Much of the LVIA would therefore, necessarily, consider primarily the visibility and effects of the turbines. However, the assessment of effects would consider all other elements of the Proposed Development.

The LVIA would identify potential significant effects of the Proposed Development on the landscape resource and visual amenity, in accordance with the principles contained in the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3)¹⁰.

Other sources of guidance and references used in the LVIA include:

¹⁰ Landscape Institute., Institute of Environmental Management and Assessment. (2013) Guidelines for Landscape and Visual Impact Assessment, Third Edition. London. Routledge.

- Visual Representation of Wind Farms. Version 2.2 (Scottish Natural Heritage (Now NatureScot), 2017)¹¹;
- Technical Guidance Note 06/19 Visual representation of development proposals (Landscape Institute, 2019);
- Siting and Designing of Windfarms in the Landscape: Version 3a (SNH, 2017)¹²;
- Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments (NatureScot, 2021)¹³ ;
- Guidance on Aviation Lighting Impact Assessment (NatureScot, 2024)¹⁴; and
- Technical Guidance Note 2/19 Residential Visual Amenity Assessment (Landscape Institute, 2019)¹⁵.

Desk Study and Field Surveys

Desk studies would be carried out to identify key landscape and visual receptors, and to identify the likely visibility of the Proposed Development based on ZTV mapping. Computer generated 3D models would be used to prepare draft wireline images to illustrate theoretical visibility, and to enable the confirmation and analysis of viewpoints for fieldwork and for detailed visualisation modelling through the production of wirelines and photomontages.

Fieldwork would be carried out including a visit to the Site, all viewpoints, and the wider area more generally to assess potential effects on landscape character and designated landscapes.

Photography would be undertaken for viewpoint locations, including photography at dusk for locations for which night-time photomontages are required to illustrate the effects of aviation lighting. Viewpoints to illustrate potential night-time effects would be agreed with statutory consultees once the lit turbines have been identified.

Assessment of Landscape Effects

Effects on landscape character would be considered in detail for LCTs within the Study Area, with ZTV mapping used as a means of identifying which LCTs require assessment. Predicted changes in both the physical landscape and landscape character would be identified. The assessment would identify the magnitude and type of change to the landscape, with reference to its key characteristics as set out in the NatureScot LCT descriptions. The sensitivity of the landscape would also be considered, acknowledging local sensitivity studies, and value placed on the landscape through designation, key or unique characteristics, as well as the presence of other consented and operational wind farms. The magnitude of the effect would be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects

¹¹ Scottish Natural Heritage. (2017) Visual Representation of Wind Farms. Available from:

<https://www.nature.scot/sites/default/files/2019-09/Guidance%20-%20Visual%20representation%20of%20wind%20farms%20-%20Feb%202017.pdf> [Accessed February 2025]

¹² Scottish Natural Heritage. (2017) Siting and Designing Wind Farms in the Landscape, Guidance. Available from:

<https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf> [Accessed February 2025]

¹³ NatureScot (2021) Assessing the Cumulative Landscape and Visual Impact of Onshore Developments. Available from:

<https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> [Accessed February 2025]

¹⁴ NatureScot (2024) Guidance on Aviation Lighting Impact Assessment. Available from: https://www.nature.scot/doc/guidance-aviation-lighting-impact-assessment#_Appendix_4:_Supporting_~:text=1%C2%A0%C2%A0%C2%A0%C2%A0%C2%A0%C2%A0%C2%A0%20This%20appe

[ndix%20provides%20recommendations%20on%20supporting%20figures%20and%20visualisations%20which%20should%20accompany%20an%20Aviation%20Lighting%20Impact%20Assessment.](https://www.nature.scot/doc/guidance-aviation-lighting-impact-assessment#_Appendix_4:_Supporting_~:text=1%C2%A0%C2%A0%C2%A0%C2%A0%C2%A0%C2%A0%C2%A0%20This%20appe) [Accessed May 2025]

¹⁵ Landscape Institute. (2019) Residential Visual Amenity Assessment (RVAA), Technical Guidance Note 02/19. Available from:

<https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/gn-02-2019-rvaa.pdf> [Accessed February 2025]

would all be considered, to form a judgement regarding the overall effect and whether this is judged to be significant.

Significance of landscape effects, considering receptor sensitivity and the magnitude of change as set out above, would identify the level of effect using four categories: Major, Moderate, Minor, and Negligible. Major and Moderate landscape effects would be considered to be significant in the context of the EIA Regulations.

Assessment of Visual Effects

Visual effects are experienced by people at different locations around the Study Area, at static locations (for example from settlements or from selected viewpoints) and sequentially when travelling along routes. It is usually considered that grouping people related to 'status' (e.g. residents, visitors/ tourists/ motorists) or the 'activity' they are engaged in (sport, informal recreation, commuting) would help the assessment of sensitivity and lead to findings which can be considered representative. An assessment of the visual effects of the Proposed Development on receptors would be based on analysis of the ZTVs, field studies and assessment of representative viewpoints. Proposed viewpoints have been listed in Table 3.3.1. Some more distant key views may be provided with wirelines to illustrate potential visibility, even if no significant effects are likely to occur.

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 change in views/ visual amenity and the value attached to particular views. The magnitude of the effect would be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects would all be considered in forming a judgement regarding the overall effect and whether this is judged to be significant.

Significance of visual effects, considering receptor sensitivity and the magnitude of change as set out above, would identify the level of effect using four categories: Major, Moderate, Minor, and Negligible. Major and Moderate visual effects would be considered to be significant in the context of the EIA Regulations.

Aviation Lighting

In the interests of aviation safety, Civil Aviation Authority (CAA) guidance states that turbines over 150 m to tip height are required to incorporate visible lighting. An assessment of the visual effects of aviation lighting on the proposed wind turbines would be carried out as part of the LVIA and included within the assessment.

The night-time context at viewpoint locations would be described, with the related sensitivity and magnitude of change arising from the proposed aviation lighting drawn upon to assess the likely visual effects of aviation lighting and to provide general comment on the likely effects across the Study Area.

