



EIA Scoping Report

Dalmacallan Wind Farm

Wind Power North One Limited

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SLR Project No.: 406.065192.00001

7 October 2025

Revision: FINAL



Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1 st DRAFT	19 August 2025	JH	FS	FS
2 nd DRAFT	1 October 2025	EH	FS	AF
FINAL	7 October 2025	FS	FS	AF

Basis of Report

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Table of Contents

1.0	Introduction.....	1
1.1	Overview	1
1.2	The Applicant.....	1
1.3	SLR Consulting.....	2
1.4	Purpose of this EIA Scoping Report.....	2
1.5	Environmental Impact Assessment.....	3
1.6	References	9
2.0	Proposed Development.....	10
2.1	Site Description	10
2.2	Proposed Development Description.....	11
2.3	Construction Works	16
2.4	Wind Farm Lifecycle and Decommissioning	16
2.5	References	17
3.0	Forestry	18
3.1	Introduction.....	18
3.2	Forestry Baseline.....	18
3.3	Relevant Guidance and Legislation	19
3.4	Forest Design Plan	20
3.5	Questions to Consultees.....	20
4.0	Planning and Energy Policy Context.....	21
4.1	The Statutory Framework	21
4.2	Project Need and The Renewable Energy Policy Framework	21
4.3	National Planning Policy and Guidance	23
4.4	Local Development Plan	25
4.5	Questions to Consultees.....	26
4.6	References	26
5.0	Landscape and Visual	28
5.1	Introduction.....	28
5.2	Environmental Baseline and Potential Sources of Impact	29
5.3	Method of Assessment and Reporting	43
5.4	Consultation	48
5.5	Matters Scoped Out.....	48
5.6	Questions to Consultees.....	48
5.7	References	48
6.0	Ecology	50



6.1	Introduction.....	50
6.2	Environmental Baseline	50
6.3	Potential Sources of Impact	55
6.4	Method of Assessment and Reporting	55
6.5	Potential Significant Effects	60
6.6	Biodiversity Enhancement	61
6.7	Consultation	61
6.8	Questions to Consultees.....	62
6.9	References	62
7.0	Ornithology	64
7.1	Introduction.....	64
7.2	Consultation	65
7.3	Environmental Baseline	66
7.4	Potential Sources of Impact.....	70
7.5	Method of Assessment and Reporting	71
7.6	Matters Scoped Out.....	72
7.7	Questions to Consultees.....	74
7.8	References	74
8.0	Geology, Hydrology, Hydrogeology and Peat	76
8.1	Introduction.....	76
8.2	Environmental Baseline	76
8.3	Potential Sources of Impact	79
8.4	Method of Assessment and Reporting	80
8.5	Matters Scoped Out.....	88
8.6	Consultation	89
8.7	Questions to Consultees.....	89
8.8	References	90
9.0	Archaeology and Cultural Heritage	91
9.1	Introduction.....	91
9.2	Environmental Baseline	91
9.3	Potential Sources of Impact	93
9.4	Assessment Methodology.....	95
9.5	Summary of Scope	105
9.6	Questions to Consultees.....	106
9.7	References	107
10.0	Traffic and Transport.....	108
10.1	Introduction.....	108



10.2	Environmental Baseline	108
10.3	Potential Sources of Impact	109
10.4	Method of Assessment and Reporting	110
10.5	Matters Scoped Out.....	116
10.6	Consultation	116
10.7	Questions to Consultees.....	116
10.8	References	116
11.0	Noise and Vibration	117
11.1	Introduction.....	117
11.2	Environmental Baseline and Potential Sources of Impact	117
11.3	Potential Sources of Impact	117
11.4	Method of Assessment and Reporting	118
11.5	Consultation	125
11.6	Matters Scoped Out.....	125
11.7	Questions to Consultees.....	132
11.8	References and Standard Guidance.....	132
12.0	Socio-economics, Tourism & Recreation	134
12.1	Introduction.....	134
12.2	Guidance & Legislation	134
12.3	Baseline Description	136
12.4	Potential Sources of Impact	136
12.5	Method of Assessment and Reporting	137
12.6	Questions to Consultees.....	138
13.0	Other Considerations	139
13.1	Introduction.....	139
13.2	Aviation and Radar	139
13.3	Infrastructure	140
13.4	Telecommunications.....	140
13.5	Television Reception	141
13.6	Other Terrestrial Broadcasts.....	141
13.7	Shadow Flicker	141
13.8	Ice Throw.....	142
13.9	Air Quality.....	142
13.10	Population and Human Health	142
13.11	Risk of Major Accidents and/or Disasters.....	142
13.12	Environmental Management.....	143
13.13	Questions for Consultees.....	143



13.14	References	143
14.0	Summary of EIA Scope	144
15.0	Invitation to Comment.....	148

Tables in Text

Table 2-1: Scoping Layout A Turbine Coordinates and Indicative Specifications.....	13
Table 2-2: Scoping Layout B Turbine Coordinates and Indicative Specifications.....	13
Table 6-1: Statutory Designated Sites within 5km of the Site	51
Table 6-2: Non-Statutory Designated Sites (LNCS) within 5km of the Site	51
Table 7-1: Summary of consultations undertaken to date.....	66
Table 7-2: Designated sites and their qualifying features	68
Table 9-1: Cultural Heritage Assets within the Site Boundary.....	92
Table 9-2: Assets Scoped In for Further Assessment due to Potential for Settings Impacts	94
Table 9-3: Proposed Sources.....	96
Table 9-4: Cultural Heritage Significance	99
Table 9-5: Sensitivity of Setting.....	101
Table 9-6: Magnitude of Impact.....	102
Table 9-7: Significance of Effect Matrix	103
Table 10-1: Suggested Categorisation of Impact Magnitude by Potential Effect.....	113
Table 10-2: Suggested Categorisation of Receptor Sensitivity	114
Table 10-3: Suggested Effect Significance Matrix based on Impact Magnitude and Receptor Sensitivity	115
Table 14-1: Summary of EIA Technical Topics.....	144

Figures

Figure 1.1a-b:	Site Location
Figure 2.1ai-ii:	Scoping Layout A
Figure 2.1bi-ii	Scoping Layout B
Figure 2.2.1:	On-site Constraints (Main Site)
Figure 2.2.2:	On-site Constraints (Southern Access Route)
Figure 2.3:	Abnormal Indivisible Load Vehicle Access Route
Figure 3.1:	Forestry Within Site
Figure 3.2:	Dalmacallan Forest Land Management – Felling Without Wind Farm
Figure 5.1:	LVIA Study Area With Topography
Figure 5.2:	Cumulative Wind Farms
Figure 5.3:	Blade Tip ZTV with LVIA Viewpoints



Figure 5.4a:	Blade Tip ZTV with Landscape Character
Figure 5.4b:	Landscape Character Legend
Figure 5.5:	Blade Tip ZTV With Landscape Planning Designations and Wild Land
Figure 5.6:	Blade Tip ZTV With Visual Receptors
Figure 6.1:	Ecological Designated Sites and Ancient Woodland within 5km
Figure 6.2:	Habitat Survey Area and Survey Results
Figure 7.1:	Ornithological Designated Sites
Figure 7.2:	Vantage Point Locations and Viewsheds
Figure 7.3:	Ornithological Survey Areas
Figure 8.1:	Peat Classification
Figure 8.2:	Peat Depth (Main Site)
Figure 8.3a-c:	Local Hydrology
Figure 9.1:	Heritage Designations Scoping Layout A
Figure 9.2:	Heritage Designations Scoping Layout B

Appendices

Appendix 9.1	Cultural Heritage Appraisal of Scoping Layout A
Appendix 9.2	Cultural Heritage Appraisal of Scoping Layout B



Acronyms and Abbreviations

Acronym	Definition
AILV	Abnormal Indivisible Load Vehicle
AIP	Aeronautical Information Publication
AM	Amplitude Modulation
AOD	Above Ordnance Datum
ATC	Automatic Traffic Counter
BCT	Bat Conservation Trust
BDMP	Bird Disturbance Management Plan
BEIS	Department for Business, Energy & Industrial Strategy
BEMP	Biodiversity Enhancement Management Plan
BERR	Department for Business, Enterprise and Regulatory Reform
BGS	British Geological Survey
CAA	Civil Aviation Authority
CAR	Controlled Activities Regulations
CCC	Climate Change Committee
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CNS	Communications, Navigation and Surveillance
CNVMP	Construction Noise and Vibration Management Plan
CTBT	Comprehensive Test Ban Treaty
CTMP	Construction Traffic Management Plan
CWRP	Scottish Government's Policy on Control of Woodland Removal
DECC	Department for Energy and Climate Change
DESNZ	Department for Energy Security and Net Zero
DGC	Dumfries and Galloway Council
DGRSG	Dumfries and Galloway Raptor Study Group
DGWLSS	Dumfries & Galloway Wind Energy Landscape Sensitivity Study
DMRB	Design Manual for Roads and Bridges
DRP	Decommissioning and Restoration Plan
DTI	Department of Trade and Industry
DTM	Digital Terrain Model
DWPA	Drinking Water Protected Area
EC	European Commission
ECoW	Ecological Clerk of Works
ECU	Energy Consents Unit
EHO	Environmental Health Officer



Acronym	Definition
EHP	Environmental Health Perspectives
EIA	Environmental Impact Assessment
EKA	Eskdalemuir Seismology Array
ENE	east north east
EPASA	Environmental Protection Authority of South Australia
ES	Environmental Statement
EU	European Union
FCS	Forestry Commission Scotland
FGS	Forestry Grant Scheme
FWPM	Freshwater Pearl Mussel
GCN	Great Crested Newt
GDL	Garden and Designed Landscape
GIS	Geographic Information System
GPP	Guidance for Pollution Prevention
GW	Gigawatt
GWDTE	Ground Water Dependent Terrestrial Ecosystem
HEPS	Historic Environment Policy for Scotland
HER	Historic Environment Records
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicle
HSI	Habitat Suitability Index
HV	High Voltage
ICAO	International Civil Aviation Organisation
IEF	Important Ecological Feature
IEMA	Institute of Environmental Management and Assessment
INNS	Invasive Non-Native Species
IOA GPG	Institute of Acoustics' Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise
IOF	Important Ornithological Feature
JNCC	Joint Nature Conservation Committee
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LDP	Local Development Plan
LI	Landscape Institute
LNCS	Local Nature Conservation Site
LVIA	Landscape and Visual Assessment
MW	Megawatt



Acronym	Definition
NBN	National Biodiversity Network
NCAP	National Collection of Aerial Photography
NGR	National Grid Reference
NHMRC	National Health and Medical Research Council of Australia
NHZ	Natural Heritage Zone
NPF4	National Planning Framework 4
NRHE	National Record of the Historic Environment
NS	NatureScot
NSA	National Scenic Area
NSR	Noise Sensitive Receptor
NTS	Non-Technical Summary
NVC	National Vegetation Classification
OBEMP	Outline Biodiversity Enhancement Management Plan
OCEMP	Outline Construction Environmental Management Plan
OGL	Open Government Licence
OPEN	Optimised Environments Ltd
OS	Ordnance Survey
OWPS	Onshore Wind Policy Statement
PAN	Planning Advice Note
PARC	Priority Area for Red squirrel Conservation
PLHRA	Peat Landslide Hazard Risk Assessment
PMP	Peat Management Plan
PPG	Pollution Prevention Guidelines
PPV	Peak Particle Velocity
PRF	Potential Roost Features
PSR	Primary Surveillance Radar
PWS	Private Water Supplies
PWSRA	Private Water Supplies Risk Assessment
RSA	Regional Scenic Area
RSPB	Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
SAC	Special Area of Conservation
SCOTS	Scottish Collaboration of Transportation Specialists
SEPA	Scottish Environmental Protection Agency
SFS	Scotland's Forestry Strategy
SLA	Special Landscape Area
SLUS	Scotland's Third Land Use Strategy



Acronym	Definition
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protection Area
SPP	Species Protection Plan
SSR	Secondary Surveillance Radar
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
SWEIC	South West Scotland Environmental Information Centre
TA	Technical Appendix
TO	Transmission Owner
TS	Transport Scotland
UHF	Ultra-High Frequency
UK	United Kingdom
UKFS	UK Forestry Standard
VP	Vantage Point
WANE	Wildlife and Natural Environment
WEBS	Wetland Bird Survey
WECO	Wind Energy Production in Cold Climates
WEWS	Water Environment and Water Services
WLA	Wild Land Area
WNW	west north west
WTS	Wind Turbine Syndrome
ZTV	Zone of Theoretical Visibility



1.0 Introduction

1.1 Overview

Wind Power North One Limited (the Applicant), a company wholly owned by Vestas Development A/S, is intending to apply to Scottish Ministers via the Energy Consents Unit (ECU) for consent to construct and operate a wind farm (the Proposed Development) on land centred approximately 3.7km south of Moniaive in Dumfries and Galloway as shown on **Figure 1.1a**, hereafter referred to as 'the site'. The project is being developed under the terms of an agreement between Force 9 Energy Limited (herein referred to as Force 9) and Vestas Development A/S (herein referred to as Vestas).

It is anticipated that the Proposed Development would comprise of up to 17 wind turbines with associated works and infrastructure including: forestry works; crane hardstandings; access tracks; cabling; borrow pits; a temporary construction compound; a single substation including control building and an anemometry mast. It is proposed that the maximum blade tip height of the turbines would be 200m and the Proposed Development could have a maximum export capacity of up to 115.2MW. Two indicative turbine layouts (Scoping Layout A comprising 16 turbines at 200m blade tip height; and Scoping Layout B comprising 17 turbines at 180m blade tip height) based on two different turbine types and associated parameters are presented on **Figure 2.1ai-ii and 2.1bi-ii**. These are preliminary turbine layouts for the purposes of scoping, which consider the currently known ecological, ornithological, topographical, hydrological, hydrogeological and landscape constraints at this early stage in the Environmental Impact Assessment (EIA) process. These indicative layouts have been developed with the aim of defining a reasonable likely maximum 'envelope' for the Proposed Development and a single layout will be refined further during the EIA process. Consultees are invited to provide comment on whether fewer taller turbines, with a larger installed capacity, or a greater number of smaller turbines, with a smaller installed capacity, is likely to represent the best design solution for the project.

The final operating capacity, turbine number, size and layout will be based on a balance of environmental and technical considerations identified and evaluated during the scoping and EIA process, along with public consultation. The Proposed Development would generate renewable, carbon-free electricity for supply to the national electrical transmission grid. It would contribute to elimination of carbon dioxide (CO₂) emissions through the displacement of conventional fossil-fuel electricity generation and contribute to the additional electrical capacity required for the decarbonisation of industry, heating and transport systems.

The Proposed Development constitutes a Schedule 2 development pursuant to the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (the EIA Regulations) and the Applicant has committed to undertaking an EIA to investigate the potential for significant environmental effects in the form of an Environmental Impact Assessment Report (EIA Report) which would accompany the application to the ECU.

This EIA Scoping Report seeks information from the ECU in the form of an EIA Scoping Opinion. The EIA Scoping Opinion, consultation responses and the findings of the EIA process will be used to inform the final design of the Proposed Development and assess its predicted environmental effects. The results of the EIA will be presented in an EIA Report that will be submitted with the Section 36 application to the Scottish Ministers.

1.2 The Applicant

The application will be made by Wind Power North One Limited and developed under the terms of an agreement between Force 9 Energy Limited and Vestas Development A/S. Vestas is a global leader in sustainable energy solutions designing, manufacturing installing



and servicing wind turbines around the world. Vestas has installed over 91,000 turbines with a capacity of over 189,000MW in 88 countries worldwide. In addition, Vestas has a broad range of experience of project development issues including turbine siting and optimisation, grid connection and construction management. The company maintains and services over 56,000 turbines worldwide amounting to 156,000MW. Vestas is active in the United Kingdom and employs around 1,600 staff spanning technology, manufacturing, operations and maintenance, and support functions including service centres at Muirkirk and Prestwick each employing 20 staff. Vestas has a partnership with Ayr College training turbine technicians.

Force 9 Energy is a successful, independent UK wind farm developer based in Glasgow, Scotland. Wind farms developed by the Force 9 team and in operation already contribute more than 200MW of clean, renewable, generating capacity in the UK. Force 9 also has a development pipeline of over 300MW of consented potential installed capacity, 72MW (installed wind capacity) of developments in planning and is bringing forward a portfolio of over 400MW of potential generating capacity (including Dalmacallan).

Force 9 will lead on the development process of the wind farm proposal up to consent. Force 9 is supported during this period by Vestas both financially and with staff resources requested by Force 9 on issues such as access, engineering design, turbine selection, wind flow and optimisation of energy capture. Vestas is funding the development and design of this wind farm project and is committed to supplying the wind turbines, managing project construction and providing long-term operation and maintenance services for the plant.

1.3 SLR Consulting

SLR Consulting Limited (SLR) has been appointed to undertake an EIA Scoping study and prepare this EIA Scoping Report to accompany a request to the ECU to adopt an EIA Scoping Opinion.