Night-time photomontages, using photographs taken shortly after dusk (with due consideration of safety of photographers), would be produced for three viewpoints to illustrate the potential appearance of aviation lights on turbines relative to the existing night-time baseline. The selection of viewpoints to be represented would be agreed with consultees on completion of a design freeze and upon agreement of the proposed scheme of aviation lighting.

It is not proposed to provide night-time visualisations from hills or remote off-road locations for Health and Safety reasons, and because it is less likely that there will be viewers in these locations after dark.

Residential Visual Amenity Assessment

Visual amenity is a component of 'residential amenity', which includes noise, shadow flicker etc., and is strictly a planning consideration relevant to residents at their properties. Changes in visual aspects of residential amenity would be considered in a 'Residential Visual Amenity Assessment' (RVAA) which typically considers effects on properties within 2 to 2.5 km of proposed turbine locations and would be required for this LVIA.

The RVAA would be carried out in accordance with the Landscape Institute guidance.

Visualisations

Visualisations and graphics used to support the assessment would include:

- ZTV maps analysing visibility of the Proposed Development to turbine tip and hub height as well as combined ZTV maps with other wind farms;
- Baseline photographs of existing views from the selected viewpoints;
- Wireline images to illustrate theoretical visibility of the Proposed Development;
- Photomontages to illustrate the predicted changes to views; and
- Night-time photomontages from three viewpoints to illustrate the appearance of aviation lighting after dark.

Wirelines would include cumulative schemes and would be produced in accordance with NatureScot guidance¹⁶.

Assessment of Cumulative Effects

The LVIA would consider operational wind farms and those under construction as part of the existing baseline.

The CLVIA would consider the current pattern of wind farms across the wider landscape and include consented schemes and schemes at application stage.

The process for identifying wind farms to be considered in detail in the CLVIA would exclude wind turbines of less than 50 m to blade tip height. Data would be collected for wind farms within 45 km of the Proposed Development. The assessment of effects would focus on those with the potential to have significant cumulative relationships with the Proposed Development, which tend to be those within approximately 15-20 km of the Proposed Development. Based on professional judgement, key considerations would be the interaction of the Proposed Development with existing and other developments, and the overall pattern of wind farms within the Study Area. It is unlikely that significant cumulative effects due to the introduction of the Proposed Development would be identified at a range greater than 15 km, and it is proposed therefore that the CLVIA would focus on receptors within 15 km of the Proposed Development. Cumulative data collection would focus on schemes within approximately 25 km from the Proposed Development (to allow for views in opposite directions).

The CLVIA would assess the combined visual effects of the Proposed Development with other existing or reasonably foreseeable wind farms within the Study Area. The CLVIA would consider operational and consented schemes, and those which have undetermined applications or appeals. The CLVIA would seek to focus detailed assessment on the cumulative effects of the Proposed Development with other developments most likely to have cumulative relationships with the Development that result in significant effects.

As noted above, the research to collect cumulative data would be undertaken using the local council's planning portals and the Energy Consents Unit (ECU) websites. A 'cumulative cut-off

¹⁶ Ibid

date' of 3 months prior to the Proposed Development submission is proposed to allow figures and assessment to be completed and to ensure that the most up to date information is illustrated. We propose that scoping schemes would not be included in the CLVIA due to their uncertainty of progressing to operational sites turbines below 50 m to blade tip height.

The CLVIA would be carried out in accordance with the principles contained in guidance on cumulative assessment¹⁷. This methodology assesses different development scenarios with increasing levels of 'uncertainty'. Cumulative scenarios would include:

- Existing scenario: this assesses the effects with all operational developments and those under construction present in the baseline and thus represents the LVIA;
- Consented Scenario: this scenario is somewhat speculative because it assumes that consented developments are also present in the landscape; and
- In-planning Scenario: this is the most speculative scenario because it assumes all undetermined applications, as well as all developments included in the earlier scenarios, are present in the landscape and therefore considers the effect of adding the Proposed Development into this landscape.

The intervisibility of the Proposed Development with other developments in the surrounding area would be explored by overlaying the ZTVs. Paired ZTVs would be prepared to illustrate the key relationships between the Development and other developments (or development groups) close to the Site. It is not proposed that exhaustive combined ZTVs would be produced, but rather that selected combinations would be used to illustrate key intervisibility relationships. Cumulative visual effects would be assessed through analysis of combined ZTVs, views from individual viewpoints and sequential views from routes.

The magnitude of additional cumulative change to views or landscape character is the additional influence the Proposed Development has on the views or character of the landscape, assuming the other developments are already present.

The cumulative assessment would consider the in-combination effects of emerging wind energy development patterns, and how the Proposed Development relates to these patterns and trends.

Designated Landscapes

The LVIA would review the baseline description and citations of designated landscapes within the ZTV and within the Study Area. Following the assessment of landscape and visual effects, there would be a review of the identified effects for landscape and visual receptors within those designated areas, and how the identified effects would affect the key qualities and reasons for designation. No separate assessment of effects on designated areas would be made, to avoid double counting.

Limitations and Assumptions

The assumptions and limitations that have been encountered during the production of this scoping report are as follows:

- Limitations to the LVIA include a reliance on bare-ground modelling for wireframes and ZTVs used in graphics, which does not take account of potential screening by buildings and vegetation. The theoretical visibility indicated by the bare-ground models is therefore an over-estimation of visibility. Actual visibility would be identified for receptors based on fieldwork and would also be illustrated in photomontages;
- It should be noted that illustrations and modelling cannot replace the need for site visits and can only be used to represent what people may see from the viewpoint. Whilst accuracy of

¹⁷ Ibid

modelling is essential, modelling can only be as accurate as the data used and cannot be used to replace field visits. It is noted also that the movement of the turbines may render them more noticeable in the view than static photographs/ photomontages can portray; and

- Limitations to the cumulative assessment include the uncertainty of whether the proposed wind farms would be built in the future. This includes consented schemes that may or may not be built. The assessment would also rely on data available at the 'cut-off' date, and it should be noted that the locations and specifications of turbines may change for proposed and consented schemes before they are actually built, through redesign and/ or micro-siting.

Any further assumptions and limitations encountered during the assessment process would be set out in the EIAR.

3.3.6 Questions for Consultees

Table 3.3.2: Questions to Consultees (Landscape and Visual Amenity)

LVIA1	Are consultees in agreement with the proposed approach to consultation?
LVIA2	Are consultees in agreement with the proposed Study Areas for the assessment of landscape and visual receptors (including CLVIA)?
LVIA3	Are there any comments or suggestions in relation to the viewpoint locations proposed in Table 3.4.1?
LVIA4	Are there any comments on the approach to assessing the effects of turbine aviation lighting?
LVIA5	Are consultees in agreement that the assessment of the effects on landscape designations should focus on two RSAs located within 15 km of the Site?
LVIA6	Are there any comments or suggestions on the approach to cumulative landscape and visual assessment?
LVIA7	Are consultees in agreement with the proposed methodology to be applied to the LVIA?

3.4 Cultural Heritage

3.4.1 Overview

This section provides an overview of the archaeology and cultural heritage context for the Proposed Development. It sets out the proposed approach to the assessment of potential significant effects associated with the Proposed Development on archaeology and cultural heritage features.

3.4.2 Study Area

It is proposed that two Study Areas will be used for the cultural heritage assessment.

- The Inner Study Area - the Site, as defined by the red line boundary, will form the Study Area for the identification of heritage assets that could receive direct or indirect effects arising from the construction of the Proposed Development (shown on Figure 3.4.1 (Appendix A)).
- The Outer Study Area - a wider Study Area extending 10 km around the outermost finalised proposed turbine locations (and including the Inner Study Area) will be used for the identification of cultural heritage assets whose settings may be affected by the Proposed Development (including cumulative effects). These effects will be identified using the ZTVs (refer to section 3.3) which will also be assessed to identify any designated assets beyond this 10 km Study Area that have settings that may be especially sensitive to the Proposed Development (shown on Figure 3.4.2 (Appendix A)).

3.4.3 Baseline Conditions

An initial review of the baseline conditions is summarised below for the Inner Study Area and the Outer Study Area. Baseline conditions will be further reviewed and updated as described in the 'Assessment Methodology' of this section.

Inner Study Area

There are two designated heritage assets (both scheduled monuments), assets of national importance and high sensitivity, within the Inner Study Area:

- Waterhead, platform settlement 900m N of (SM 4714), and
- Glengeith, settlement, bastle house and field system (SM 4798).

In addition to these scheduled sites, there are four sites recorded in the Historic Environment Record (HER) that are classed as NSR sites of schedulable quality, being of potential national importance and high sensitivity, within the Inner Study Area:

- North Shortcleuch unenclosed platform settlement (WoSAS 10408),
- Hass Burnt Mound (WoSAS 12012),
- Scapcleuch Burn unenclosed platform settlement (WoSAS 12014), and
- Scapcleuch Burn unenclosed platform settlement (WoSAS 12015)

There are no Listed Buildings or Conservation Areas within the Inner Study Area, and no part of the Inner Study Area lies within an Inventory Garden and Designed Landscape (GDL) or Historic Battlefield.

There are 31 non-designated heritage assets recorded in the HER within the Inner Study Area (not including HER assets that are also parts of Scheduled Monuments or are non-statutory register (NSR) sites). These non-designated assets include:

- Prehistoric features such as platform settlements and burnt mounds;
- Medieval features include a possible chapel and burial ground and possible field clearance; and
- Post medieval assets, largely relating to mining activity associated with the lead mines and agrarian activity, including farmsteads, enclosures and field systems.

In addition to the non-designated assets recorded in the HER, 55 assets have been identified from a preliminary examination of historic mapping, lidar imagery and aerial photography. These assets are largely of medieval to modern date including areas of previous mining activity, sheepfolds, grouse butts and a disused railway. These assets are representative of the main uses of this landscape, industrial mining, agrarian sheep-farming and shooting estate. Preliminary consideration suggests that most of these assets are of local heritage value and of low sensitivity.

Outer Study Area

There are 67 scheduled monuments within the Outer Study Area (including the two scheduled monuments within the Inner Study Area); these are assets of heritage value at a national level and of high sensitivity. The Scheduled Monuments include prehistoric funerary, settlement and defensive sites, Roman forts and camps, medieval castles, industrial mines and an engine house.

There are 31 Listed Buildings within the Outer Study Area, two Category A Listed Buildings of heritage value at a national level and of high sensitivity, 16 Category B Listed Buildings of heritage value at a regional level and of medium sensitivity and 13 Category C Listed Buildings of

heritage value at a local level and of low sensitivity. The listed buildings are largely concentrated in the villages of Leadhills and Wanlockhead.

There is one Inventory Garden and Designed Landscape, Scot's Mining Company House (GDL00339), within the Outer Study Area, an asset of heritage value at a national level and of high sensitivity. This asset is located within the village of Leadhills.

There are two Conservation Areas within the Outer Study Area, Leadhills (CA 393) and Wanlockhead (CA 180), both assets of heritage value at a regional level and of medium sensitivity.

3.4.4 Potential Significant Effects

The Proposed Development has the potential to affect the scheduled monuments within the Inner Study Area (the Site) through direct or indirect construction impacts. The Proposed Development also has potential for direct or indirect construction impacts on non-designated heritage assets within the Inner Study Area (the Site).

- Direct construction impacts are likely to occur where the physical fabric of the asset is removed or damaged.
- Indirect construction impacts occur where the fabric of an asset, or buried archaeological remains, are removed or damaged as an indirect result of the proposal, for example as a result of changes to the hydrological regime within the Site boundary or through vibration or seismic activity associated with traffic movement or quarry blasting.

The construction and operation of the Proposed Development also has potential to affect the settings of designated heritage assets and NSR sites within the Inner and Outer Study Area through change within their settings adversely affecting their cultural significance or adversely affecting the ability to understand, appreciate or experience the sites and their settings.