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

The company has significant experience and expertise in the preparation of Electricity Act Section 36 applications and undertaking EIA for a wide variety of projects. SLR's environmental specialists along with specialist consultants from BiGGAR Economics, Bidwells and Aviatica have the skills and relevant competency, expertise and qualifications to undertake EIA for the Proposed Development. Optimised Environments Ltd. (OPEN) is part of SLR Consulting Ltd. and is providing Landscape & Visual Impact Assessment (LVIA) input to the EIA. MacArthur Green is part of SLR Consulting Ltd. and is providing ecology and ornithology input to the EIA.

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

1.4 Purpose of this EIA Scoping Report

Undertaking an EIA Scoping study is regarded as good practice and is considered to be an important step in EIA as it allows all parties involved in the process to agree on key environmental issues relevant to the Proposed Development and to agree on the methodology used for their assessment. The Scoping stage helps to engage the Scottish Ministers, relevant local planning authority (in this case Dumfries and Galloway Council (DGC)) and other stakeholders, at an early stage in the planning process; and ensures that key opinions, based on local understanding, are identified.

The specific aims of this EIA Scoping Report are to:



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

In making its formal Scoping Opinion, under Regulation 12 (4)(a) of the EIA Regulations, the ECU must consult with a number of consultees and take account of their views within the Scoping Opinion.

Upon receipt of the EIA Scoping Opinion, the Applicant will continue the EIA process that will lead to the preparation of an EIA Report, taking cognisance of the findings and responses received.

1.5 Environmental Impact Assessment

1.5.1 Introduction

The EIA will be undertaken in accordance with the EIA Regulations, Electricity Act 1989 – Sections 36 and 37: Applications Guidance (Scottish Government, 23 February 2022), the best practice guidelines of the Institute of Environmental Management and Assessment (Guidelines for Environmental Impact Assessment) published in 2004; and the Scottish Natural Heritage (SNH) (now NatureScot) handbook on EIA 2018.

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

1.5.2 Approach to Scoping

This EIA Scoping Report has been based on a combination of desk based and site survey investigations. This has been complemented by the use of Geographic Information System (GIS) technology to collate and identify potential environmental receptors and environmental designations that may be affected by the Proposed Development. The GIS datasets comprise details of ecologically important sites, sites of archaeological and/or cultural heritage importance, landscape designations and other important receptors (watercourses etc.). The potential receptors and designated sites that have been identified to date are shown on **Figures 2.2.1, 2.2.2, 4.4a-b, 4.5, 4.6, 5.1, 6.1, 7.1, 8.1, 8.3a-c, 9.1 and 9.2.**

The findings of the desk-based work and the GIS work have been augmented by some site reconnaissance and survey work, as well as discussion with consultees. Site work undertaken to date includes ornithological surveys, ecology habitat and protected species surveys, a Phase 1 peat probing exercise and a landscape and visual site appraisal.



1.5.3 Scoping Consultation

This EIA Scoping Report is issued to the ECU, who will then consult with key consultees and stakeholders before adopting an EIA Scoping Opinion.

The purpose of the consultation is to identify:

- key local issues and concerns from consultees and stakeholders;
- issues of environmental importance that may be affected by the Proposed Development and need to be considered in an EIA;
- methodologies for undertaking studies and agreement of these methodologies;
- existing information that will be of assistance in the assessment of the environmental effects; and
- the need for further consultation.

1.5.4 Public Consultation

The Applicant is committed to undertaking meaningful consultation with the local community and stakeholders. During the development period, it is expected that engagement will include the use of a dedicated project website, mail drops and public exhibitions to distribute information and respond to the public, along with emails, phone calls and meetings (in person and/or virtual) with Community Councils. Consideration will be given to ensure that engagement methods reflect varying levels of access to technology.

The Applicant will contact local community councils and consultees to introduce them to the project and to request the opportunity to meet with them, should they wish. Following this, it is anticipated that the first round of in-person public exhibitions will be held in Moniaive and Balmacellan. This will be an opportunity for the public to learn about the Proposed Development directly from the project team in attendance and through information panels and visualisations present at the public exhibition venues. Feedback on the Proposed Development will be encouraged; and where received, will be considered where relevant in development of the design and EIA.

A second round of public exhibitions will be held in advance of the submission of the application to provide the public with an update on progress and provide further details about the proposed conceptual design of the Proposed Development, an update on the EIA, and further information on community benefits and submission timescales.

1.5.5 Potential Environmental Effects

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

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

(3) The factors are —

(a) population and human health;

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

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



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

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

Previous experience of other wind farm development sites, combined with the EIA requirements, the knowledge of the site and possible effects of the Proposed Development, has led to the identification of the following topics for consideration. A summary of known baseline conditions of relevance, predicted effects, any outline mitigation measures that can be recommended at this stage and the proposed scope for the EIA, if relevant, is provided for each of the following topic areas in **Sections 5.0 to 13.0**:

- 5.0 - Landscape and Visual
- 6.0 - Ecology
- 7.0 - Ornithology
- 8.0 - Geology, Hydrology, Hydrogeology and Peat
- 9.0 - Archaeology and Cultural Heritage
- 10.0 - Traffic and Transport
- 11.0 - Noise and Vibration
- 12.0 - Socio-economics, Tourism and Recreation
- 13.0 - Other Considerations including Aviation and Radar, Shadow Flicker, Telecommunications and Climate and Carbon Balance

A summary of the technical topics proposed to be scoped in and out of the EIA is provided in **Table 14-1** in **Section 14**.

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

The technical assessments will provide a detailed assessment of potential impacts with a focus on significant effects, identification of mitigation measures and description of the significance of residual effects (those remaining after the mitigation measures have been implemented). The EIA will identify direct and indirect effects, positive (beneficial) and negative (adverse) effects, cumulative effects and seek to identify, as far as possible, the duration of such effects, whether short term, long term, permanent, temporary, or periodic during the construction, operational and decommissioning phases of the Proposed Development. The results of each technical assessment will be reported in the EIA Report structured as follows:

- Volume 1 – Non-Technical Summary (NTS)
- Volume 2 – Written Statement
- Volume 3 – Figures and Visualisations
- Volume 4 – Technical Appendices
- Volume 5 – Confidential Information (if required)



1.5.5.1 Type of Effects

The EIA Regulations require consideration of a variety of types of effect, namely direct/indirect, secondary, cumulative, transboundary, positive/negative, short/medium/long-term and permanent/temporary. For each topic that is identified as requiring further study in the EIA Report, effects would be considered in terms of how they arise, their nature (i.e. whether they are positive or negative) and their duration.

1.5.5.2 Assessment of Effects

For each topic that is identified as requiring further study, a detailed technical assessment will be carried out in line with the scope and methodology agreed upon with relevant consultees. The methodology for predicting the nature and magnitude of any potential environmental effects varies according to the technical subject area. Individual technical assessment will be undertaken by a competent and appropriately qualified expert in which technical standards and relevant guidance will be adhered to. A range of relevant and appropriate methodologies will be employed to assess the potential effects associated with the Proposed Development. These assessments will take the construction, operational and decommissioning phases of the Proposed Development into account and will be carried out in relation to the site and surrounding area.

1.5.5.3 Baseline Conditions

The EIA Regulations require that aspects of the environment which are likely to be significantly affected by the Proposed Development are clearly defined within the EIA Report. To achieve this, it is necessary to gather environmental information on the current and existing status of each topic proposed for consideration as part of the EIA, i.e., 'baseline conditions'. The EIA Report will describe:

- the key receptors that have been identified;
- a brief description of those receptors;
- the sensitivity attributed to each receptor; and
- where further details can be found within the relevant technical appendices.

For the purposes of the assessment, the baseline is considered to be the existing site which is currently undeveloped. Details on the existing conditions of the site and the surveys which have been undertaken for each topic are detailed in the relevant sections of this report.

Baseline conditions are not static, and it may be necessary to update them with further baseline surveys to ensure that the data upon which the EIA is based is up to date and accurately reflects the current situation of the receiving environment.

1.5.5.4 Sensitivity of Receptors

The sensitivity or importance of receptors will be defined according to the relative sensitivity of existing environmental features on or in the vicinity of the site, or by the sensitivity of receptors which would potentially be affected by the Proposed Development, including their capacity to accommodate the kinds of changes the Proposed Development may bring about.

Criteria for the determination of sensitivity or importance will be established based on prescribed guidance, legislation, statutory designation and/or professional judgement for each topic area.



1.5.5.5 Magnitude of Impact

The magnitude of impact (degree of change) relative to environmental baseline conditions will be identified through detailed consideration of the Proposed Development, taking account of the following factors:

- the degree to which the environment is affected, e.g. whether the quality is enhanced or impaired;
- the scale or degree of change from the baseline situation; and
- whether the effect is temporary or permanent, indirect or direct, short term, medium term or long term.

In some cases, the likelihood of effect occurrence may also be relevant, and where this is a determining feature of the assessment this will be clearly stated.

1.5.5.6 Significance of Effect

The EIA Regulations do not define significance, and it is, therefore, necessary to define this for the Proposed Development. The significance of an effect is derived from an analysis of:

- the sensitivity of receptors to change; and
- the amount and type of change, or magnitude of impact which includes the timing, scale, size, likelihood and duration of the change.

Where relative significance is reported, the assessment will identify the threshold for significant effects.

The methods for predicting the nature and magnitude of any potential effects vary according to the topic assessed. Quantitative methods of assessment can predict values that can be compared against published thresholds and indicative criteria in Government guidance and standards. However, it is not always possible to ascribe values to environmental assessments and therefore qualitative assessments are also used. Such assessments rely on previous experience and professional judgement. The methodologies used for assessing each topic area will be further described within the individual chapters of the EIA Report.

1.5.5.7 Cumulative Effects

For each technical discipline, an assessment will be made of the likely cumulative effects of the Proposed Development in combination with any other similar developments in proximity to the site which are reasonably defined and understood; these would comprise projects that:

- are the subject of valid applications or appeals but not yet determined;
- consented (but not yet constructed or operational); or
- are under construction.

Projects that are already constructed and operational are considered to form part of the baseline conditions.

Cumulative effects can also arise from the combined impact of effects attributable to the Proposed Development in respect of a particular receptor, such as the combined effect of noise and visual amenity on a residential dwelling.

The current cumulative wind farm context in relation to the main part of the site (where the turbines would be located) is shown on **Figure 4.2**.



If ECU, DGC or other stakeholders are aware of any other proposals that they consider will need to be assessed in terms of potential cumulative effects, it is requested that those are identified as part of the EIA Scoping Opinion.

1.5.5.8 Mitigation

Paragraph 7 of Schedule 4 of the EIA Regulations notes that the EIA Report should include details of proposed mitigation measures to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, set out monitoring measures which will be put in place.

An assessment of potential environmental effects will be undertaken to identify any predicted significant effects. Where significant adverse environmental effects are predicted in the EIA process, the EIA Report will provide additional measures (bespoke mitigation) to eliminate or reduce the effects to acceptable levels.

Embedded mitigation is considered an integral part of the overall design strategy for the Proposed Development. Design principles and environmental measures that form an integral part of the project design will be considered in the assessment of environmental effects. Where necessary, additional mitigation measures will be identified to reduce the significance of potential effects, and these will be set out in detail in the EIA Report where relevant.

A Schedule of Mitigation will be included within the EIA Report which will summarise the mitigation proposed in the preceding chapters of the EIA Report to avoid, prevent, reduce or offset the adverse effects of the Proposed Development on the environment.

1.5.5.9 Residual Effects

Any remaining effects of the Proposed Development, following implementation of any bespoke mitigation measures, are referred to as 'residual effects.' The EIA will assess each residual effect and identify a significance level. Residual effects may be adverse or beneficial, short, medium or long-term, direct or indirect, permanent or temporary, and reversible or irreversible.

1.5.5.10 Enhancement Measures

Opportunities for environmental enhancement measures within the site will be given due consideration throughout the design evolution process. Enhancement refers to measures to be implemented which don't form mitigation by avoiding, reducing or offsetting effects; but instead provide an opportunity to improve the characteristics, features, land use or habitats on-site to make them into a better state than are currently present prior to the Proposed Development being constructed. There is, therefore, a net or new benefit to the environment.

1.5.5.11 Assumption and Limitations

There will always be an element of uncertainty as to the exact scale and nature of the effects due to shortcomings in available information or limitations of the professional judgement process. As required in Schedule 4, paragraph 6 of the EIA Regulations, such uncertainty will be highlighted in the EIA Report in each topic chapter where relevant.



1.6 References

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Scottish Government, 2022. Electricity Act 1989 – Sections 36 and 37: Applications Guidance. [online] Available at: <https://www.gov.scot/publications/electricity-act-1989-sections-36-and-37-applications-guidance/> [Accessed 7 Oct. 2025].

Scottish Natural Heritage (SNH), 2018. A Handbook on Environmental Impact Assessment: Guidance for Competent Authorities, Consultees and Others Involved in the Environmental Impact Assessment Process in Scotland. 5th ed. Inverness: SNH. [Now known as NatureScot].



2.0 Proposed Development

2.1 Site Description

2.1.1 Site Location

The site, centred on National Grid Reference (NGR) 279276, 587354, is situated on areas of open hill ground and commercial forestry located approximately 3km to the south of the village of Moniaive and 7km to the north west of the village of Dunscore, in Dumfries and Galloway (**Figure 1.1a**).

Figure 1.1b defines how the different areas of the site are referred to in this scoping report:

- Main site: the area in which the turbines could be located, measures approximately 945 hectares (ha);
- Southern access route to the main site adding approximately 395ha; and
- Northern access route to the main site adding approximately 3ha.

There are a series of hilltops and associated valleys present across the main site with elevations varying from a maximum of approximately 430m above Ordnance Datum (AOD) at Bogrie Hill in the south, to 120m AOD along the valley corridor of Jarbruck Burn to the north. Bogrie Hill and Jarbruck Burn are shown on **Figure 2.1ai**.

The following key routes (shown on **Figure 1.1a**) surround the site as a whole:

- the A702 runs to the north and north west;
- the B729 to the east / north east;
- the C37S and C37N to the south; and
- the A712 to the south west.

2.1.2 Surrounding Area and Designated Sites

The main site is surrounded by the valleys of the Castlefairn Water to the west, Cairn Water to the north and Glenesslin Burn to the south east. These valleys contain the primary local road network and some small rural settlements, but they are generally sparsely populated. The landscape to the south of the Dalmacallan hills is less enclosed around Loch Urr and is characterised by the loch and surrounding larger scale areas of moorland and conifer forestry.

Moniaive is the largest local settlement to the site, located approximately 3km to the north, with a population of approximately 520. The town of Dumfries (approximate population 33,470) is located approximately 20km to the south east of the site.

There are no statutory ecological designations within the site boundary, however the non-statutory 'The Lowes' Local Nature Conservation Site (LNCS) overlaps the southern access route, where it connects to the A712.

As set out on **Figure 6.1**, there are two Special Areas of Conservation (SACs) within 5km of the site as a whole, both of which are concurrent with Sites of Special Scientific Interest (SSSIs). These are Upper Nithsdale Woods SAC and Stenhouse Wood SSSI (approximately 3.4km north of the site), and Tynron Juniper Wood SAC and SSSI (approximately 4km north of the site). Craigturra LNCS lies approximately 3.6km north of the site.

Further afield, there are four designated sites with ornithological qualifying interests located within 20km of the main site, as illustrated on **Figure 7.1**.



A number of designated cultural heritage assets are located within proximity to the site boundary and in the wider area, as shown on **Figures 9.1** and **9.2** set against the Zone of Theoretical Visibility (ZTV) of the turbine blade tips of the Proposed Development. There are no designated cultural heritage assets, although there are a number of non-designated heritage assets, within the site boundary.

The landscape of the site is characterised under NatureScot's nationwide assessment as part of a unit of 'Foothills – Dumfries & Galloway' (158) Landscape Character Type (LCT). Within DGC's 'Wind Energy Landscape Sensitivity Study' the site is defined as part of the Foothills LCT (19) (**Figure 4.4a-b**).

The current cumulative wind farm context in relation to the main site is shown on **Figure 4.2**. The only operational wind farm within 10km of the Proposed Development is Blackcraig Wind Farm (23 turbines, located approximately 5km to the south west of the proposed turbines). The consented Fell Wind Farm, comprising nine turbines, will be located within 5km of the proposed turbines, to the south west. The seven turbines of the proposed Garcrogo Wind Farm would be located adjacent to the southern access route of the Proposed Development, 8km south west of the proposed turbines. It is anticipated that the southern access route would utilise part of the consented Fell Wind Farm access track and proposed forestry access track which also leads to the proposed Garcrogo Wind Farm (as shown on **Figure 1.1b** and discussed in **Section 2.2.6**).

2.2 Proposed Development Description

2.2.1 Scoping Layouts

The Proposed Development is being designed to maximise the production of renewable energy generation, whilst balancing the Applicant's desire to minimise environmental effects. This is in the context of the Scottish Government's declaration of a 'climate emergency' in May 2019 and the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019, which commits Scotland to a target of net zero emissions of all greenhouse gases by 2045.