3.4.5 Assessment Methodology

The cultural heritage assessment will be carried out in accordance with the following guidance with reference to relevant legislation, policy and guidance:

- The Ancient Monuments and Archaeological Areas Act 1979¹⁸.
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997¹⁹
- National Planning Framework for Scotland 4 (NPF4) (2023)²⁰.
- Historic Environment Policy for Scotland (HEPS)²¹
- South Lanarkshire Local Development Plan2 (January 2021)²²
- Code of Conduct: Professional Ethics in Archaeology (CIfA, 2014; revised 2021).
- SNH and HES Environmental Impact Assessment Handbook²³.

¹⁸ https://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf

¹⁹ <https://www.legislation.gov.uk/ukpga/1997/9/contents>

²⁰ Scottish Government (2023) National Planning Framework 4 <https://www.gov.scot/publications/national-planning-framework-4/>

²¹ Scottish Government (2019) Historic Environment Policy Scotland Available at: <https://www.historicenvironment.scot/advice-and-support/planning-and-guidance/historic-environment-policy-for-scotland-heps/>

²² South Lanarkshire Council (2021) Local Development Plan 2, Available at: <https://www.southlanarkshire.gov.uk/developmentplan2>

²³ SNH & Historic Environment Scotland (2018) 'Environmental Impact Assessment Handbook'.

(<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0>)

- Standard and Guidance for Historic Environment Desk-Based Assessment, Chartered Institute for Archaeologists (CIfA)²⁴.
- Principles of Cultural Heritage Impact Assessment in the UK²⁵.
- Designation Policy and Selection Guidance²⁶.
- Managing Change in the Historic Environment: Setting²⁷.
- Planning Advice Note 1/2013: Environmental Impact Assessment (PAN 1/2013)²⁸.
- Planning Advice Note 2/2011: Planning and Archaeology (PAN 2/2011)²⁹.

A detailed list of all relevant legislation, policy and guidance will be included in the EIAR.

Desk-based Assessment Method

A desk-based assessment will be conducted covering the Inner Study Area. The purpose will be to identify all known heritage assets, designated or otherwise, that could be directly affected by the Proposed Development, and to inform an assessment of the archaeological potential of the Site.

Sources to be consulted for the collation of data will include:

- South Lanarkshire Council (SLC) HER.
- HES's on-line GIS Spatial Data Warehouse³⁰.
- National Record of the Historic Environment³¹ (NRHE).
- Historic maps held by National Library of Scotland³².
- Modern aerial photographic imagery available online.
- Historic Land-Use Assessment Data for Scotland³³ (HLAmap).
- Lidar data available through Scottish Remote Sensing Portal³⁴ (where available).
- Any existing geotechnical data, including peat survey data if available.
- Other readily accessible published sources, including any reports referenced in HER/NRHE records.

Field Survey Method

A targeted walk-over field survey within the Site will be carried out with the aim to:

- assess the present baseline condition of the heritage assets identified through the desk-based assessment,

²⁴ Chartered Institute for Archaeologists (2014, updated 2020) 'Standard and guidance for historic environment desk-based assessment', London, Chartered Institute for Archaeologists, available at: <https://www.archaeologists.net/sites/default/files/2023-11/CIfA-SandG-DBA-2020.pdf>

²⁵ IEMA (2021) 'Principles of Cultural Heritage Impact assessment in the UK', Lincoln, IEMA, IHBC & CIfA <https://www.ihbc.org.uk/brighton2021/resources/Principles-of-CHIA-V2%5B4%5D.pdf>

²⁶ HES (2019) Designation Policy and Selection Guidance, Edinburgh. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=8d8bbaeb-ce5a-46c1-a558-aa2500ff7d3b>

²⁷ Historic Environment Scotland (2016, updated 2020) 'Managing Change in the Historic Environment – Setting', Edinburgh (<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549>)

²⁸ Scottish Government (2013) Planning Advice Note (PAN) 1/2013: Environmental Impact Assessment. Edinburgh, available at: <https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/>

²⁹ Scottish Government (2011) Planning Advice Note (PAN) 2/2011: Planning and Archaeology, Edinburgh, available at: <https://www.gov.scot/publications/pan-2-2011-planning-archaeology/>

³⁰ Historic Environment Scotland Spatial Data Warehouse. Available at: <https://find.data.gov.scot/datasets/40702>

³¹ Historic Environment Scotland, Canmore [online]. Available at: <https://canmore.org.uk/>

³² National Library of Scotland Map Library. Available at: <https://maps.nls.uk/>

³³ Historic Environment Scotland, Historic Land-Use Assessment for Scotland (HLAmap) [online]. Available at: <http://hlapmap.org.uk/>

³⁴ Scottish Remote Sensing Portal. Available at: <https://remotesensingdata.gov.scot/>

- identify any further features of cultural heritage interest not detected from the desk-based assessment that could be directly or indirectly affected by the Proposed Development, and
- assess the Inner Study Area for its potential to contain currently unrecorded, buried archaeological remains.

Site visits to key heritage assets in the Outer Study Area will also be carried out, where necessary and in as far as access is possible, to assess the predicted effect of the Proposed Development on their settings. Site visits will include any assets specifically identified by consultees as requiring assessment and those identified through analysis of the ZTVs, where it is considered, based on professional judgement, that the effect on their settings could be significant.

Assessment Method

The effects of the Proposed Development on heritage assets will be assessed on the basis of their type (direct effects, indirect impacts, setting impacts, and cumulative impacts) and nature (adverse or beneficial). Effects can be permanent (lasting for a long time or forever), temporary (not lasting for very long) and / or reversible (can be changed back to what it was before). The assessment will take into account the value/ sensitivity of the heritage asset, and its setting, and the magnitude of the predicted impact.