Initial feasibility and design work has resulted in the identification of two separate indicative layouts to be considered by consultees at the Scoping phase:

- 'Scoping Layout A': comprising of up to 16 wind turbines with a maximum blade tip height of 200m; and
- 'Scoping Layout B': comprising of up to 17 wind turbines with a maximum blade tip height of 180m.

These two indicative layouts (**Figure 2.1ai-ii** and **Figure 2.1bi-ii**) have been prepared to illustrate how this number and scale of turbines could potentially be accommodated onsite.

Consultees are invited to provide comment on whether fewer taller turbines, with a larger installed capacity, or a greater number of smaller turbines, with a smaller installed capacity, is likely to represent the best design solution for the project

Figure 2.2 illustrates the onsite constraints considered in the development of the initial scoping layouts, including:

- Turbine Performance: Wind turbines have been located to maximise wind yield on the site.
- Residential Amenity: Turbines have not been located any closer than 1.1km from any residential property to minimise visual, noise and shadow flicker effects on residential receptors.



- Watercourses: A buffer zone extending to 50m around all identified watercourses has been applied, and turbines have been located to avoid this buffer to minimise potential pollution risks from construction activities.
- Paths: A Core Path runs through the eastern part of the site. No turbines have been located within 200m of this path.
- Ancient Woodland: A block of ancient woodland is located in the eastern part of the site and has been avoided for turbine placement.
- Telecommunications: At the current time, there are no known telecommunication links within the site that need to be avoided. The closest fixed link to the site runs from north west to south east, approximately 500m to the north east of the site boundary at its closest, operated by Airwave Solutions Limited.
- Existing infrastructure: At the current time, there are no known utilities within the site that need to be avoided. Existing forestry access tracks will be used and upgraded where possible.
- Eskdalemuir Seismic Array: To the west of the Scoping Layouts (A and B), but within the eastern part of the site, lies the Eskdalemuir Seismic Array statutory consultation zone which extends 50km from the seismological recording station at Eskdalemuir, an asset that contributes to the Nuclear Test Ban Treaty. Wind turbines can interfere with seismic monitoring and, therefore, this area has been avoided for wind turbine placement.
- Ground Conditions: Topography, slope and initial peat depths identified from the phase 1 peat survey have been considered to ensure that unsuitable ground conditions are avoided.
- Archaeology: Currently there are no known archaeological features to avoid. A walkover survey will be undertaken in due to course to further knowledge of the site's archaeological potential and any assets will be avoided.

In addition to the turbines, the associated infrastructure would include the following components:

- permanent foundations supporting each turbine;
- crane hardstandings adjacent to each turbine;
- an external transformer at each turbine;
- widening / improvement works to existing tracks where required;
- new onsite access tracks providing access to all turbine locations;
- two potential access track route options (one from the south west and one from the north) to link the public road to the site (note: only one route will be used for the delivery of abnormal indivisible loads (AILs) but both routes may be used for other construction vehicles, depending on where materials for construction are sourced);
- upgrade to access junctions for the two access route options where necessary;
- a substation compound including a control building;
- underground cabling linking each turbine with the substation control building;
- temporary borrow pit search areas for the extraction of construction aggregates onsite;
- a permanent anemometer mast; and



- a temporary site construction compound including laydown areas and parking.

Additionally felling would be required to accommodate the Proposed Development as discussed in **Section 3.0**.

Tables 2-1 and 2-2 show the current indicative turbine specifications being considered, as well as the turbine coordinates for the two Scoping Layouts (A and B) shown on **Figure 2.1ai-ii and Figure 2.1bi-ii** (consultees are invited to provide comment on whether Scoping Layout A or Scoping Layout B would be more preferable; one of these layouts will then be taken forward and refined throughout the preparation of the EIA).

The Proposed Development would contribute over 50MW to the Scottish Government's renewable energy targets and would be decided under Section 36 of 'The Electricity Act 1989'. The capacity would be confirmed once the design has been finalised, but at the scale set out in this EIA Scoping Report, Scoping Layout A could contribute up to 115.2MW and Scoping Layout B could contribute up to 76.5MW.

Table 2-1: Scoping Layout A Turbine Coordinates and Indicative Specifications

Turbine ID	Easting	Northing	Hub Height (m)	Rotor Diameter (m)	Tip Height (m)
1	279966	586702	119	162	200
2	279087	586192	119	162	200
3	279363	586604	119	162	200
4	279401	587095	119	162	200
5	278985	587355	119	162	200
6	278580	586103	119	162	200
7	278078	586194	119	162	200
8	277530	586196	119	162	200
9	277060	586330	119	162	200
10	278470	586573	119	162	200
11	277983	586710	119	162	200
12	277432	586702	119	162	200
13	278503	587074	119	162	200
14	277749	587153	119	162	200
15	278172	587451	119	162	200
16	278907	586786	119	162	200

Table 2-2: Scoping Layout B Turbine Coordinates and Indicative Specifications

Turbine ID	Easting	Northing	Hub Height (m)	Rotor Diameter (m)	Tip Height (m)
1	279122	586240	112	136	180
2	278977	586593	112	136	180
3	279373	586634	112	136	180
4	279752	586647	112	136	180
5	279555	586995	112	136	180



Turbine ID	Easting	Northing	Hub Height (m)	Rotor Diameter (m)	Tip Height (m)
6	279002	587000	112	136	180
7	278608	586432	112	136	180
8	278191	586588	112	136	180
9	278140	586987	112	136	180
10	277501	586217	112	136	180
11	277775	586803	112	136	180
12	278286	586202	112	136	180
13	278624	586846	112	136	180
14	277902	586307	112	136	180
15	278769	586069	112	136	180
16	277429	586603	112	136	180
17	277115	586337	112	136	180

2.2.2 Wind Turbines

It is currently proposed that the Proposed Development would utilise Vestas V162 turbines (Scoping Layout A) or Vestas V136 turbines (Scoping Layout B), and these turbines will be used for assessment purposes in the technical and environmental disciplines. It is currently anticipated that tip height will measure up to 200m (Layout A) or 180m (Layout B). However, it should be noted that turbine selection for the Proposed Development has not been finalised. Further wind data analysis is required to help define the appropriate turbine for the wind conditions on site.

Regardless of model, the specification of the turbine would be a typical horizontal axis design, comprising of three rotor blades, a hub and a nacelle. The tower would be tubular and tapered in design and finished in a light grey semi-matt colour. The blades will be made from fibre-reinforced epoxy and the tower will be constructed from steel.

2.2.3 Substation

The Proposed Development would include a new onsite substation and control building. The substation and control building are anticipated to be a single storey building with a pitched roof. The building would also house switchgear, metering, protection and control equipment. The location of the substation has not yet been defined, pending further study.

2.2.4 Electrical Layout

Underground cables would link the transformers to the onsite substation. Detailed construction and trenching specifications would depend on ground conditions at the site, but it is anticipated that cables will run underground alongside access tracks.

2.2.5 Anemometry Mast

At least one permanent anemometry mast would be required to provide key wind climatology statistics including mean wind speed, wind direction, exceedance values, air density, wind shear and turbulence intensity. These masts typically reflect turbine hub height.



2.2.6 Access

The proposed access to the site has not yet been finalised, however two potential options are currently being considered as shown by the outline of the site boundary on **Figure 1.1a** and denoted further on **Figure 1.1b**. It is most likely that abnormal indivisible loads (AIL) would be transported to the site from the south, but other vehicle movements could be possible from the north if deemed to be suitable.

The southern access route would utilise the proposed access track associated with the Garcrogo Forest Access Track (subject of a planning application 22/2187/FUL) from the A712 up to the C36S. From the C36S the access route would then be taken along the consented Fell Wind Farm access track, after which a stretch of new track would link to the proposed turbines within the main part of the site. The southern access route part of the site boundary (**Figure 1.1b**) encompasses this consented and proposed access track, but no modifications are proposed to it as part of the Proposed Development. Therefore, for the purposes of the EIA, the Fell Wind Farm access track and Garcrogo forestry access track (including the junction with the A712) will not be included within the study area as they have already been subject to survey and assessment. Any new infrastructure including the new access track from the Fell Wind Farm to the Proposed Development infrastructure will be included in the study area and will be assessed.

The northern access route would access the site from the C116n local road, utilising existing forestry tracks wherever possible. If used, these tracks and access junctions would likely need upgrading to a suitable standard for transportation of materials to and from site and are therefore included in the study area.

2.2.7 Site Tracks

Each turbine would require access via a site track for construction and operational purposes. The construction of tracks will depend upon local ground conditions: where the ground is firm, or where gradients are steep, the track would be of cut and fill type construction; where the ground is soft, i.e., in areas of deep peat, the track would have a floating construction. The site tracks would have a running width of 5m wide, with an additional 0.5m on either side to accommodate drainage and other services. Site tracks would widen at corners and passing places. Stone would be required for various purposes, primarily track construction, and this may be sourced from onsite borrow pit(s).

2.2.8 Borrow Pits

It is anticipated that temporary borrow pit search areas will be sought and if suitable resource can be found they will be included as part of the Proposed Development.

If suitable borrow pits can be found, a review of the suitability of materials on the site will be undertaken and borrow pit search areas will be identified as part of the Borrow Pit Assessment. If appropriate areas are identified, a description of likely materials, estimated borrow pit size and the ability to supply appropriate materials for the construction of the Proposed Development will be included. Final detailed design of the borrow pits would be provided through planning conditions after geotechnical investigation prior to construction. There are several existing borrow pits onsite which have been used for the purpose of constructing existing forest tracks onsite and these are likely to be the focus of initial investigation.

Material for the construction of onsite access tracks would, where possible, be won onsite either derived from existing borrow pits, as tracks are constructed or from new borrow pits. This approach would minimise transportation movements of stone to site. The location and design of borrow pits will be defined as part of the EIA process and site design. If Borrow



Pits cannot be established on site stone for access track and hardstand areas will be sourced from outwith the site.

2.2.9 Grid Connection

A high-level assessment of the proposed grid connection will be provided in the EIA Report, although the grid connection will be subject to a separate application for consent under Section 37 of the Electricity Act 1989. Grid connection options are currently under investigation including overhead lines and underground cables.

2.2.10 Micrositing

Micrositing refers to the accurate locating of wind farm infrastructure, after the detailed ground investigations that would be carried out prior to construction. It allows the location of infrastructure to be revised within a specified distance to mitigate potential geoenvironmental and geotechnical constraints which may only be identified at this stage. For example, it would allow reduction of peat extraction; avoidance of sensitive habitats and currently undetected archaeological remains; and potential avoidance of need for foundation piling. It is proposed that a micrositing allowance of 50m is permitted for all infrastructure. The environmental effects associated with locating the infrastructure with these micrositing distances will be considered within the technical assessments.

2.3 Construction Works

The duration for the construction works is expected to be approximately 18 to 24 months and may involve some site investigation and forestry works, pre-construction (see **Section 3.0**). Typical construction activities and work methods will be set out in the EIA Report in accordance with the 'Good Practice during Wind Farm Construction' guidance (NatureScot, 2024). Information will also be provided on an indicative construction programme, construction traffic generation and construction phasing. The EIA Report will also 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. A detailed programme of works would be produced by the construction contractors prior to the commencement of works onsite.

2.4 Wind Farm Lifecycle and Decommissioning

Once constructed it is anticipated that the Proposed Development would have an operational life of up to 30 years.

At the end of the operational life, the Proposed Development would be decommissioned, or an application may be submitted to extend the life or repower the Proposed Development. The decommissioning period would take up to one year. Decommissioning effects would likely be similar to or less than those arising during construction and of a shorter duration.

The final decommissioning approach would be agreed with DGC and other appropriate regulatory authorities in line with best practice guidance and requirements of the time. This would be done through the preparation and agreement of a Decommissioning and Restoration Plan (DRP). Should the Proposed Development gain consent, it is common for the financial provision for decommissioning to be in place before construction commences.

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



scientific knowledge and best practice current at the time of decommissioning and restoration.

The Scottish “*Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms, September 2025*” (Scottish Renewables, 2025) states regarding decommissioning effects:

“...it is assumed that these can be scoped out, or given brief treatment in the EIA Report if required, on the basis that effects are likely to be similar to or less than construction effects depending on the topic, and the baseline conditions at the time of decommissioning cannot be accurately known at the time of assessment”.

A high-level assessment of the decommissioning of the Proposed Development will be undertaken as part of the EIA, as at this stage the future baseline conditions cannot be predicted accurately and both the proposals for repowering / decommissioning and the future regulatory context are unknown. As decommissioning is in essence a reversal of the construction process, for a shorter period, the effects of decommissioning can in general be anticipated to be no greater than those arising from construction.

2.5 References

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (2019) An Act of the Scottish Parliament to set targets for the reduction of greenhouse gas emissions. Edinburgh: The Scottish Parliament.

Dumfries and Galloway Council (2025). Appendix C: Wind Energy Landscape Sensitivity Study. [Online]. Available at: https://www.dumfriesandgalloway.gov.uk/sites/default/files/2025-03/Dumfries%20%26%20Galloway%20Wind%20Energy%20Landscape%20Sensitivity%20Study_0.pdf [accessed 7 October 2025]

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3.0 Forestry

3.1 Introduction

This section outlines the approach to forestry for the Proposed Development.

The main site boundary contains approximately 900ha of plantation forestry. As part of the Proposed Development, some felling will be required to accommodate turbines and associated infrastructure.

In line with key national policy, relevant legislation, policy and guidance the objective will be to avoid or otherwise minimise potential impacts on the forest environment arising from the Proposed Development.

It is proposed that a forestry Technical Appendix is provided in the EIA Report rather than an EIA Chapter, with indirect effects of forestry removal on landscape, visual, ecology and ornithology considered in the respective technical EIA Chapters.

3.2 Forestry Baseline

The Proposed Development is located within the boundaries of Forestry and Land Scotland's Dalmacallan forestry plantation, and Girharrow Forest which was planted under Forestry Grant Scheme (FGS) contract 16FGS12297 during 2017/2018 by Tilhill on behalf of Gresham House (**Figure 3.1**).

Baseline surveys of woodland features affected by the finalised design will be carried out to identify the structure and value of the impacted features.

3.2.1 Dalmacallan Forest

Dalmacallan Forest is under the ownership of the Scottish Ministers, managed on their behalf by Forestry and Land Scotland. The Dalmacallan Land Management Plan (2021-2031), approved on 27 July 2021, sets out harvesting and replanting proposals, as detailed on **Figure 3.2**, with a focus on commercial timber production and compliance with legislation and best practices.

The Land Management Plan indicates that the dominant age class within Dalmacallan Forest is 21 to 40 years, with the western coupes having been established between 1979 and 1981. Continuous cover forestry has been considered unsuitable for the western coupes, with clear fell and restock approved as the appropriate management approach.

Parts of the site within the Dalmacallan Forest, which is predominately planted with Sitka spruce, are programmed for harvesting under the current Land Management Plan. Within this area, eight turbines are proposed in Scoping Layout A, or 10 turbines proposed in Scoping Layout B (**Figure 3.2**).

The western side of the site is within mature coupes programmed for harvesting during the Land Management Plan period with approved restocking complying with UK Forestry Standard (UKFS) requirements. The eastern turbines are located within coupes restocked under previous management plans and restructuring would require compliance with current forestry practices.

Coupe 48018 was scheduled for harvesting during Phase 1 (2021-2025) of the Land Management Plan and for restocking during 2026, however, to date this has not been completed, so is assumed to be scheduled for felling in line with Phase 2. Harvesting of adjacent Coupe 48021 is scheduled for Phase 2 (2026-2030), with restocking programmed for 2032. Turbines 13 (Coupe 48021) and 15 (Coupe 48018) from Scoping Layout A, and Turbines 2, 9 (Coupe 48021) and 10 (Coupe 48018) of Scoping Layout B would be located



within these two management coupes, which will require felling to windfarm boundaries to accommodate infrastructure.

Scoping Layout A Turbines 1 (Coupe 48001); 2 and 3 (Coupe 48016); 4 and 5 (Coupe 48011) and 16 (Coupe 48015) and Scoping Layout B Turbines 1 and 3 (Coupe 48016); Turbines 4 and 5 (Coupe 48001); Turbine 6 (Coupe 48003) and Turbines 7 and 8 (Coupe 48001) are located within coupes which have been restructured between 1999 and 2013 under previous Land Management Plans. These coupes will require suitable harvesting and restocking prescriptions to ensure compliance with UKFS.

3.2.2 Girharrow Forest

Girharrow Forest (**Figure 3.1**) has been planted under an FGS contract (16FGS12297) and is therefore subject to an existing legal agreement, which requires compliance with contractual terms and conditions.

Within the Girharrow Forest, eight turbines are proposed in Scoping Layout A, or 12 turbines proposed in Scoping Layout B. Scoping Layout A turbines, with the exception of Turbines 6, 10 and 11, which are within unplantable compartments, are positioned in areas planted in 2017-2018 with Sitka spruce as a commercial crop. Whereas all of the Scoping Layout B turbines would be positioned within commercially planted areas.

3.3 Relevant Guidance and Legislation

All forestry proposals are subject to the UK Forestry Standard, the national technical standard for sustainable forest management, whilst considering, and where appropriate incorporating, the following associated legislation, policy and guidance documents (in addition to NPF4 and the local development plan):

- UK Forestry Standard, 5th Edition (UKFS), (UK Government, 2023)
- Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017
- Control of Woodland Removal Policy (CoWRP), 2009
- Guidance to FCS staff on implementing the Scottish Government's Policy on Control of Woodland Removal, (CWRP implementation guidance) 2019
- Forestry and Land Management (Scotland) Act 2018
- Climate Change Action Plan (Scotland) 2018
- Scotland's Forestry Strategy (SFS), 2019-2029
- Scotland's Third Land Use Strategy (SLUS), 2021-2026
- Scottish Biodiversity Strategy to 2045 – Tackling the Nature Emergency
- Management of Forestry Waste, 2017
- Use of Trees Cleared to Facilitate Development on Afforested Land – Joint Position Statement and Guidance, 2014
- Dumfries & Galloway Forest and Woodland Strategy (2014) (currently under review)
- Dumfries & Galloway Council, Local Development Plan 2, Trees & Development, Supplementary Guidance – February 2020

In line with established best practice, the Proposed Development will seek to minimise the area of forestry affected, constraining the application to those areas of forestry directly



required, and retaining the wider forestry resource under the authority of the Forestry and Land (Scotland) Act 2018.

In the UK there is a strong presumption against permanent deforestation unless it addresses other environmental concerns. In Scotland, such deforestation is dealt with under the Scottish Government's Policy on Control of Woodland Removal (Forestry Commission Scotland, 2009). The purpose of the policy is to provide direction for decisions on woodland removal in Scotland. It will be essential that the Proposed Development addresses and satisfies the requirements of the Policy. The requirements of the Policy will be addressed within a forestry Technical Appendix whilst ensuring that the forestry proposals do not compromise the wind flow and yield of the Proposed Development.

3.4 Forest Design Plan

The integration of the Proposed Development into the forest design plan, developed in consultation with Scottish Forestry and Forestry and Land Scotland, will be a key part of the development process.

3.4.1 Dalmacallan Forest

For Dalmacallan Forest, a detailed approach to forestry and wind farm planning will be required, through an iterative design process in consultation with Scottish Forestry. This will require the production of specific forestry proposals detailing areas to be harvested, timber production and replanting plans associated with the Proposed Development.

3.4.2 Girharrow Forest

For Girharrow Forest, impacts will be minimised on new woodland areas under FGS contract. This will require consideration of planted areas that have received funding and may be impacted by the Proposed Development. The Girharrow Forest FGS contract might require adjustment, and a variation submitted to Scottish Forestry for consideration and agreement. Felling and Compensatory Planting

To accommodate the Proposed Development, woodland removal would be required due to essential infrastructure footprints and associated tree free buffer zones located on the afforested areas under each ownership.

Areas of woodland requiring removal due to the Proposed Development will be identified, quantified and detailed. If required, compensatory planting measures, will be developed in consultation with the relevant consultees to ensure that any proposed changes to the woodlands are appropriate and address the requirements of the Control of Woodland Removal Policy.

3.5 Questions to Consultees

- Q3.1: Are there any additional planning or forestry policies that consultees believe should be taken into consideration in respect of the Proposed Development?
- Q3.2: If required, will compensatory planting proposals meet and satisfy FGS requirements for the Girharrow woodland creation project if parts of Girharrow Forest is required to be felled for the Proposed Development?



4.0 Planning and Energy Policy Context

This section presents a summary of the relevant policy and guidance documents that will be taken into consideration to inform the rationale for and design of the Proposed Development.

Each of the technical EIA Chapters will set out the key technical guidance, legislation and policy that informs the methodology and conclusions on significance in the topic specific assessments.

While the EIA Report will have regard to relevant policies, a separate Planning Statement will provide a detailed appraisal of the Proposed Development against the national planning and energy policy, including climate change policy and the contribution of the Proposed Development to the UK and Scottish Government's climate change goals and policy targets, and relevant Development Plan policies, and other material considerations.

4.1 The Statutory Framework

The Proposed Development will have an installed capacity of over 50 Megawatts (MW) and as such, the application would be made pursuant to Section 36 of the Electricity Act 1989 (as amended), together with a request for a direction pursuant to Section 57(2) of the Town and Country Planning (Scotland) Act 1997 that planning permission be deemed to be granted. In such cases the Planning Authority is a statutory consultee in the development management process and procedures.

The statutory development plan comprises of the National Planning Framework 4 (NPF4) and the local development plan. Pursuant to Section 24 of the Town and Country Planning (Scotland) Act 1997, where there is any incompatibility between a provision of NPF4 and a provision of the local development plan, whichever is later in date is to prevail. Notwithstanding that, for an application under Section 36 of the Electricity Act, the Development Plan does not have primacy in the decision-making process. The Development Plan is however a relevant and important consideration that may be taken into account by Scottish Ministers in the determination of the application.

The provisions of Schedule 9 of the Electricity Act, the EIA Regulations and the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 are all relevant to the assessment of the Proposed Development and will be considered as part of the EIA process.

The Scottish Ministers will determine the application having regard to the statutory duties in Schedule 9 of the Electricity Act, so far as relevant, and any other relevant material considerations, one of which will be relevant aspects of the statutory Development Plan. Relevant aspects of the statutory Development Plan will be included in the EIA Report.

4.2 Project Need and The Renewable Energy Policy Framework

The framework of international agreements, legally binding targets and climate change global advisory reports is the foundation upon which national (UK and Scottish) renewable energy policy is based.

The Planning Statement will highlight these policy documents and set out the hierarchy of EU, UK and Scottish Government energy policy.

Onshore wind remains vital to Scotland's future energy mix, and current energy policy supports development to meet Scotland's legally binding net zero target. The Scottish Government remain committed to onshore wind as the lowest-cost new-build electricity generation in the UK.

On 28 February 2018 the Scottish Government outlined a target of reducing greenhouse gas emissions by 66% by 2032 with the publication of the Climate Change Plan, third report: proposals and policies 2018-2032. This plan set out the path to a low carbon economy while



helping to deliver sustainable economic growth and secure the wider benefits to a greener, fairer and healthier Scotland in 2032. The Plan sits alongside the Scottish Energy Strategy 2017 which put forward the Scottish Government's vision for the future energy system in Scotland, for the period to 2050, setting out domestic and international climate change targets with a 2030 'all-energy' target for the equivalent of 50% of Scotland's heat, transport and electricity consumption to be supplied from renewable sources. It was published alongside the Onshore Wind Policy Statement (December 2017).

In 2019, this was all updated by The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, which amends the Climate Change (Scotland) Act 2009 and sets targets to reduce Scotland's emissions of all greenhouse gases to net-zero by 2045 at the latest, with interim targets for reductions of at least 75% by 2030, 90% by 2040. In April 2024, following the Climate Change Committee's (CCC's) 2023 report to parliament (CCC, 2024) in which it was reported that *"the acceleration required in emissions reduction to meet the 2030 target is now beyond what is credible"* it was announced that the interim targets were to be scrapped, in favour of a system measuring emissions every five years. However, the long-term target of achieving net-zero emissions by 2045 still remains.

The Scottish Government declared a climate emergency on 14 May 2019. The declaration of an 'emergency' reflects both the seriousness of climate change and its potential effects and the need for urgent action to cut carbon dioxide emissions.

A large increase in the deployment of this renewable energy technology is supported through a number of UK level policy documents including the latest UK Energy White Paper (2020) and Net Zero Strategy (2021). Scottish Government policy commitments are also clear – most recently expressed in the Onshore Wind Policy Statement (OWPS) (December 2022) and in the adopted National Planning Framework 4 (NPF4) which will be material to the energy and national planning policy positions to be considered for the determination of the application, however it should be noted that Annex A of NPF4 highlights that the principle of development does not need to be agreed in consenting processes for national developments.

The key points which can be drawn from the OWPS include:

- The central requirement for a rapid transition to net zero and the crucial role of further onshore wind development in achieving legally binding targets, especially through the 2020s.
- Unequivocal Scottish Government policy support for the future role of onshore wind.
- The urgency of the Climate Emergency and the scale of the necessary ambition – there is express recognition in the OWPS of the need for *"decisive and meaningful action"*, *"further and faster"* delivery and that continued deployment of onshore wind will be key to ensuring our 2030 targets are met. The OWPS sets out a new ambition for the deployment of onshore wind in Scotland of *"A minimum installed capacity of 20 GW....by 2030."*
- *"This ambition will help support the rapid decarbonisation of our energy system, and the sectors which depend upon it, as well as aligning with a just transition to net zero whilst other technologies reach maturity."*
- The OWPS is clear that rapid transformation is required across all sectors of our economy and society in order to meet climate targets. *"Meeting the ambition of a minimum installed capacity of 20 GW of onshore wind in Scotland by 2030 will require taller and more efficient turbines. This will change the landscape."* It should be noted however that this is not a cap and wind farm developments brought



forward after 2030 will still be needed to support decarbonisation of transport and heat.

4.3 National Planning Policy and Guidance

4.3.1 National Planning Guidance

National planning guidance and advice are material considerations, which are relevant to the Proposed Development and will be considered in the EIA Report. These include, but are not limited to, the following documents:

- Planning Advice Note (PAN) 1/2011 Planning and Noise (Scottish Government, March 2011)
- PAN 2/2011 Planning and Archaeology (Scottish Government, July 2011)
- PAN 1/2013 Environmental Impact Assessment (Scottish Government, August 2013)
- PAN 51 Planning, Environmental Protection and Regulation (Scottish Government, October 2006)
- PAN 60 Planning for Natural Heritage (Scottish Government, January 2008)
- PAN 69 Planning and Building Standards Advice on Flooding (Scottish Government, August 2004)
- PAN 75 Planning for Transport (Scottish Government, August 2005)
- PAN 79 Water and Drainage (Scottish Government, September 2006)

4.3.2 National Planning Framework 4 (NPF4)

NPF4 was adopted by the Scottish Government on 13 February 2023 and now forms part of the statutory Development Plan. NPF4 replaces Scottish Planning Policy and National Planning Framework 3 (NPF3) in their entirety. Section 13 of the Planning (Scotland) Act 2019 amends Section 24 of the 1997 Act regarding the meaning of ‘development plan’. Such that for the purposes of the 1997 Act, the development plan for an area is taken as consisting of the provisions of:

- The National Planning Framework; and
- Any Local Development Plan (LDP).

NPF4 introduces centralised development management policies which are to be applied Scotland wide and also provides guidance to Planning Authorities with regard to the content and preparation of LDPs.

The global climate emergency and the nature crises are the key focus for NPF4. All of the national planning policies within the plan are underpinned by **Policy 1: Tackling the Climate and Nature Crisis**, an overarching policy which states that “*when considering all development proposals significant weight will be given to the global climate and nature crises*”. This represents a fundamental shift in planning policy response to climate change compared to previous planning policy. It provides clarity to decision makers on the amount of weight that should be applied to these crucial topics when determining planning applications and this policy also recognises the inter-related nature of these twin issues.

In order to tackle climate change and achieve net zero emissions by 2045, there is now a clear expectation in NPF4 on the role that planning must play in delivering the expansion of renewable energy.



NPF4 continues the approach set out in NPF3 of identifying national developments.

Proposed National Development 3 (ND3) is entitled 'Strategic Renewable Electricity Generation and Transmission Infrastructure'. The Proposed Development would therefore have national development status as per these provisions of NPF4.

Policy 2: Climate mitigation and adaption also seeks to facilitate developments such as renewable energy developments that minimise greenhouse gas emissions.

Policy 11: Energy part (a) makes clear that all types of renewable energy are supported in principle, with part (b) identifying the only exception to this policy support is wind farm developments in National Parks and National Scenic Areas. Part (c) identifies that renewable energy proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits. Part (e) sets out the impacts to be addressed through project design and mitigation assessment, with specific consideration to be given to the following criteria:

- impacts on communities and individual dwellings;
- significant landscape and visual impacts;
- public access,
- aviation and defence interests;
- impacts on telecommunications and broadcasting installations;
- impacts on road traffic and trunk roads;
- impacts on the historic environment;
- effects on hydrology, the water environment and flood risk;
- biodiversity;
- impacts on trees, woods and forests;
- proposals for decommissioning;
- site restoration; and
- cumulative impacts.

In terms of landscape and visual impacts, Policy 11 recognises that significant landscape and visual impacts are to be expected for onshore wind energy developments and states that *"where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable."*

In accordance with Policy 1, Policy 11 part (e) provides that when considering impacts upon the above considerations that "significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets." The most relevant other policies within NPF4 include:

- Policy 3: Biodiversity
- Policy 4: Natural places
- Policy 5: Soils
- Policy 6: Forestry, woodland and trees
- Policy 7: Historic assets and places
- Policy 25: Community wealth building
- Policy 33: Minerals



4.4 Local Development Plan

In addition to NPF4, the Development Plan for the site also includes DGC's Local Development Plan 2 (LDP2) (adopted October 2019) and its associated statutory Supplementary Guidance, including the 2020 'Wind Energy Development: Development Management Considerations'. The Supplementary Guidance includes the 2025 'Appendix C: Wind Energy Landscape Sensitivity Study Assessment of Larger Wind Turbines'.

4.4.1 Dumfries and Galloway Local Development Plan 2 (DGCLDP2)

DGCLDP2 was adopted in October 2019. The LDP2 policies most relevant to the Proposed Development are Policy IN1 'Renewable Energy' and Policy IN2 'Wind Energy'. It should be noted that Section 24 of the Town and Country Planning (Scotland) Act 1997 provides that in the event of any incompatibility between a provision of NPF4 and a provision of a Local Development Plan, the document later in date is to take precedence (NPF4). Where there are policy conflicts with NPF4, NPF4 takes precedence.

Policy IN1 sets out DGC's support in principle for renewable energy developments; with the first part of Policy IN1 stating: "*The Council will support development proposals for all renewable energy generation and/or storage which are located, sited and designed appropriately.*" Regarding wind energy, the policy refers to the spatial framework developed by DGC, which identifies "areas that are likely to be most appropriate for onshore wind farms".

Policy IN2 sets out DGC's support in principle for wind energy proposals; stating that "*The Council will support wind energy proposals that are located, sited and designed appropriately.*" Policy IN2 also refers to the spatial framework, along with the associated Supplementary Guidance; stating that "*The Spatial Framework Map** (Map 8) provides strategic guidance. However, it must be read in conjunction with the supplementary guidance and its Appendix, the Dumfries and Galloway Wind Farm Landscape Capacity Study.*" Whilst NPF4 supersedes Scottish Planning Policy paragraph 169 that required proposals for energy infrastructure developments to take account of spatial frameworks for wind farms it is noted that the location of the Proposed Development would have been within a Group 3 area, which had the potential for wind farm development.

The following policies of LDP2 are also considered relevant to the Proposed Development:

- HE1: Listed Buildings
- HE2: Conservation Areas
- HE3: Archaeology
- HE4: Archaeologically Sensitive Areas
- HE6: Gardens and Designed Landscapes
- HE7: Historic Battlefields
- NE1: National Scenic Areas
- NE7: Forestry and Woodland
- NE8: Trees and Development
- NE11: Supporting the Water Environment
- NE14: Carbon Rich Soil
- NE15: Protection and Restoration of Peat Deposits as Carbon Sinks
- CF4: Access Routes



- IN7: Flooding and Development
- IN8: Surface Water Drainage and Sustainable Drainage Systems (SuDS)
- IN11: Telecommunications
- T1: Transport Infrastructure
- T2: Location of Development / Accessibility

4.4.2 Supplementary Guidance: Wind Energy Development: Development Management Considerations

The Supplementary Guidance: Wind Energy Development: Development Management Considerations to the DGCLDP2, provides further detail to how wind energy developments will be assessed against Policy IN2: Wind Energy. It includes the updated: 'Dumfries & Galloway Wind Energy Landscape Sensitivity Study (DGWLSS)' which *"assesses landscape sensitivity, the capacity of individual landscape units to accommodate change and provides advice on how the scale, siting and design of development should be informed by local landscape character"*.

The main site where the proposed turbines would be located is within 'Assessment Unit 19 – Foothills', which is assessed as being of high sensitivity to wind turbines 150m to 250m high.

4.5 Questions to Consultees

- Q4.1: Are there any other legislation, guidance or policy documents that consultees believe should be taken into consideration in respect of the Proposed Development?
- Q4.2: Are there any additional planning and energy documents and policies that consultees believe should be taken into consideration in respect of the Proposed Development?
- Q4.3: Are consultees in agreement that national policy considerations and development plan policy be identified and assessed in the Planning Statement and that there is consequently no need to include a dedicated chapter on Planning Policy Context in the EIA Report?