- Direct (physical) impacts - occur where the physical fabric of the asset is removed or damaged, or where it is preserved or conserved, as a direct result of the Proposed Development. Such impacts are most likely to occur during the construction phase and are most likely to be permanent.
- Indirect (physical) impacts - occur where the fabric of an asset, or buried archaeological remains, is removed or damaged, or where it is preserved or conserved, as an indirect result of the Proposed Development even though the asset may lie some distance from it. Such impacts are most likely to occur during the construction phase and are most likely to be permanent.
- Setting impacts - these are generally direct and result from the Proposed Development causing change within the setting of a heritage asset that affects its cultural significance or the way in which it is understood, appreciated, and experienced. Such impacts are generally, but not exclusively, visual, occurring directly as a result of the appearance of the Proposed Development in the surroundings of the asset. However, they may relate to other senses or factors, such as noise, odour or emissions, or historical relationships that do not relate entirely to intervisibility, such as historic patterns of land-use and related historic features. Such impacts may occur at any stage of a Proposed Development's lifespan and may be permanent, reversible, or temporary.
- Cumulative impacts - can relate to the physical fabric or setting of assets. They may arise as a result of impact interactions, either of different impacts of the Proposed Development itself, or additive impacts resulting from incremental changes caused by the Proposed Development together with other projects already in the planning system.
- Adverse effects - are those that detract from or reduce cultural significance or special interest of heritage assets or their settings.
- Beneficial effects - are those that preserve, enhance or better reveal the cultural significance or special interest of heritage assets or their settings.

Assigning Sensitivity to Heritage Assets

Cultural heritage assets are assigned value/ importance through the designation process. Designation ensures that sites and places are recognised and protected by law through the planning system and other regulatory processes. The level of protection and how a site or place

is managed varies depending on the type of designation and the laws and policies that apply to it.

Criteria for Assessing the Significance of Effects

The magnitude of impact (adverse or beneficial) will be assessed in the categories high, medium, low, and negligible and, when combined with the sensitivity of the asset, inform an assessment of the significance of the effect (direct or indirect effects, or effect on setting).

Major and Moderate effects are considered to be 'significant' in the context of the EIA Regulations. Minor and Negligible effects are considered to be 'not significant'.

Assessment of Effects on Setting

The assessment will be in accordance with the guidance set out within the SNH and HES EIA Handbook³⁵ and Historic Environment Scotland's guidance document, 'Managing Change in the Historic Environment: Setting'³⁶. This will ensure the assessment considers the context and setting of the identified heritage assets, as well as the potential change in cultural significance.

The guidance recommends that there are three stages in assessing the impact of a development on the setting of a historic asset or place.

- Stage 1: identify the historic assets that might be affected by the proposed 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.
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.

The SNH and HES EIA Handbook³⁷ Appendix 1, paragraph 43 advises that:

"When considering setting impacts, visual change should not be equated directly with adverse impact. Rather the impact should be assessed with reference to the degree that the proposal affects those aspects of setting that contribute to the asset's cultural significance".

Following these recommendations, ZTVs for the Proposed Development will be used to identify those heritage assets from which there would be theoretical visibility of one or more of the proposed wind turbines, and the degree of theoretical visibility.

Scheduled Monuments, non-designated assets identified in HERs as 'potentially of schedulable quality' (NSR sites) where long-distance views and intervisibility are an important aspect of their settings, Category A and B Listed Buildings, Conservation Areas and Inventory Gardens and Designed Landscapes, where present within 10 km of the outermost turbines, will be included in the assessment. Category C Listed Buildings within 5 km of the outermost turbines will also be included in the assessment.

It is proposed that consideration will be given to designated heritage assets beyond 10 km where long-distance views and intervisibility between monuments are an important aspect of their settings.

³⁵ SNH & Historic Environment Scotland (2018) 'Environmental Impact Assessment Handbook'.

<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0>

³⁶ Historic Environment Scotland (2016, updated 2020) 'Managing Change in the Historic Environment – Setting', Edinburgh (<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549>)

³⁷ SNH & Historic Environment Scotland (2018) 'Environmental Impact Assessment Handbook'.

<https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0>

Consideration will be given to designated heritage assets where there is no predicted visibility from the asset but where views of or across the asset are important factors contributing to its cultural significance. In such cases, consideration will be given to whether the Proposed Development could appear in the background to those views.

The sensitivity of the asset and the magnitude of the predicted impact are used to inform an assessment of the significance of the effect on setting as detailed above.

Where an effect on the setting of an asset is predicted as a result of change within its surroundings, an assessment will be made as to whether that effect would result in a significant adverse effect on the integrity of its setting (NPF 4 Policy 7(h)ii)³⁸. For the purposes of the assessment, the integrity of the setting will be considered to be maintained if the setting’s contribution to the cultural significance of the monument, and the ability to understand, appreciate and experience the setting of the asset, would not be compromised by the Proposed Development either alone or cumulatively.

Cumulative Assessment

The assessment of cumulative effects on heritage assets will be based upon consideration of the effects of the Proposed Development on the settings of assets with statutory designations and non-statutory designations within the Outer Study Area, in addition to the likely effects of other identified cumulative schemes. The identified cumulative schemes to be included in the cumulative impact assessment will be those identified through the LVIA consultations with SLC and Nature Scot.

The cumulative assessment will take into account the relative scale (i.e. size and number of turbines) of the identified developments, their distance from the affected assets, and the potential degree of visibility of the various developments from the assets under consideration. Cumulative visualisations will be used to aid the assessment.

Proposed Visualisation Viewpoints

Based on the scoping blade tip height ZTV (Figure 3.4.2) and given the distribution of designated assets within and surrounding the Proposed Development an initial list of eleven viewpoints are suggested at scoping stage as requiring visualisations to support the EIAR (Table 3.4.1). This is an initial list and given the scale of some of the designated assets the location of the viewpoint may need to be refined as the assessment progresses to ensure the visualisation is appropriately positioned.