4.6 References

- CCC (Climate Change Committee) (2024). 2023 Report to Parliament.
- Dumfries & Galloway Council (2019). Local Development Plan 2 (LDP2).
- Dumfries & Galloway Council (2020). Wind Energy Development: Development Management Considerations – Supplementary Guidance.
- Dumfries & Galloway Council (2025). Appendix C: Wind Energy Landscape Sensitivity Study Assessment of Larger Wind Turbines.
- Electricity Act 1989 (as amended). An Act to consolidate the law relating to the generation, transmission, and supply of electricity in Great Britain. London: HMSO.
- HM Government (2020). UK Energy White Paper: Powering Our Net Zero Future. London: Department for Business, Energy & Industrial Strategy.
- HM Government (2021). Net Zero Strategy: Build Back Greener. London: Department for Business, Energy & Industrial Strategy.



Planning (Scotland) Act 2019 (2019). An Act of the Scottish Parliament to make provision about the development and use of land.

Scottish Government (2004). Planning Advice Note (PAN) 69: Planning and Building Standards Advice on Flooding.

Scottish Government (2005). Planning Advice Note (PAN) 75: Planning for Transport.

Scottish Government (2006). Planning Advice Note (PAN) 51: Planning, Environmental Protection and Regulation.

Scottish Government (2006). Planning Advice Note (PAN) 79: Water and Drainage.

Scottish Government (2008). Planning Advice Note (PAN) 60: Planning for Natural Heritage.

Scottish Government (2011a). Planning Advice Note (PAN) 1/2011: Planning and Noise.

Scottish Government (2011b). Planning Advice Note (PAN) 2/2011: Planning and Archaeology.

Scottish Government (2013). Planning Advice Note (PAN) 1/2013: Environmental Impact Assessment.

Scottish Government (2017). Scottish Energy Strategy: The Future of Energy in Scotland. Edinburgh: Scottish Government.

Scottish Government (2017). Onshore Wind Policy Statement. Edinburgh: Scottish Government.

Scottish Government (2018). Climate Change Plan: Third Report on Proposals and Policies 2018–2032.

Scottish Government (2019). The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019.

Scottish Government (2022). Onshore Wind Policy Statement 2022. Edinburgh: Scottish Government.

Scottish Government (2023). National Planning Framework 4 (NPF4). Edinburgh: Scottish Government.

Town and Country Planning (Scotland) Act 1997 (as amended). An Act to consolidate certain enactments relating to town and country planning in Scotland. London: HMSO.



5.0 Landscape and Visual

5.1 Introduction

This section of the Scoping Report sets out the proposed methodology and approach to be applied in the production of the Landscape and Visual Impact Assessment (LVIA) for the Proposed Development. It also presents the suggested scope of the LVIA in terms of those landscape and visual receptors to be scoped in and scoped out of the assessment process. Justification of the suggested scope is presented through a preliminary assessment of the relevant receptors in respect of their potential to be significantly affected by the Proposed Development.

The purpose of the LVIA is to identify and record the potential significant effects that the Proposed Development may have on the landscape and visual resource, taking into account effects on the landscape elements of the site; the landscape character of the site and surrounding area; areas that have been designated for their scenic or landscape-related qualities; Wild Land Areas and views from various locations such as settlements, routes, hilltops and other sensitive locations. The potential cumulative effects that may arise from the addition of the Proposed Development to other wind farms will also be considered.

In this section of the Scoping Report, where distances are referenced in relation to the Proposed Development, these refer to the distance from the nearest proposed turbine, based upon current positions in Scoping Layout A (shown on **Figure 2.1ai-ii**). Scoping Layout A comprises fewer taller turbines (16 x 200m to blade tip height) across a larger portion of the site in comparison to Scoping Layout B (17 x 180m to blade tip height). It is therefore considered that Scoping Layout A forms a worst-case scenario in relation to the Proposed Development's Zone of Theoretical Visibility (ZTV). Nevertheless, both Scoping Layouts are included on the figures accompanying this section of the Scoping Report for completeness.

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

- **Figure 5.1:** LVIA Study Area with topography
- **Figure 5.2:** Cumulative Wind Farms
- **Figure 5.3:** Blade Tip ZTV with LVIA Viewpoints
- **Figure 5.4a-b:** Blade Tip ZTV with Landscape Character
- **Figure 5.5:** Blade Tip ZTV with Landscape Planning Designations and Wild Land
- **Figure 5.6:** Blade Tip ZTV with Visual Receptors

5.1.1 Legislation, Policy and Guidance

In addition to the EIA Regulations, NPF4 and the local development plan, the following policy and guidance documents will be considered in carrying out the assessment:

- Landscape Institute and IEMA (2013). Guidelines for Landscape and Visual Impact Assessment. Third Edition ('GLVIA3')
- Landscape Institute (2024). Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA3)
- NatureScot (2017). Visual Representation of Wind Farms. Version 2.2
- NatureScot (2021). Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments



- NatureScot (2017). Siting and Designing of Windfarms in the Landscape: Version 3a
- NatureScot (2018). Guidance for Assessing the Effects on Special Landscape Qualities (Working Draft 11)
- Landscape Institute (2019). Technical Guidance Note 2/19 Residential Visual Amenity Assessment
- NatureScot (2024). Guidance on Aviation Lighting Impact Assessment
- Landscape Institute (2011). Advice Note 01/11 Photography and Photomontage in Landscape and Visual Impact Assessment
- Landscape Institute (2019). Visual representation of development proposals. Technical Guidance Note 06/19

5.2 Environmental Baseline and Potential Sources of Impact

5.2.1 Proposed Study Area

In accordance with best practice guidance¹, the study area for the LVIA of the Proposed Development is planned to cover a radius of 45km from the nearest turbine, as shown on **Figure 5.1**. This is generally considered to be the maximum radius within which a significant landscape and / or visual effect could arise given the height of the turbines that are being considered. Furthermore, it is considered that any significant landscape and visual effects arising from other components of the Proposed Development would be more contained and, as such, the 45km radius would ensure that these are also captured in the LVIA.

Following a review of the ZTV (**Figure 5.3**) for the Proposed Development, it is considered that a detailed study area with a smaller radius of 20km will be appropriate to identify any potential significant landscape effects. Further justification for this smaller radius is provided later in this section of the Scoping Report.

5.2.2 Site Context

The site is located approximately 3km to the south of the village of Moniaive and 7km to the north west of the village of Dunscore, in Dumfries and Galloway. The site comprises areas of open hill ground and commercial forestry (Dalmacallan Forest), which are surrounded by the valleys of the Castlefairn Water to the west, Cairn Water to the north and Glenesslin Burn to the south east. These valleys contain the primary local road network and some small rural settlements, but they are generally sparsely populated. The landscape to the south of the Dalmacallan hills is less enclosed around Loch Urr and is characterised by the loch and surrounding larger scale areas of moorland and conifer forestry.

The wider setting of the site within 20km of the Proposed Development is primarily influenced by the Galloway Hills, which encompass the site and extend to the south, west and north of the Proposed Development, and to a lesser extent the lowlands of the Dumfries Plain which lie immediately to the east and south east of the Proposed Development. While the broader Galloway Hills surrounding the site (and to a lesser extent the Lowther Hills to the north east) are often apparent at varying distances due to their higher elevations, the influence of the Dumfries Plain close by is limited by the intervening hills that lie between Dalmacallan Forest and Nithsdale.

¹ NatureScot. (2017) Visual Representation of Wind Farms. Version 2.2



Nithsdale and The Glenkens to the east and west of the site respectively host two of the key route corridors in the wider area; the A713 and A76 connecting East Ayrshire to southern parts of Dumfries and Galloway, including the settlements of Castle Douglas and Dumfries. While the A75 to the south of the site connects Dumfries to Castle Douglas.

Beyond 20km from the Proposed Development, the landscape is generally characterised by the forested hills of the Galloway Forest Park to the west, the forested Carsphairn Hills to the north west, the more open uplands of the Lowther Hills to the north east, and the coastline of the Solway Firth and Wigtown Bay to the south. The landscape to the south, closer to the coastline, possessing a more developed and lowland character in comparison to the hills to the west, north and north east of the Proposed Development, notwithstanding the extensive wind farm development that is present across the Carsphairn Forest and its surroundings.

5.2.3 Landscape Character

The landscape of the site is defined differently by NatureScot's National Landscape Character Assessment (2019) ('NatureScot's LCA') and DGC's appraisal contained in their Wind Energy Landscape Sensitivity Study (2024) ('the DGWLSS'). The site is defined by NatureScot's LCA as part of a unit of 'Foothills – Dumfries & Galloway' (158) Landscape Character Type (LCT).

The key characteristics of the Foothills – Dumfries & Galloway LCT according to the NatureScot LCA include its:

- *“Generally undulating land between 170 and 250 metres, with rounded peaks. Higher in the west, up to nearly 550 metres with craggier peaks.*
- *Foothills dissected by incised valleys.*
- *Semi-improved pasture enclosed in medium-large fields by stone walls. Grazed by sheep and cattle. Some rough pastures and heath on higher ground.*
- *Trees in sheltered pockets with some copses on top of hills.*
- *Many scattered farmsteads and small settlements.*
- *Network of minor roads.*
- *Numerous archaeological sites particularly Bronze Age funerary and ritual sites and Iron Age settlements and forts.”*

Contrastingly, the DGWLSS defines the site as part of the Foothills LCT (19) - see **Figure 5.4a-b**. The DGWLSS provides the following description of the Dalmacallan unit of this LCT:

“The Dalmacallan foothills form a gently undulating basin surrounded by more pronounced and isolated small hills. This landscape has a medium to large scale and a simple land cover of rough grassland, coniferous woodland and some enclosed pasture. Loch Urr forms a focus and is fringed by some more diverse wetland. It is a sparsely settled landscape with a few widely dispersed hill farms. These foothills lie adjacent to settled lowland landscapes where they are important in providing a backdrop of often rugged open hills to these more patterned, managed and smaller scale landscapes.”

NatureScot advise that *“Where there are topic-specific landscape capacity or sensitivity studies, they would take precedence for informing that development type, e.g. windfarms”*. Where coverage allows, it is proposed that the LCT units in the DGWLSS will therefore form the basis of the character assessment that will be undertaken in the LVIA. Where parts of the study area are not covered by the DGWLSS, it is proposed that the LVIA will also be informed by the Scottish Borders 'Update of Wind Energy Landscape Capacity and Cumulative Impact Study' (2016), the South Lanarkshire Landscape Capacity Study for Wind Energy (2016), the East Ayrshire Landscape Wind Capacity Study (2024) and the Cumbria



Landscape Character Classification (1995). The relevant landscape character types contained in the study area are illustrated on **Figures 5.4a-b**.

Given the topography of the local landscape and the scale of the Proposed Development, it is considered that significant effects on landscape character are likely to be generally contained to areas between (and possibly including) The Glenkens and Nithsdale, to the west and east respectively. The LVIA will therefore include an assessment of the effects of the Proposed Development on the LCTs within a 20km detailed study area.

In the preliminary appraisal set out in **Table 5-1**, the potential effects of the Proposed Development are considered in respect of landscape character units within a 20km detailed study area. This considers the separation distance between the LCT unit and the Proposed Development, and whether the LCT unit would be subject to theoretical visibility of the Proposed Development, having regard to the preliminary ZTV. Thereafter, it is assessed in the final column whether or not these landscape designations should be scoped in or out of the assessment. It should be noted that changes to the layout during the detailed design process may materially alter the potential for significant effects, and therefore the scope of some aspects of the assessment may be reconsidered at a later date.

Table 5-1: Preliminary Appraisal of Potential Effects on Landscape Character

LCT Unit	Distance to nearest turbine (km)	Scoped in?	Needs detailed assessment within LVIA?
19 Foothills - Dalmacallan	0.0	Yes	Yes. This is the host LCT unit, which will be subject to direct and indirect effects upon the character of the landscape. Given the short distances between potentially affected parts of this LCT unit and the Proposed Development, it is highly likely a significant landscape effect will arise. Effects across the north of the LCT unit are likely to be moderated by the enclosure provided by forestry.
10 Upland Glens - Castlefairn & Dalwhat	1.5	Yes	Yes. There is theoretical visibility of the majority of the turbines across some of the closest parts of the Castlefairn Water valley, while visibility is more limited across the Dalwhat Water valley. Given the short distances of 1-6km between the Proposed Development and the majority of these potentially affected areas of the LCT unit, there is potential for significant effects to arise.
15 Upland Fringe - Cairn Fringe	1.6	Yes	Yes. There is theoretical visibility of varying numbers of turbines across northern and north western parts of the LCT unit, and patches of theoretical visibility across south eastern areas. Given the short distances of 1-6km between the Proposed Development and the majority of these potentially affected areas of the LCT unit, there is potential for significant effects to arise.
5 Pastoral Valleys - Cairn & Old Water	1.8	Yes	Yes. There is theoretical visibility of varying numbers of turbines across northern and central parts of the LCT unit. Given the distances of 1-12km between the Proposed Development and these potentially affected areas of the LCT unit, there is potential for significant effects to arise.
20 Foothills with Forest - Stroan	2.9	Yes	Yes. There is some intermittent theoretical visibility across the LCT, although extensive forestry would provide enclosure from a large proportion of these forested areas. Nevertheless, there are open areas over 3km to the south east of the



LCT Unit	Distance to nearest turbine (km)	Scoped in?	Needs detailed assessment within LVIA?
			Proposed Development where theoretical visibility of the majority of the wind turbines is predicted, and as a result it is likely that some localised significant effects may arise.
19 Foothills - Keir	3.7	Yes	Yes. There is theoretical visibility of varying numbers of turbines across the length of the LCT unit. Given the short to medium distances of 3-11km between the Proposed Development and the majority of these potentially affected areas of the LCT unit, there is potential for significant effects to arise.
6 Lower and Middle Dale (Valley) - Mid Nithsdale	4.3	Yes	Yes. Theoretical visibility is limited across most of the LCT unit, apart from small areas across the northern fringes and more distance south eastern areas of the LCT unit. While it is unlikely that significant effects would arise across south eastern parts of the LCT unit, there is potential for significant effects on the landscape character of those parts of the LCT unit close to the north of Maxwelltown House.
10 Upland Glens - Shinnel	4.3	No	No. Very limited theoretical visibility predicted across the LCT unit with enclosure also provided by pockets of forestry. Effects are therefore likely to be limited, and it is unlikely that significant effects would occur on its landscape character.
15 Upland Fringe - Dunscore	5.2	Yes	Yes. There is theoretical visibility of the majority of the turbines across large parts of the northern half of the LCT unit. Given the short to medium distances of 5-11km between the Proposed Development and the majority of these potentially affected areas of the LCT unit, there is potential for significant effects to arise.
15 Upland Fringe - Corsock Fringe	6.0	No	No. There is some intermittent theoretical visibility of varying numbers of turbines across parts of the LCT unit where the consented Fell Wind Farm would be apparent at a similar distance. Wind farms are therefore an existing characteristic of the setting of this LCT unit and given the likely similar influence of the Proposed Development, it is unlikely that significant effects would arise upon this medium scale and relatively simple landscape.
19 Foothills - Tynron	6.0	Yes	Yes. There is theoretical visibility of varying numbers of turbines across the south west facing slopes of the foothills. Given the short to medium distances of 6-9km between the Proposed Development and the majority of these potentially affected areas of the LCT unit, there is potential for significant effects to arise.
4 Narrow Valleys - Urr Water	6.5	No	No. There are some limited patches of theoretical visibility of varying numbers of turbines across this LCT unit. Given the intervening distance, the enclosure of the valley, in part from riparian woodlands, and the limited extent of visibility predicted, it is unlikely that significant effects will arise upon this LCT unit.
22 Southern Uplands	7.3	No	No. This is a large LCT unit with only some limited areas where theoretical visibility is predicted. The character of these potentially affected areas is also influenced by the enclosure



LCT Unit	Distance to nearest turbine (km)	Scoped in?	Needs detailed assessment within LVIA?
with Forest - Ken			of extensive forestry, and there is an existing influence from the closer, operational Wether Hill Wind Farm across more open areas to the south east of the LCT unit.
10 Upland Glens - Scar	7.7	No	No. There is extremely limited theoretical visibility predicted across this LCT unit at distances of over 8km, including some areas that experience a degree of enclosure from forestry, and there is therefore no potential for significant effects.
21 Southern Uplands - Nithsdale	8.2	No	No. There is some limited theoretical visibility across more elevated hill summits and south and south west facing hill slopes, but operational wind farm development is an existing characteristic of the surrounding landscape. In particular, the operational Wether Hill Wind Farm is located closer to this LCT unit and would often be apparent from similar affected areas, while the consented Fell and operational Blackcraig Wind Farms are situated in a similar part of the LCT unit's setting to the Proposed Development.
19 Foothills - Nithsdale	8.5	Yes	Yes. While theoretical visibility is generally limited across the majority of the LCT unit and woodland provides a degree of enclosure to some potentially affected areas, there are open areas of hill ground around Clonhie Farm where the Proposed Development could be a notable addition to the setting of this LCT unit.
9 Upper Dale (Valley) - Upper Nithsdale	9.7	No	No. Some relatively widespread theoretical visibility at distances of over 9km, but effects would be moderated by the enclosure provided by woodlands and/ or the intervening distance between the LCT unit and the Proposed Development.
13 Drumlin Pastures - Deeside	9.9	No	No. Some intermittent theoretical visibility predicted across north western and eastern areas of the LCT unit at distances of over 9km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by woodlands, the intervening distance between the LCT unit and the Proposed Development, and/ or the existing influence of consented and operational wind turbines associated with Fell and Blackcraig Wind Farms.
13 Drumlin Pastures - Milton	10.7	No	No. Some intermittent theoretical visibility predicted of hubs and/ or blades of a varying number of turbines across north western and eastern areas of the LCT unit at distances of between 10-20km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by scattered woodlands and/ or the intervening distance between the LCT unit and the Proposed Development.
15 Upland Fringe - Ae Fringe	11.2	No	No. Some intermittent theoretical visibility predicted of a varying number of turbines across the LCT unit at distances of between 11-20km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by scattered woodlands and larger