Table 3.4.1: Proposed Cultural Heritage Visualisations Viewpoints

Designation Reference	Designation Title	BNG Coordinates
Assets within Inner Study Area		
SM 4714	Waterhead, platform settlement 900m N of	288909, 619034
SM 4798	Glengeith, settlement, bastle house and field system	294767, 616764
Assets within Outer Study Area		
SM 4296	North Shortcleugh, platform settlement 1500m E of	294313, 617538
SM 4516	North Shortcleuch, platform settlement 1000m E of	293792, 617512
SM 4641	Air Cleuch, cairns 1300m S of Glengeith	295300, 615565
SM 4646	Crookedstane, platform settlement 1300m W of	295235, 615130

³⁸ Scottish Government (2023) National Planning Framework for Scotland 4, Edinburgh, available at: <https://www.gov.scot/publications/national-planning-framework-4/>

Designation Reference	Designation Title	BNG Coordinates
SM 5385	Glenochar Burn, bastle house, post-medieval settlement and field system	294430, 613980
SM 5817	Leadhills, remains of lead mining and smelting	288143, 613993
SM 13677	Historic gold workings, Leadhills, South Lanarkshire	290738, 616263
CA 180	Wanlockhead Conservation Area	287499, 614748
CA 393	Leadhills Conservation Area	288499, 614748

3.4.6 Questions to Consultees

Table 3.4.2: Questions to Consultees (Cultural Heritage)

CH1	Is the proposed assessment methodology, including proposed Study Areas, accepted?
CH2	Do the consultees agree with the receptors and impacts proposed to be scoped out of the assessment?
CH3	Are there any additional assets beyond the proposed Study Areas where consultees consider significant effects would be likely to occur?
CH4	Initial viewpoints for visualisations have been identified. Are there any additional assets or locations within or overlooking these assets from which consultees would like to see visualisations?

3.5 Ecology

3.5.1 Overview

This Section describes the baseline conditions, relevant guidance and legislation, proposed scope of assessment and methodology, proposed mitigation, and identifies potential impacts of the Proposed Development in relation to ecological features.

3.5.2 Study Area

The EIAR will incorporate the following study areas which will all be buffered from the finalised turbine and BESS layout (and access track/other infrastructure if relevant/required).

- Designated sites: the Site and a 5 km buffer from the Site boundary.
- Protected species: the proposed turbines/BESS and infrastructure and industry standard species-specific buffers as necessary.
- Electrofishing surveys (to be carried out by Clyde River Foundation): watercourses within the Site boundary and downstream as deemed relevant.
- Potential bat roost features: the proposed turbine locations and a 200 m plus turbine blade length buffer (as per NatureScot *et al.* 2021³⁹).
- Habitats and potential Groundwater Dependent Terrestrial Ecosystems (GWDTE) within the Site boundary.

³⁹ NatureScot, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT), (2021). Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation. Available at: <https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation>. Accessed on: 30 January 2025.

- Bat collisions: the proposed turbine locations; static bat data will be processed through Ecobat (Mammal Society 2017⁴⁰)⁴¹.
- Cumulative assessment (if required): the Site and a 5 km buffer from the Site boundary.

3.5.3 Baseline Conditions

Baseline ecological conditions have been/will be established from the following sources:

- results of the ecological surveys undertaken between September and October 2024 (habitat / National Vegetation Classification; NVC), and planned/currently underway for March – September 2025 (additional habitat / NVC surveys, protected species, bats and fisheries);
- a desk study to confirm the location and qualifying features of designated sites⁴² and ancient woodland⁴³ within potential zones of influence of the Proposed Development;
- information from the Carbon and Peatland Map 2016⁴⁴;
- information from the National Biodiversity Network (NBN) Atlas⁴⁵ on ecological records within 5 km of the Site within the last 15 years (since 2010);
- information from the Deer Distribution Survey by the British Deer Society⁴⁶;
- information from the Saving Scotland’s Red Squirrels (SSRS) website⁴⁷ for red and grey squirrel sightings; and
- Environmental Statements (ES), Environmental Impact Assessment Reports (EIARs) or technical reports from other developments or proposed developments in the local area.

Baseline Surveys

The following baseline ecological surveys have been undertaken to date or will be completed by the end of September 2025:

- Electrofishing and fish habitat suitability surveys on watercourses within the Site (upstream and downstream) will be undertaken in line with guidance^{48,49,50} by the Clyde River Foundation (CRF) in 2025.
- Seasonal static bat detector (Anabat) surveys commenced in April 2025 and will conclude in September 2025. The surveys will be conducted in line with NatureScot *et al.* ³⁹ guidelines. Seventeen detectors will be deployed around the Site, with locations selected based on the

⁴⁰ The Mammal Society (2017). Ecobat. Available at: <https://mammal.org.uk/blog/2017/12/making-sense-of-clicks-and-squeaks-mammal-society-launches-ecobat> Accessed on: 30 January 2025.

⁴¹ The Ecobat system is currently unavailable due to ongoing maintenance; if the system is available it will be used, but in the event that it is not up and running, alternative methodology will be used to assess bat activity levels, as agreed with NatureScot.

⁴² NatureScot Sitelink. Available at: <https://sitelink.nature.scot/home>. Accessed: 30 January 2025.

⁴³ Ancient Woodland Inventory (Scotland). Available at: <https://www.spatialdata.gov.scot/geonetwork/srv/api/records/A091F945-F744-4C8F-95B3-A09E6EF6AE33>. Accessed 20 January 2025.

⁴⁴ Scottish Government (2023). Scotland’s Soils. Available at: https://map.environment.gov.scot/Soil_maps/?layer=10#. Accessed: 30 January 2025.

⁴⁵ National Biodiversity Network Atlas Scotland (2023). Available at: <https://scotland.nbnatlas.org/>. Accessed on: 30 January 2025.

⁴⁶ British Deer Society (2023). *Deer Distribution Survey*. Available at: <https://bds.org.uk/science-research/deer-surveys/deer-distribution-survey/>. Accessed on: 30 January 2025.

⁴⁷ Scottish Squirrels (2025). Sightings of Red and Grey Squirrels across Scotland. Available at: <https://scottishsquirrels.org.uk/squirrel-sightings/>. Accessed on: 30 January 2025.

⁴⁸ Marine Directorate (2021) Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme. Available at: <https://www.gov.scot/publications/monitoring-watercourses-in-relation-to-onshore-wind-farm-developments-generic-monitoring-programme/>. Accessed on: 30 January 2025.