LCT Unit	Distance to nearest turbine (km)	Scoped in?	Needs detailed assessment within LVIA?
			areas of forestry, and/ or the intervening distance between the LCT unit and the Proposed Development.
15 Upland Fringe - Terregles	11.8	No	No. Some intermittent theoretical visibility predicted of a varying number of turbines across the LCT unit at distances of between 11-19km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by scattered woodlands and forestry, and/ or the intervening distance between the LCT unit and the Proposed Development.
9 Upper Dale (Valley) - Upper Glenkens	12.5	No	No. Limited theoretical visibility predicted of mostly small numbers of turbines across the LCT unit at distances of between 12-19km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by scattered woodlands and forestry, the intervening distance between the LCT unit and the Proposed Development, and/ or the existing influence of closer consented and operational wind turbines associated with Fell and Blackcraig Wind Farms.
8 Flooded Valley - Ken Valley	12.5	No	No. Extremely limited theoretical visibility predicted of small numbers of turbines across the LCT unit at distances of between 12-20km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by forestry, the intervening distance between the LCT unit and the Proposed Development, and/ or the existing influence of closer consented and operational wind turbines associated with Fell and Blackcraig Wind Farms.
20 Foothills with Forest - Ae	12.9	No	No. Some theoretical visibility predicted across the west of the LCT unit at distances of between 12-20km, but effects upon landscape character would be moderated by the intervening distance, the enclosure provided by extensive forestry, and/ or the presence of the operational Dalswinton Wind Farm development in the LCT unit.
4 Narrow Valleys - Ken	13.7	No	No. There is no theoretical visibility predicted across this LCT unit and there is therefore no potential for significant effects.
21 Southern Uplands - Lowthers	16.0	No	No. Some theoretical visibility predicted across parts of the LCT unit at distances of between 16-20km, but effects upon landscape character would be moderated by the intervening distance, and/ or the presence of the operational Blackcraig and consented Fell Wind Farms in the same part of the LCT's setting.
20 Foothills with Forest - Rhinns of Kells	16.2	No	No. Some theoretical visibility predicted across the LCT unit at distances of between 16-20km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by forestry, the intervening distance between the LCT unit and the Proposed Development, and/ or the existing influence of



LCT Unit	Distance to nearest turbine (km)	Scoped in?	Needs detailed assessment within LVIA?
			closer consented and operational wind turbines associated with Fell and Blackcraig Wind Farms.
25 Rugged Granite Upland with Forest - Cairn Edward	16.5	No	No. Some theoretical visibility predicted across the LCT unit at distances of between 16-20km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by extensive forestry and/ or the intervening distance between the LCT unit and the Proposed Development.
21 Southern Uplands - Carsphairn	16.7	No	No. Some theoretical visibility predicted across the LCT unit at distances of between 16-20km from the Proposed Development. Effects on the LCT unit's landscape character would be moderated by the enclosure provided by forestry, the intervening distance between the LCT unit and the Proposed Development, and/ or the existing influence of operational wind turbines associated with the Whether Hill Wind Farms, but also other distant wind farms including the operational Blackcraig and consented Fell developments.
23 Coastal Granite Uplands - Dalbeattie Coastal Granite	18.8	No	No. Some theoretical visibility predicted across parts of the LCT unit at distances of between 18-20km, but effects upon landscape character would be moderated by the intervening distance and/ or the enclosure provided by extensive forestry.
21 Southern Uplands - Lowthers	18.9	No	No. Some limited theoretical visibility predicted across parts of the LCT unit at distances of between 18-20km, but effects upon landscape character would be moderated by the intervening distance.
10 Upland Glens - Dalveen	18.9	No	No. Some limited theoretical visibility predicted across parts of the LCT unit at distances of between 18-20km, but effects upon landscape character would be moderated by the intervening distance.
20 Foothills with Forest - Laurieston	19.8	No	No. Some limited theoretical visibility predicted across parts of the LCT unit at distances of between 19-20km, but effects upon landscape character would be moderated by the intervening distance.

The preliminary appraisal has shown that 10 of the 33 LCT units in the 20km radius have potential to be significantly affected. It is proposed that the LVIA will assess the likely effects of the Proposed Development on these LCTs using information presented in the DGWLSS and NatureScot's dataset. It is proposed that the other LCT units be scoped out of detailed assessment in the LVIA and NatureScot and DGC's agreement to this is specifically sought.

5.2.4 Landscape Designations

Although the site boundary occupies a very small part of the Thornhill Uplands Regional Scenic Area (RSA), the locations of the proposed wind turbines in Scoping Layout A and B are not subject to any local or national landscape designations intended to protect its landscape quality or scenery. A number of areas within 45km of the Proposed Development have been attributed a landscape planning designation. **Figure 5.5** shows these landscape designations with the blade tip ZTV overlain. The designations include nationally important



National Scenic Areas (NSAs), Wild Land Areas (WLAs), and Gardens and Designed Landscapes (GDLs) that have been designated by Historic Environment Scotland (HES). There are also a number of locally important Regional Scenic Areas (RSAs) and Special Landscape Areas (SLAs) that have been designated through the relevant Council's Local Development Plan.

In the preliminary appraisal set out in **Table 5-2**, the potential effects of the Proposed Development are considered in respect of all landscape designations. This considers the separation distance between the landscape designation and the Proposed Development, and whether the landscape designation would be subject to theoretical visibility of the Proposed Development, having regard to the preliminary ZTV. Thereafter, it is assessed in the final column whether or not these landscape designations should be scoped in or out of the assessment. It should be noted that changes to the layout during the detailed design process may materially alter the potential for significant effects, and therefore the scope of some aspects of the assessment may be reconsidered at a later date.

Table 5-2: Preliminary Appraisal of Potential Effects on Landscape Designations

Designation	Distance to nearest turbine (km)	Scoped In?	Needs detailed assessment within the LVIA?
Thornhill Uplands RSA	1.0	Yes	Yes. There is intermittent theoretical visibility predicted across a wide range of locations within the RSA at distances of between 1-20km, where a large proportion of the Proposed Development is predicted to be visible. It is envisaged that potential effects upon the landscape of the RSA would vary in nature, but significant effects upon the character of part/s of the landscape may arise.
Maxwelton (Glencairn Castle) GDL	3.5	Yes	Yes. There is widespread theoretical visibility predicted across the GDL at distances of over 3km from the Proposed Development. Although there are extensive woodlands within the GDL, there is potential for significant effects to arise across more open parts of the GDL.
Terregles Ridge RSA	6.9	Yes	Yes. Theoretical visibility is predicted across swathes of Bishop Forest Hill, See Morris Hill, Dalquhairn Hill, and part of the Cairn Water Valley at distances of between 6-14km from the Proposed Development, and some more distant parts of the RSA. Given the west facing aspect of some of the closest hill slopes, there is potential for significant effects to arise upon part/s of the character of the landscape.
Drumlanrig Castle GDL	10.8	No	No. Theoretical visibility is relatively limited across the GDL at distances of between 11-17km, and it is generally contained to either areas of forestry or open arable land, and avoids the castle and its immediate surroundings, its formal gardens, walking trails and viewpoints. Given the extensive woodland located across the GDL, it is also likely that this will either screen or interrupt residual visibility of the Proposed Development from the majority of more open areas. Significant effects are therefore unlikely to arise upon the character of this GDL.



Designation	Distance to nearest turbine (km)	Scoped In?	Needs detailed assessment within the LVIA?
Galloway Hills RSA	13.4	No	No. There is some intermittent theoretical visibility predicted across parts of the RSA at distances of over 13km from the Proposed Development. It is likely that effects upon the character of the landscape would be moderated to a degree by the enclosure provided by extensive areas of forestry, the intervening distance between the RSA and the Proposed Development, and/ or the existing influence of closer consented and operational wind turbines associated with Fell and Blackcraig Wind Farms.
Dalswinton GDL	14.1	No	No. There is relatively widespread theoretical visibility of a varying number of turbines predicted across the GDL, but extensive woodland would screen visibility of the Proposed Development from the majority of the GDL, including the house, and its immediate surroundings, including formal gardens. Significant effects are therefore unlikely to arise upon the character of the GDL.
Cowhill Tower GDL	15.4	No	No. There is some theoretical visibility of a varying number of turbines predicted across the GDL, but extensive woodland would screen visibility of the Proposed Development from the GDL. Significant effects are therefore unlikely to arise upon the character of the GDL.
Solway Coast RSA	20.2	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Leadhills and the Lowther Hills SLA	20.4	No	No. Very limited theoretical visibility predicted from scattered hilltops at distances of over 22km from the Proposed Development. Significant effects are therefore unlikely to arise upon the character of the SLA.
Torthorwald Ridge RSA	20.5	No	No. Some widespread theoretical visibility is predicted across western parts of the RSA at distances of over 20km, but the Proposed Development would be situated beyond the settlement of Dumfries within a broader landscape setting that contains other operational wind farm development, such as Blackcraig, and Dalswinton and Harestanes at closer distances to the north of the RSA. Significant effects are therefore unlikely to arise upon the character of the RSA.
Nith Estuary NSA	20.8	No	No. Some shards of theoretical visibility predicted across the NSA, but significant effects are unlikely due to the landscape's strong association with the sea and coastline, the limited visibility of the turbines, and/ or the intervening distance between the NSA and the Proposed Development.



Designation	Distance to nearest turbine (km)	Scoped In?	Needs detailed assessment within the LVIA?
Threave Gardens GDL	25.3	No	No. There is widespread theoretical visibility of the Proposed Development predicted across the GDL at distances of over 25km, but extensive woodland would screen or interrupt visibility of the wind turbines from the majority of the GDL. Significant effects are therefore unlikely to arise upon its character.
Dark Sky Park - Core	26.4	No	No. Very limited theoretical visibility of blade tips from some elevated locations across the Park at distances of over 26km from the Proposed Development. The Proposed Development would be situated in a similar part of the Park's setting to the Fell and Margree Wind Farms, and consequently it's lights would not introduce a new characteristic into this part of the surrounding landscape. For these reasons there is very limited potential for significant effects to arise.
Raehills GDL	27.1	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
East Stewartry Coast NSA	27.3	No	No. Some shards of theoretical visibility predicted across the NSA, but significant effects are unlikely due to the landscape's strong association with the sea and coastline, the limited visibility of the turbines, and/ or the intervening distance between the NSA and the Proposed Development.
Scot's Mining Company House GDL	29.0	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Fleet Valley NSA	29.6	No	No. Very limited theoretical visibility predicted from a few scattered hilltops at distances of over 33km from the Proposed Development. Significant effects are therefore unlikely to arise upon the character of the NSA.
Moffat Hills RSA	32.3	No	No. Some limited, intermittent theoretical visibility is predicted across some elevated locations across the RSA, but the Proposed Development would be situated beyond the operational Harestanes, Minnygap and Dalswinton Wind Farms in the wider landscape. As a consequence, the Proposed Development would not introduce a new characteristic to this part of the RSA's setting, and significant effects would not arise.
Dark Sky Park - Craigengillan Estate	33.0	No	No. Very limited theoretical visibility predicted from a few scattered hilltops at distances of over 34km from the Proposed Development. Significant effects are therefore unlikely to arise upon the character of the Dark Sky Park.



Designation	Distance to nearest turbine (km)	Scoped In?	Needs detailed assessment within the LVIA?
Craigengillan GDL	33.0	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Arbigland GDL	33.6	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Cally GDL	34.3	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Broughton House GDL	36.3	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Tweedsmuir Uplands SLA	36.8	No	No. Very limited theoretical visibility predicted from a few scattered hilltops at distances of over 41km from the Proposed Development. Significant effects are therefore unlikely to arise upon the character of the SLA.
Kinmount GDL	37.4	No	No. Very limited theoretical visibility predicted from a few scattered hilltops at distances of over 42km from the Proposed Development. Significant effects are therefore unlikely to arise upon the character of the GDL.
Dumfries House GDL	39.2	No	No. There is widespread theoretical visibility of the Proposed Development predicted across the GDL at distances of over 39km, but extensive woodland would screen or interrupt visibility of the wind turbines from the majority of the GDL. Significant effects are therefore unlikely to arise upon its character.
Douglas Valley SLA	39.3	No	No. Very limited theoretical visibility predicted from a few elevated locations close to existing wind farms at distances of over 39km from the Proposed Development. Significant effects are therefore unlikely to arise upon the character of the SLA.
Upper Clyde Valley and Tinto SLA	39.9	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Blairquhan GDL	43.4	No	No. There is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.

The findings of this preliminary appraisal are that the special qualities of two RSAs and the qualifying features of one GDL have the potential to be significantly affected by the Proposed Development and, therefore, require a detailed assessment. All other nationally and locally designated landscapes, are not considered to have the potential to be significantly affected owing to either no theoretical visibility, low levels of theoretical visibility and / or limited extents of theoretical visibility, substantial separation distances and / or limited association between the designated landscape and the site of the Proposed Development. In summary, the following designated landscapes will be included in the detailed assessment of the LVIA:



- Thornhill Uplands RSA;
- Terregles Ridge RSA; and
- Maxwellton (Glencairn Castle) GDL.

The detailed assessment in the LVIA will consider the special qualities of these national and local landscape designations in order to address the tests provided by Policy 4 of NPF4 and Policy NE2: Regional Scenic Areas of the DGCLDP2 (2019).

5.2.5 Wild Land

Wild Land Areas (WLA) mapped by NatureScot encompass Scotland's most extensive areas of high wildness. Policy 4 of NPF4 (Scottish Government, 2023) outlines criteria that needs to be satisfied by development proposals in WLAs:

“Development proposals in areas identified as wild land in the NatureScot Wild Land Areas map will only be supported where the proposal:

- will support meeting renewable energy targets; or,*
- is for small scale development directly linked to a rural business or croft, or is required to support a fragile community in a rural area.*

All such proposals must be accompanied by a wild land impact assessment which sets out how design, siting, or other mitigation measures have been and will be used to minimise significant impacts on the qualities of the wild land, as well as any management and monitoring arrangements where appropriate. Buffer zones around wild land will not be applied, and effects of development outwith wild land areas will not be a significant consideration.”

It is therefore of particular relevance to note that the Proposed Development is not located within a WLA, and therefore its effects on WLAs in the study area will not be a significant consideration to be weighed by the decision maker in the overall planning balance. However, in order to apply a precautionary approach, and due to the often, indistinct nature of the boundaries, it may still be deemed necessary by NatureScot to determine whether the nature of any effects from developments located along the fringes of WLAs are worthy of consideration by the decision maker.

There are only two WLAs located within 45km of the Proposed Development, as shown in conjunction with the scoping layout ZTV in **Figure 5.5**. Merrick and Talla-Hart Fell WLAs are located 29km and 38km from the Proposed Development respectively, and consequently it is considered that even when taking a precautionary approach, due to the large separation distances, the effects of the Proposed Development on the perception of wildness would not merit significant consideration by the decision maker. As a result, it is proposed that WLAs require no further detailed assessment in the LVIA.

5.2.6 Visual Receptors and Visual Amenity

The LVIA will undertake an assessment of the likely visual effects of the Proposed Development by considering its wider effects on visual amenity, particularly in relation to principal visual receptors (shown on **Figures 5.6**), including settlements, roads, railway lines, national cycling routes, walking routes, and a selection of viewpoints (shown on **Figure 5.3** and listed in **Table 5-3**). In accordance with the EIA Regulations, this assessment will focus on identifying those visual receptors that have the potential to be significantly impacted by the Proposed Development.



5.2.7 Proposed LVIA Viewpoints

A preliminary representative viewpoint list is presented in **Table 5-3**. The locations of the viewpoints are shown on **Figure 5.3**.

The viewpoints represent sensitive visual receptors in the study area, which have potential to be significantly affected. The selection of the viewpoints also considers the representation of the landscape receptors within which they are located, as well as the representation of the surrounding cumulative context, with both these considerations helping to inform the wider assessment. Collectively, the aim is to achieve a distribution of viewpoints from different directions and distances across the study area, albeit ensuring that the closer range receptors with the greatest potential to be significantly affected are fully represented. Comments on the proposed viewpoint locations are invited as part of this request for a Scoping Opinion.

Table 5-3: Preliminary Viewpoints

ID	Viewpoint name	Grid ref. (Preliminary)		Distance to nearest turbine (km)	Visual receptors represented
1	Minor road, near Fraserford Farm	281636	584455	2.8	Road users and residents
2	Minor road, west of Loch Urr	275162	584453	2.7	Road users
3	Moniaive, Dunreggan Brae	278112	591083	3.6	Residents
4	Glencairn Parish Church, Kirkland	280856	590501	3.7	Residents and visitors
5	A702, Craigmuir junction	273127	586929	4.0	Road users
6	A702, south of Clonehead	282389	590971	4.9	Road users
7	Minor Road, near Glaisters Bridge	275472	579932	6.6	Road users
8	Dunscore Parish Church	286606	584345	7.0	Residents and visitors
9	Minor road, near Fardingjames	287501	587670	7.6	Road users
10	Bishop Forest Hill	284897	579685	8.6	Recreational walkers
11	A712, Corsock	275974	576135	10.2	Residents and road users
12	Thornhill, Manse Road	288179	595826	12.3	Residents and road users
13	Colt Hill	269836	598967	14.2	Recreational hill walkers
14	Bennan Viewpoint, Loch Ken	265252	572322	18.3	Recreational walkers
15	Beninner	260587	597156	19.7	Recreational hill walkers

Visualisations and figures will be produced to NatureScot's standards, as set out in 'Visual Representation of Wind farms: Version 2.2' (February, 2017). In line with NatureScot guidance, photomontages illustrating the proposed wind turbines will be prepared for viewpoints within a 20km radius of the outermost turbines associated with the Proposed Development.



5.2.8 Residential Properties

The need for, and scope of, a Residential Visual Amenity Assessment (RVAA) will be reviewed during the initial assessment stages of the LVIA and agreed with consultees. It is currently envisaged that an RVAA will be required, and in accordance with the relevant Landscape Institute guidance, it is likely that a preliminary study area of approximately 1.5 to 2km radius will be appropriate in order to begin identifying properties to include in the assessment.

5.2.9 Aviation Lighting

A key factor in the development of turbines at or greater than 150m in height is the likely requirement for them to have visible red, medium intensity (2,000 candela) lights fitted to the turbine nacelles in accordance with International Civil Aviation Organisation (ICAO) and Civil Aviation Authority (CAA) guidance, to ensure civil aviation safety at night. The details of the lighting requirements for the development are currently being defined along with potential mitigation measures (see **Section 12.0**). Details of the confirmed visible aviation lighting scheme and any proposed mitigation agreed with the CAA will be provided in the LVIA.

If required, a proportionate Aviation Lighting Impact Assessment including visualisations illustrating turbine lighting at night will be prepared, for inclusion in the LVIA. The hub height ZTV will be used to identify where there would be direct line of sight of the lights from the surrounding area, and if applicable a lighting intensity ZTV will also be prepared to indicate possible reductions in effects as a result of vertical direction intensity lighting mitigation. Where relevant, cumulative ZTVs illustrating areas where lighting from more than one wind farm are predicted to be theoretically visible may also be produced to accompany the assessment.

SLR has undertaken Aviation Lighting Impact Assessments and visualisations for several other wind farm projects in the UK, and together with the recently published guidance produced by NatureScot, this will inform the approach to assessment of turbine lighting and the basis of our professional judgement about the level of effect arising from the proposed lighting. This assessment will include an appraisal of effects for each relevant receptor, including all viewpoints in the 45km study area where there is potential for significant effects to be experienced.

In order to inform this assessment, it is proposed that photographs will be taken from three of the readily accessible viewpoints at dusk (photographs to be taken 30 minutes after the period of civil twilight) and SLR will prepare visualisations to represent the effects of the maximum case lighting intensity scenario on these views. It is proposed that the following three viewpoints be used to represent the effects of night-time lighting:

- Viewpoint 3: Moniaive, Dunreggan Brae;
- Viewpoint 5: A702, Craigmuir junction; and
- Viewpoint 8: Dunscore Parish Church.

These viewpoints have been selected to represent the effects on road-users and residents in the local area who would be most likely to be affected. Night-time visualisations will be prepared in accordance with NatureScot's recently published Guidance on Aviation Lighting Impact Assessment (2024).

5.2.10 Cumulative Wind Energy Development

The assessment of cumulative effects describes the effects arising from the addition of the Proposed Development to a cumulative baseline of operational, under construction, consented and application stage wind farms. This assessment will include supporting graphics such as cumulative ZTVs and cumulative wirelines.



Figure 5.2 shows the operational, under construction, consented, application and scoping stage wind farms within the 45km study area of the Proposed Development. A detailed review of the cumulative sites within the study area will be undertaken as part of the LVIA and the potential for significant cumulative effect interactions determined. Stakeholders, including DGC, will be consulted over the final list of sites to be considered within the detailed cumulative assessment. It is proposed that the cumulative assessment will include only those wind farms with the potential to contribute to significant cumulative effects arising from the addition of the Proposed Development. Operational and under construction wind farms will be considered as part of the baseline conditions in the LVIA, with the cumulative effects assessment focusing on the contribution of the Proposed Development to effects arising, in addition to consented and application stage projects.

In accordance with NatureScot and Scottish Government guidance it is not usual to assess scoping stage sites unless they are of particular relevance to the Proposed Development, where sufficient detail is available to inform the assessment, and where they are likely to come forward to application. It is therefore proposed to scope out scoping sites from the cumulative assessment, unless otherwise requested by DGC or ECU.

5.2.11 Key Sensitivities

The following key sensitivities will form the focus of the LVIA:

- potential impacts on the landscape of the site;
- potential effects on landscape character, in particular LCT units within a 20km radius of the Proposed Development;
- potential effects on the special qualities of the Thornhill Uplands RSA and Terregles Ridge RSA;
- potential effects on the landscape of the Maxwellton (Glencairn Castle) GDL;
- potential effects on the principal visual receptors within the study area, including those experienced by receptors located at settlements, roads and recreational routes within the immediate context of the Proposed Development;
- potential cumulative landscape and visual effects, in particular with other wind farm developments within 20km of the Proposed Development;
- the visual amenity experienced at residential properties within 1.5-2km of the Proposed Development; and
- potential effects associated with the visibility of the Proposed Development at night due to visible aviation lighting.

5.3 Method of Assessment and Reporting

The LVIA will consider the potential effects of the Proposed Development during the following development stages:

- construction and decommissioning of the Proposed Development; and
- operation of the Proposed Development.

Landscape and visual receptors may or may not be affected at all three development stages.

5.3.1 Categories of Effects

The LVIA is intended to determine the effects that the Proposed Development will have on the landscape and visual resource. For the purposes of assessment, the potential effects on the landscape and visual resource are grouped into eight categories:



- **Physical effects:** physical effects are restricted to the area within the site and are the direct effects on the existing fabric of the site. This category of effects is made up of landscape elements, which are the components of the landscape, such as rough grassland and moorland, that may be directly and physically affected by the Proposed Development.
- **Effects on landscape character:** landscape character is the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape and the way that this pattern is perceived. Effects on landscape character arise either through the introduction of new elements that physically alter this pattern of elements or through visibility of the Proposed Development that may alter the way in which the pattern of elements is perceived. This category of effects is made up of landscape character receptors, which fall into two groups; landscape character areas and landscape-related designated areas.
- **Effects on the special qualities of NSAs and RSAs/ SLAs:** an assessment is carried out to cover the potential for significant effects on the landscape's special qualities.
- **Effects on wild land:** the assessment of the effects on the wild land qualities of the WLAs through consideration of the impacts on the physical attributes and perceptual responses identified.
- **Effects on views:** the assessment of the effects on views is an assessment of how the introduction of the Proposed Development will affect views throughout the study area. The assessment of effects on views is carried out in relation to representative viewpoints and principal visual receptors.
- **Effects on views from properties:** Residential Visual Amenity Assessment (RVAA) is carried out for properties within 1.5-2km of the turbine envelope, in line with Landscape Institute (LI) technical guidance for both day and night.
- **Effects of Turbine Lighting:** should visible aviation lighting be required, an Aviation Lighting Impact Assessment will be prepared to assess the potential visual impact of the turbine lights.
- **Cumulative effects:** cumulative effects arise where the study areas for two or more wind farms overlap so that both wind farms are experienced at a proximity where they may have a greater incremental effect, or where wind farms may combine to have a sequential effect. In accordance with guidance, the LVIA assesses the effect arising from the addition of the Proposed Development to the cumulative situation.

5.3.2 Assessment Approach

The objective of the LVIA is to predict the likely significant effects on the landscape and visual resource. In line with the EIA Regulations, the LVIA effects are assessed to be either significant or not significant.

The significance of effects is assessed through a combination of two considerations: the sensitivity of the landscape or visual receptor and the magnitude of change that will result from the addition of the Proposed Development.

The geographic extent over which the landscape and visual effects will be experienced is also assessed, which is distinct from the size or scale of effect. This evaluation is not combined in the assessment of the level of magnitude but instead is used in determining the extent in which a particular magnitude of change is experienced and the extent of the significant and non-significant effects. The extent of the effects will vary depending on the specific nature of the Proposed Development and is principally assessed through analysis of



the geographical extent of visibility of the Proposed Development across the landscape or principal visual receptor.

The duration and reversibility of effects on views are based on the period over which the Proposed Development is likely to exist, and the extent to which the Proposed Development will be removed, and its effects reversed at the end of that period. Duration and reversibility are not incorporated into the overall magnitude of change and may be stated separately in relation to the assessed effects.

The 'nature of effects' relates to whether the effects of the Proposed Development are adverse, neutral or beneficial. Guidance provided in GLVIA3 states that 'thought must be given to whether the likely significant landscape and visual effects are judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity' but does not provide an indication as to how that may be established in practice. The nature of effect is therefore one that requires interpretation and reasoned professional opinion.

SLR generally adopts a precautionary approach which assumes that significant landscape and visual effects from commercial wind energy development will be weighed on the negative side of the planning balance, although positive or neutral effects may arise in certain situations.

5.3.3 Baseline Survey Methodology

5.3.3.1 Desk Study

The assessment is initiated through a desk study of the site and the study area. This study identifies aspects of the landscape and visual resource that may need to be considered in the landscape and visual assessment, including landscape-related planning designations (i.e. NSAs), landscape character typology, WLAs, operational and potential cumulative wind farms, and views from routes (including roads, railway lines, National Cycle Routes, long-distance walking routes and recreational sailing routes), and settlements.

The desk study also utilises Geographic Information System (GIS) and Resoft Windfarm software to explore the potential visibility of the Proposed Development. The resultant ZTV diagrams and wirelines provide an indication of which landscape and visual receptors are likely to be key in the assessment.

5.3.3.2 Field Survey

Field surveys will be carried out throughout the study area, although the focus is on the areas shown on the ZTV to gain theoretical visibility of the Proposed Development. The baseline field survey has four broad stages:

- A preliminary familiarisation around the study area in order to visit the aspects of the landscape and visual resource that have been identified through the desk study and verify their existence and importance. Important features and characteristics that have not become apparent through the desk study are also identified, and particularly sensitive receptors are noted in order to inform the design process.
- A visit to the site and its surrounding landscape, in order to establish the potential of the site for the Proposed Development and to identify the most suitable areas for development in landscape and visual terms, along with any constraints that may restrict the developable area.
- Further field survey around the wider study area, concurrent with the design process for the Proposed Development, to identify those receptors that are likely



to be particularly important in the assessment and inform the layout design, possible turbine height, and the extent of the Proposed Development.

- The identification of representative viewpoints to include in the landscape and visual assessment, including a wide range of receptors, landscape character, and directions and distances from the Proposed Development.

5.3.4 Methodology for the Assessment of Effects

The LVIA will follow SLR's methodology devised specifically for the assessment of wind farm developments, and which generally accords with 'Guidelines for Landscape and Visual Impact Assessment: Third Edition' ('GLVIA3'), the key source of guidance for LVIA. The methodology will be provided in full in the LVIA.

The sensitivity of the landscape or visual receptor and the magnitude of change that will result as a consequence of the addition of the Proposed Development are informed by various factors.

5.3.4.1 Sensitivity of Receptors

The sensitivity of the baseline conditions, including the importance of environmental features on or near to the Proposed Development or the sensitivity of potentially affected receptors, will be assessed in line with best practice guidance, legislation, statutory designations and / or professional judgement.

The sensitivity of a receptor is an expression of the combination of the judgements made about the susceptibility of the receptor to change and the value related to that receptor.

Resource / Receptor Value

For the landscape resource this is related to the value that is attached to different landscapes by society. A landscape may be valued by different people for different reasons. For visual receptors this relates to the recognition attached to a particular view (for example in relation to heritage assets or through planning designations) and indicators of value attached to views by visitors (for example through appearances in guidebooks or on tourist maps and the provision of facilities such as car parking and interpretation). For the purposes of the LVIA a receptor value is classified on a four-point scale of: negligible, low, medium, and high.

Susceptibility to Change

For landscape receptors this means the ability to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or achievement of landscape planning policies and strategies.

For visual receptors this engages consideration of the susceptibility of the occupation or activity of people experiencing the view and the extent to which their attention or interest may therefore be focused on the views and visual amenity they experience.

For the purposes of this LVIA, susceptibility to change is classified on a three-point scale of: low, medium, and high.

5.3.4.2 Magnitude of Change

This is gauged by appraising the type and amount of change predicted to occur in relation to the landscape or visual receptor. Factors influencing the magnitude of change include: size, scale and nature of change; geographical extent; and duration and reversibility of effect.

For the purposes of the LVIA, magnitude of change is classified on a six-point scale of: negligible, low, medium-low, medium, medium-high and high.



5.3.4.3 Significance of Effect

The sensitivity of the landscape and visual receptor and the magnitude of change that will result from the addition of the Proposed Development will be used as a guide, in addition to professional judgement, to predict the significance of the likely effects.

Table 5-4 summarises guideline criteria for assessing the significance of effects.

Table 5-4: Framework for Assessment of the Significance of Effects

		Magnitude of Change					
Sensitivity		High	Medium-High	Medium	Medium-Low	Low	Negligible/No Change
	High	Major Significant	Major Significant	Major/moderate Significant	Moderate Significant or Not Significant	Moderate/minor Not Significant	Minor Not Significant
	Medium-High	Major Significant	Major/moderate Significant	Major/Moderate Significant	Moderate Significant or Not Significant	Moderate/minor Not Significant	Minor Not Significant
	Medium	Major/moderate Significant	Major/Moderate Significant	Moderate Significant or Not Significant	Moderate/minor Not Significant	Minor Not Significant	Minor Not Significant
	Medium-Low	Moderate Significant or Not Significant	Moderate Significant or Not Significant	Moderate/minor Not Significant	Minor Not Significant	Minor Not Significant	Negligible Not Significant
	Low	Moderate Significant or Not Significant	Moderate/minor Not Significant	Minor Not Significant	Minor Not Significant	Negligible Not Significant	Negligible Not Significant

Effects within the dark grey boxes in the matrix are considered to be significant with either a major or major / moderate level of effect. Effects within the light grey boxes may be significant or not significant depending on the specific relevant factors that arise at a particular landscape or visual receptor and here the level of effect is moderate. Effects within the white boxes are considered to be not significant at either a moderate / minor, minor or negligible level. In accordance with GLVIA3, experienced professional judgement is applied to the assessment of all effects and reasoned justification is presented in respect of the findings where the level of effect is assessed as moderate.

A significant effect occurs where the Proposed Development will provide a defining influence on a landscape element, landscape character receptor or view, albeit that it may be one of a number of defining characteristics. A not significant effect occurs where the effect of the Proposed Development is not material, and the baseline characteristics of the landscape element, landscape character receptor, view or visual receptor continue to provide the definitive influence. In this instance, the Proposed Development may have an influence, but this influence will not be definitive.



5.4 Consultation

No consultation has been undertaken to date, but it is envisaged that it may be necessary for direct correspondence with NatureScot and DGC following receipt of the Scoping Opinion. Details of all relevant correspondence will be included in the LVIA that will accompany the application for the Proposed Development.

5.5 Matters Scoped Out

The LVIA will include an assessment of effects on the landscape and visual receptors that are summarised in **Section 5.2.11**, during the Proposed Development's construction and operational stages. Based on the current layouts, it is proposed that all other landscape and visual receptors are scoped out of the LVIA.

Effects arising from the process of decommissioning will not be covered in detail since they are of a similar nature to construction issues, but of a smaller scale and shorter duration.

5.6 Questions to Consultees

- Q5.1: Do you have any comments on the proposed methodology?
- Q5.2: Are you in agreement with the proposed study areas?
- Q5.3: Are you in agreement that the assessment of effects on landscape character should focus on those LCTs highlighted in **Table 4-1**?
- Q5.4: Are you in agreement that the assessment of the effects on landscape designations should focus on those areas highlighted as being relevant to the LVIA in **Table 4-2**?
- Q5.5: Are you in agreement that Wild Land Areas in the 45km study area can be scoped out of the LVIA?
- Q5.6: Do you have any comments or suggestions in relation to the preliminary viewpoint locations listed in **Table 4-3**?
- Q5.7: Do you have any comments on the approach to assessing the effects of turbine lighting?
- Q5.8: Do you have any comments or suggestions on the approach to cumulative landscape and visual assessment?