⁴⁹ Marine Directorate (2018) Onshore Renewables Interactions. Available at: <https://www.gov.scot/publications/onshore-renewables-interactions/> Accessed on: 30 January 2025.

⁵⁰ Marine Directorate (2021) Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines. Available at: [Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/freshwater-and-diadromous-fish-and-fisheries-associated-with-onshore-wind-farm-and-transmission-line-developments-generic-scoping-guidelines/) Accessed on: 30 January 2025.

indicative layout provided at the time of survey commencement and positioned such as to cover the area in which the turbines are proposed to be located.

- Protected species walkover survey will be conducted between May and August 2025.
- National Vegetation Classification (NVC) surveys, incorporating Phase 1 Habitat and potential GWDTE habitat classification were undertaken between September and October 2024, in line with guidance^{51,52}. Further NVC surveys will be undertaken in 2025 to ensure coverage of the Site.

Designated Sites

There are no statutory designations within the Site itself; however, there is one statutory site designated for ecology located within 5 km of the Site. It is listed in **Table 3.5.1** and shown in **Figure 3.5.1**. **Table 3.5.1 Designated Sites with Ecological Qualifying Features within 5 km of the Site**

Designated Site	Notified Natural Features	Condition of Feature (and Date Monitored)	Distance from Site (km)
North Lowther Upland SSSI	Biological: Upland habitats: Upland assemblage Assemblage of upland vegetation communities	Unfavourable Recovering (31 May 2015)	3.2 km to the west of the Site

Ancient Woodland

The Ancient Woodland Inventory (AWI)⁴⁴ shows there are no stands of ancient woodland located within the Site. However, there are several parcels of ancient woodland within 5 km of the Site, with the closest lying approximately 200 m from the Site. This parcel is an unnamed woodland recorded as Long-Established (plantation origin) and is separated from the Site at the closest point by the B797 road and Glengonnar Water (**Figure 3.5.1**).

One small area of ancient woodland of the same antiquity lies to the east of the Site. Bank Wood, designated as ancient woodland (of semi-natural origin), lies to the west of the Site, and is contiguous with several other parcels of ancient woodland which lie along Cog Burn. All other parcels of ancient woodland within 5 km of the Site lie to the north; the majority of these are recorded as Long-Established (plantation origin), with one small area of ancient woodland (of semi-natural origin) lies to the east of Abington.

Peatland

As per **Figure 3.7.6**, the Carbon Peatland Map 2016 shows multiple discrete areas of Class 1⁵³ peatland throughout the Site. Two proposed turbine locations (T3 and T6) are currently located

⁵¹ Rodwell, J.S. (Ed), et al. (1991 – 2000). British Plant Communities (5 volumes). Cambridge University Press, Cambridge.

⁵² Rodwell, J.S. (2006). NVC Users’ Handbook. ISBN 978 1 86107 574 1.

⁵³ Class 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value.

within areas mapped as Class 1 peatland. There is no Class 2⁵⁴ peatland within the Site. The remainder of the Site is composed of a mixture of Class 5⁵⁵, Class 4⁵⁶, Class 3⁵⁷ and mineral soil.

Preliminary Desk Study

A search of the NBN Atlas showed that the following protected or notable species were recorded within 5 km of the Site, since 2010:

- adder (*Vipera berus*)⁵⁸;
- badger (*Meles meles*)⁵⁹;
- brown long-eared bat (*Plecotus auritus*)⁶⁰;
- common lizard (*Zootoca vivipara*)⁵⁸;
- common pipistrelle (*Pipistrellus pipistrellus*)⁶¹;
- Daubenton’s bat (*Myotis daubentonii*)^{60, 61};
- mountain hare (*Lepus timidus*)⁵⁹;
- Natterer’s bat (*Myotis nattereri*)^{60, 61};
- red squirrel (*Sciurus vulgaris*)⁶²; and
- soprano pipistrelle (*Pipistrellus pipistrellus*)⁶¹.

Records of the invasive non-native species (INNS) grey squirrel (*Sciurus carolinensis*)⁶² and signal crayfish (*Pacifastacus leniusculus*)⁶³ were also returned.

The results of the Deer Distribution Survey⁴⁷ suggests the likely presence of roe deer (*Capreolus capreolus*), Sika deer (*Cervus nippon*) and red deer (*Cervus elaphus*) within the Site or surrounding area.

Both red and grey squirrels have been sighted within 5 km of the Site (SSRS website)⁴⁸, which has information on sightings going back 15 years. Recorded sightings within 5 km of the Site are fairly sparse which is likely (in part) to be as a result of the rural nature of the area and subsequent lack of survey effort, but sightings in and around Moffat (15 km to the south-east of the Site) show a consistent mix of red and grey squirrels.

Surveys undertaken at neighbouring sites in 2023 and 2024 have recorded evidence of the following species:

- otter (*Lutra lutra*);

⁵⁴ Class 2 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value and restoration potential
⁵⁵ Class 5 - Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.
⁵⁶ Class 4 - Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils.
⁵⁷ Class 3 - Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat.
⁵⁸ Licence: CC-BY. Creative Commons with Attribution 4.0 (CC-BY) <https://creativecommons.org/licenses/by/4.0/>. Accessed on: 4 February 2025. Amphibian and Reptile Conservation and Biological Records Centre (2025). Records verified via iRecord.
⁵⁹ Licence: CC-BY. Creative Commons with Attribution 4.0 (CC-BY) <https://creativecommons.org/licenses/by/4.0/>. Accessed on: 4 February 2025. Mammal Society (2025). Mammal Mapper App Sighting Records.
⁶⁰ Licence: OGL. Open Government Licence (OGL) <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>. Accessed: 4 February 2025. Bat Conservation Trust (2025). National Bat Monitoring Programme – Hibernation Survey. Occurrence dataset on the NBN Atlas.
⁶¹ Licence: OGL. Open Government Licence (OGL) <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>. Accessed: 4 February 2025. Newson, S.E., Evans, H.E., Gillings, S., Jarrett, D. & Wilson, M.W. 2017. A survey of high risk bat species across southern Scotland. Scottish Natural Heritage Commissioned Report No. 1008
⁶² Licence: CC-BY. Creative Commons with Attribution 4.0 (CC-BY) <https://creativecommons.org/licenses/by/4.0/>. Accessed on: 4 February 2025. Scottish Wildlife Trust (2025). The Scottish Squirrel Database. Occurrence dataset accessed through the NBN Atlas.
⁶³ Licence: CC-BY. Creative Commons with Attribution 4.0 (CC-BY) <https://creativecommons.org/licenses/by/4.0/>. Accessed on: 4 February 2025. Records provided by Invasive non-native species records from SEWeb, accessed through NBN Atlas website.

- water vole (*Arvicola amphibious*);
- mountain hare;
- common pipistrelle;
- soprano pipistrelle;
- Daubenton’s bat;
- Natterer’s bat;
- Noctule bat (*Nyctalus noctule*);
- Leislers bat (*N. leisleri*);
- Common lizard (*Zootoca vivipara*);
- Brown trout (*Salmo trutta*); and
- Signal crayfish.

The above surveys also recorded potential evidence of pine marten (*Martes martes*) on an adjacent Site.

3.5.4 Potential Significant Effects

The assessment will consider the potential impacts associated with construction, operation and decommissioning of the Proposed Development as detailed below. Where appropriate, the construction and operational impacts will also be considered in a cumulative assessment.

Construction/Decommissioning Impacts:

- temporary and permanent habitat loss/alteration/fragmentation/drainage associated with the Proposed Development infrastructure;
- pollution impacts on watercourses within the Site;
- loss of shelter, breeding or foraging habitat for protected species;
- displacement of deer;
- risk of injury or death to protected species from collisions with increased construction traffic; and
- visual and noise disturbance to protected species associated with construction activities.

Operational Impacts:

- displacement of protected species from shelter, breeding or foraging habitats around operational turbines and other permanent infrastructure, including barrier effects; and
- risk of bats colliding with or suffering barotrauma from proximity to operational wind turbine blades.

A summary of the features and impacts to be considered, and the phases for which it is proposed they are scoped in or out, are presented in **Table 3.5.2**. Decommissioning impacts are not included as they are assumed to be similar to those from construction.

Table 3.5.2 Summary of Features and Impacts for Ecology

Features	Scoped In		Justification
	Construction	Operation	
Protected species (including bats)	Yes	Yes	Protected species cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution of ecological features in relation to the planned infrastructure and activities

Features	Scoped In		Justification
	Construction	Operation	
			associated with the Proposed Development are fully understood.
Habitats on Annex I to the Habitats Directive	Yes	Yes	Habitats on Annex I to the Habitats Directive cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution of such habitats in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood.
Habitats not on Annex I to the Habitats Directive and species not on Annex II to the Habitats Directive and habitats or species not protected by other legislation (e.g., The Wildlife and Countryside Act 1981 (as amended), the Nature Conservation (Scotland) Act 2004 or The Protection of Badgers Act).	No	No	On the basis of the results of the desk-based work undertaken to date, the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, generally common and widely distributed habitats or species which do not fall within the categories listed in the feature column would be scoped out of the assessment.
Wild deer population	Yes	No	The desk-based study will collate relevant information on the deer populations in the locality to inform whether this should be scoped out at the construction phase or assessed further in the EIA report. It is considered that the operational activities of the Proposed Development are unlikely to result in an adverse impact upon the deer population and are scoped out of the assessment.
Designated sites	No	No	There are no statutory designations within the Site, but there are two statutory sites designated for ecology located within 5 km of the Site. North Lowther Uplands SSSI is located 3.2 km from the Site and Shiel Dod SSSI is located approximately 5 km from the Site. Neither SSSI is topographically or hydrologically connected to the Site. For these reasons, it is proposed that likely significant effects from the construction of the Proposed Development upon the designated sites are scoped out of the assessment at this stage. Through the adoption of embedded mitigation (including the design and layout of the Proposed Development), it is considered that designated sites are unlikely to be affected by the operational activities of the Proposed Development.

Features	Scoped In		Justification
	Construction	Operation	
Migratory salmonids	No	No	It is proposed that migratory salmonids are scoped out of the assessment. Migratory salmonids are not able to access the Site or local area due to impassable barriers much further downstream in the Clyde catchment (i.e. the Falls of Lanark).
Resident fish	Yes	No	Impacts on resident fish populations during construction cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution of species and suitable habitats in relation to the planned infrastructure and activities are fully understood. The operational activities of the Proposed Development are unlikely to provide an adverse impact upon the resident fish populations and are scoped out of the assessment at this stage.

Potential Mitigation

Significant impacts on ecological features will be avoided or minimised where possible within the design process. Good practice during construction and operation of the Proposed Development will be implemented as standard (and the assessment undertaken on this basis). This would include the following:

- a Species Protection Plan (SPP) would be implemented as part of an Outline Construction Environmental Management Plan (OCEMP) 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 would be carried out by an Ecological Clerk of Works (ECOW) or suitably qualified ecologist, as part of the SPP, and an ECOW present during the construction period;
- an Outline Biodiversity Enhancement Management Plan (OBEMP) would be developed for the operational phase and agreed with consultees, to mitigate or enhance habitat for Important Ecological Features (IEFs) and to provide wider biodiversity benefits; and
- a Biodiversity Net Gain (BNG) assessment would be undertaken for the Proposed Development. Based upon habitat surveys undertaken in 2024 and to be undertaken in 2025, biodiversity enhancement measures for the Site may include, but not be limited to, options such as peatland restoration, heathland restoration, grassland management, and riparian tree planting.

3.5.5 Assessment Methodology

Legislation, Policy and Guidance

The assessment will be undertaken in line with the following European and National Legislation:

- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017⁶⁴;

⁶⁴ Scottish Government (2017d). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents>. Accessed on: 3 February 2025