5.7 References

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6.0 Ecology

6.1 Introduction

This section sets out the proposed approach to assessing the likely significant effects of the Proposed Development on ecology during construction, operation and decommissioning. It also details the methods that have been and will be used to establish the baseline conditions within the site and its surroundings, and the process to be used to determine the sensitivity of the habitats and species' populations present. The assessment will be undertaken in accordance with legislation and best practice guidance.

6.2 Environmental Baseline

6.2.1 Scope of Study / Study Area

The ecology assessment will use the following study areas:

- designated sites: the site as a whole plus a 5km radius;
- protected species: the site plus any species-specific buffers as necessary and as defined in guidance;
- potential bat roost features: the site and a 200m plus turbine blade length buffer (as per NatureScot *et al.* 2021);
- habitats and potential Groundwater Dependent Terrestrial Ecosystems (GWDTE): the site;
- bat collisions: static bat data from fixed locations will be processed through the online Ecobat tool (Mammal Society, 2017); and
- cumulative assessment (if required); the site plus a 5km radius.

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

- results of the ecological surveys undertaken for the site between May and September 2024 and May 2025 and additional forthcoming ecological surveys;
- a desk study to confirm the location and qualifying features of statutory designated sites (NatureScot, 2025a), non-statutory designated sites (DGC, 2018) and ancient woodland (Scottish Government, 2025a) within potential zones of influence of the Proposed Development;
- information from the National Biodiversity Network (NBN) Atlas (NBN Atlas, 2025) on ecological records within 5km and 10km² of the site within the last 15 years (i.e. since 2010);
- information from the Carbon and Peatland Map 2016 (Scottish Government, 2025b);
- results of the Phase 1 peat probing survey undertaken for the Proposed Development in October 2024 and additional forthcoming Phase 2 peat probing;
- information from the Deer Distribution Survey by the British Deer Society (British Deer Society, 2023);

² 10km applies to bat species only.



- information from the Saving Scotland's Red Squirrels (Scottish Squirrels, 2025) website for red and grey squirrel sightings;
- information from South West Scotland Environmental Information Centre (SWEIC); and
- any other Environmental Statements (ES), EIA Reports or technical reports from other developments or proposed developments in the local area, such as Gargrogo Wind Farm and Fell Wind Farm (both Energie Kontor).

6.2.2 Desk Study

6.2.2.1 Designated Sites

Within 5km of the site, there are two Special Areas of Conservation (SACs), both of which are concurrent with Sites of Special Scientific Interest (SSSIs) (NatureScot, 2025a); and two non-statutory Local Nature Conservation Sites (LNCS) (DGC, 2018) (**Figure 6.1**). Further details are provided in **Table 6-1** and **Table 6-2**.

Table 6-1: Statutory Designated Sites within 5km of the Site

Designated Site	Qualifying Features	Distance from Application Boundary (km)	Condition (and Date of Assessment)
Upper Nithsdale Woods SAC	Mixed woodland on base-rich soils associated with rocky slopes	3.44	Unfavourable declining (6 April 2011)
Stenhouse Wood SSSI	Upland mixed ash woodland	3.44	Favourable maintained (19 October 2011)
Tynron Juniper Wood SAC	Juniper on heaths or calcareous grasslands	4.02	Unfavourable recovering (25 January 2011)
Tynron Juniper Wood SSSI	Juniper scrub	4.02	Unfavourable, no change (management measures are in place that should, in time, improve the feature to Favourable condition (Unfavourable Recovering Due to Management) (15 June 2017)

Table 6-2: Non-Statutory Designated Sites (LNCS) within 5km of the Site

LNCS	Distance from Application Boundary (km)	Description
The Lowes LNCS	Overlaps the site in south	No information available ³
Craigturra LNCS	3.64	No information available ³

³ Little information is available on these LNCSs. It is proposed that the Local Authority be consulted with to determine the LNCSs' qualifying or protected features and status.



6.2.2.2 Ancient Woodland

There are several areas of ancient woodland within the site (Scottish Government, 2025a), located in the north east, and over 800m from any proposed turbine location in either Scoping Layout A or Scoping Layout B. These areas are classified as being either Long-Established (of plantation origin) or Ancient (of semi-natural origin). There are numerous areas of ancient woodland within 5km of the site (**Figure 6.1**).

6.2.2.3 NBN Atlas Scotland

A search of the NBN Atlas Scotland (NBN Atlas Scotland, 2025) within 5km of the site in the last 15 years (2010 onwards) returned records of the following protected or notable species:

- common lizard (*Zootoca vivipara*) (Licence CC-BY: Creative Commons, 2025, and Amphibian and Reptile Conservation and Biological Records Centre, 2025);
- red squirrel (*Sciurus vulgaris*) (Licence CC-BY: Creative Commons, 2025, and Scottish Wildlife Trust);
- roe deer (*Capreolus capreolus*) (Licence OGL: Open Government Licence (OGL), 2025⁴);
- slow worm (*Anguis fragilis*) (Licence CC-BY: Creative Commons, 2025, and Amphibian and Reptile Conservation and Biological Records Centre, 2025);
- smooth newt (*Lissotriton vulgaris*) (Licence CC-BY: Creative Commons, 2025, and Amphibian and Reptile Conservation and Biological Records Centre, 2025); and
- soprano pipistrelle (*Pipistrellus pygmaeus*) (Licence OGL: OGL, 2025 and NatureScot, 2025b).

The above search was expanded out to 10km for bat species, and returned the following species:

- brown long-eared bat (*Plecotus auritus*) (Licence OGL: OGL, 2025 and Newson *et al.*, 2017);
- common pipistrelle (*Pipistrellus pipistrellus*) (Licence OGL: OGL, 2025, NatureScot, 2025b, NatureScot, 2025c and NatureScot, 2025d,);
- Daubenton's bat (*Myotis daubentonii*) (Licence OGL: OGL, 2025 and Newson *et al.*, 2017);
- Leisler's bat (*Nyctalus leisleri*) (Licence OGL: OGL, 2025, Newson *et al.*, 2017 and SEWeb);
- Nathusius' pipistrelle (*Pipistrellus nathusii*) (Licence OGL: OGL, 2025, Newson *et al.*, 2017 and NatureScot, 2017);
- Natterer's bat (*Myotis nattereri*) (Licence OGL: OGL, 2025 and Newson *et al.*, 2017);
- noctule (*Nyctalus noctula*) (Licence OGL: OGL, 2025 and Newson *et al.*, 2017); and
- soprano pipistrelle (Licence OGL: OGL, 2025, NatureScot, 2025b, Newson *et al.*, 2017 and NatureScot, 2025c).

⁴ Records also provided by BTO (undated), accessed through the NBN Atlas.



Records returned the following invasive non-native species (INNS) from within 5km of the site:

- American skunk-cabbage (*Lysichiton americanus*) (Licence CC-BY: Creative Commons, 2025 and Botanical Society of Britain and Ireland, 2025);
- grey squirrel (*Sciurus carolinensis*) (Licence CC-BY: Creative Commons, 2025, Scottish Wildlife Trust, 2025, Licence OGL: OGL, 2025 and SEWeb);
- Japanese knotweed (*Fallopia japonica*) (Licence CC-BY: Creative Commons, 2025 and Botanical Society of Britain and Ireland, 2025); and
- rhododendron (*Rhododendron ponticum*) (Licence CC-BY: Creative Commons, 2025 and Botanical Society of Britain and Ireland, 2025).

6.2.2.4 Red Squirrel

The majority of the site lies within a Priority Area for Red squirrel Conservation (PARC) (Forestry and Land Scotland, 2025). The Saving Scotland's Red Squirrels' sightings portal (Scottish Squirrels, 2025) has records of both red and grey squirrels within 5km of the site every year since 2012.

6.2.2.5 Deer

The Deer Distribution Survey (British Deer Society, 2023) results suggest the likely presence of roe deer and red deer (*Cervus elaphus*) within the general area of the site.

6.2.2.6 Carbon and Peatland Map 2016

As shown on **Figure 8.1**, the Carbon Peatland Map 2016 (Scottish Government, 2025b) shows some areas of Class 1⁵ and Class 2⁶ peatland to the west and south west of the site. Both Scoping Layout A and Scoping Layout B are within areas of Class 3⁷, Class 4⁸ and Class 5⁹ peatland/soils, with Class 0¹⁰ mineral soil in the north and east of the site.

6.2.3 Field Surveys

6.2.3.1 Habitat Surveys

National Vegetation Classification (NVC) surveys (including Phase 1 habitat survey characterisation) were undertaken in September 2024 and focussed on the main site boundary (excluding the proposed southern access route). Note that the data gaps will be surveyed in due course (refer to **Section 6.4.2**).

The 2024 habitat survey results (see **Figure 6.2**¹¹) show that the majority of the survey area is conifer plantation. Otherwise, there is a variety of other habitat types and mosaics widespread across the survey area, most of which cover small areas. These habitats include

⁵ Class 1: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value.

⁶ Class 2: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential.

⁷ 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.

⁸ Class 4: Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils.

⁹ 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.

¹⁰ Class 0: Mineral Soil.

¹¹ For further details of the Phase 1 habitat codes presented on **Figure 6.2**, refer to JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit, JNCC, Peterborough, ISBN 0 86139 636 7.



semi-natural broadleaved woodland, felled conifers, marshy grassland, unimproved neutral grassland, bracken, dry acidic heath, wet heath, blanket bog and acid/neutral flush, among others.

One area in the north east of the site could not be surveyed due to windblow. However, a review of aerial imagery suggests that the habitat is likely to be similar to that in the surrounding area and may be a combination of planted/scattered conifers, broadleaved woodland, and semi-natural broadleaved woodland. This non-surveyed area falls within an area of ancient woodland, however, it is located over 2.3km from the nearest proposed turbine under both Scoping Layouts A and B (see **Section 6.2.2** and **Figure 6.1**).

Areas of potential GWDTE were found in some areas based on the NVC survey results. A GWDTE assessment will be conducted as part of the Geology, Hydrology, Hydrogeology and Peat chapter of the EIA Report (see **Section 8**).

6.2.3.2 Protected Species Surveys

Protected species surveys were carried out in September 2024, and recorded evidence of badger (*Meles meles*), otter (*Lutra lutra*), common lizard and red squirrel; and the potential presence of pine marten (*Martes martes*).

In terms of protected features, four potential red squirrel dreys were recorded within the plantation area of the site, however; these were not confirmed to be in use by red squirrel. T15 of Scoping Layout A is approximately 395m from the nearest potential squirrel drey, and T5 of Scoping Layout B is approximately 788m from the nearest potential squirrel drey. No protected features were recorded for any other protected species.

Three trees with potential roost features (PRFs) for bats were identified during surveys: one was living and two were dead. Each tree had woodpecker holes down their main stems, which could provide roosting opportunities for bats. The closest turbine to a PRF on Scoping Layout A is T5, located over 600m from the feature; on Scoping Layout B the closest is T6, which is over 950m from the feature.

Static bat (Anabat) detector surveys were carried out seasonally (spring, summer and autumn) from May to September 2024. Thirteen Anabat detectors were deployed across the site over a minimum period of 42 days, collecting 527 complete recording nights of data. Nine species and one genus-level classification of bats were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Daubenton's bat, Natterer's bat, whiskered bat (*Myotis mystacinus*), noctule, Leisler's bat, brown long-eared bat and *Myotis* sp. A total of 15,986 bat registrations were recorded, with common pipistrelle and soprano pipistrelle accounting for 93.95% of all bat registrations.

Eight ponds were assessed within the site using the Habitat Suitability Index (HSI) for great crested newt (*Triturus cristatus*) (GCN); of these, two were found to have 'Excellent' suitability, three 'Good', two 'Average' and one 'Below Average' (Oldham *et al.*, 2000, and taking cognisance of O'Brien *et al.*, 2017). Subsequently, eDNA surveys to determine presence/absence of GCN were undertaken in May 2025. No positive results for GCN were returned.

A number of features with the potential for use by hibernating reptiles were recorded across the site, consisting of a mixture of drystone features and rock piles.

6.2.3.3 Fish Surveys

Fish surveys were undertaken by the River Nith Fisheries Board between July and August 2024. Twelve sites were surveyed for salmonids: ten within the site and two control sites outwith the potential zone of influence of the Proposed Development. Of the ten sampling points within the site, nine were found to have juvenile trout (*Salmo trutta*) present. No other fish species were recorded within the site. The control sites were found to have juvenile



Atlantic salmon (*Salmo salar*) and brown trout, with stone loach (*Barbatula barbatula*) at one of these.

No freshwater pearl mussel (*Margaritifera margaritifera*) (FWPM) was recorded during the fish surveys.

Archive data provided by the River Nith Fisheries Board from 2011 showed presence of Atlantic salmon and brown trout at Jarbruck Burn (waterbody north of the site); and from 2020 at Crawfordton Burn (waterbody north east of the site, and waterbody running through the site approximately 300m from T5 of Scoping Layout B).

6.3 Potential Sources of Impact

The assessment will consider the potential impacts associated with construction and operation of the Proposed Development, with a focus on those which could be significant.

Construction impacts that will be considered include:

- temporary and permanent habitat loss/alteration/fragmentation/drainage associated with the Proposed Development infrastructure;
- pollution impacts on watercourses and aquatic fauna within the site;
- loss of shelter, breeding or foraging habitat for identified 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 that will be considered include:

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

Where appropriate, these construction and operational effects will also be considered in a cumulative assessment.

Decommissioning phase impacts are assumed to be similar to construction impacts, albeit with a shorter duration. Decommissioning effects will therefore be assessed accordingly.

6.4 Method of Assessment and Reporting

6.4.1 Legislation and Guidance

In addition to the EIA Regulations, NPF4 and the local development plan, the ecological assessment will be undertaken in line with the following European and National Legislation:

- European Union Council Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (the 'Habitats Directive').
- European Union Council Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (the 'Water Framework Directive').



- Environmental Impact Assessment Directive 85/337/EEC, as amended (the 'EIA Directive'), (as subsequently codified by Directive 2011/92/EU, and as amended by Directive 2014/52/EU).
- Nature Conservation (Scotland) Act 2004 (as amended).
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003.
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) ('The Habitats Regulations').
- Protection of Badgers Act 1992.
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011.
- Wildlife and Countryside Act 1981 (as amended).
- The Wildlife and Natural Environment (Scotland) Act 2011 (WANE).

The assessment will be carried out in accordance with the principles contained within the following guidance and policy documents:

- Chartered Institute of Ecology and Environmental Management (CIEEM) (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (version 1.3). Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). Bat Conservation Trust.
- DGC (2009). Local Biodiversity Action Plan.
- European Commission (2020). Guidance document on wind energy developments and EU nature legislation.
- JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012). UK Post-2010 Biodiversity Framework.
- Joint Nature Conservation Committee (JNCC) (2013). Guidelines for selection of biological Sites of Special Scientific Interest (SSSI).
- NatureScot, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT) (2019, with minor updates 2021). Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation.
- NatureScot (2021). Assessing the cumulative landscape and visual impact of onshore wind energy developments.
- NatureScot (2023). Advising on carbon-rich soils, deep peat and priority peatland habitat in development management.
- NatureScot (2024). General Pre-application and Scoping Advice to Developers of Onshore Wind Farms.
- Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1.
- Scottish Executive (2000). Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995.



- SEPA (2024). Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems.
- Scottish Government (2001). European Protected Species, Development Sites and the Planning Systems: Interim guidance for local authorities on licensing arrangements.
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- Scottish Government (2020c). Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update.
- Scottish Government (2021). Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines.
- Scottish Government (2022a). Onshore Wind Policy Statement 2022.
- Scottish Government (2022b). Scottish Biodiversity Strategy to 2045. Tackling the Nature Emergency in Scotland.
- Scottish Government (2023). Draft Planning Guidance: Biodiversity.
- Scottish Government, SNH & SEPA (2017). Peatland Survey – Guidance on Developments on Peatland.
- SNH (2015). Scotland's National Peatland Plan.
- SNH (2016a). Planning for Development: What to consider and include in deer assessments and management at development sites (Version 2).
- SNH (2016b). Planning for Development: What to consider and include in Habitat Management Plans. Version 2.
- SNH (2018). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.
- Scottish Renewables, SNH, SEPA, Forestry Commission (Scotland), HES, AEECoW (2024). Good Practice During Windfarm Construction (4th Edition).



6.4.2 Proposed Field Surveys

In addition to the surveys undertaken to date (**Section 6.2.3**), further surveys, including NVC habitats, protected species (and peat depth probing; refer to **Section 8**), will be undertaken across the southern access route to cover data gaps following the identification of the likely access corridor to the Proposed Development. This, together with desk-based information, are sufficient to inform a robust ecological assessment.

6.4.3 Assessment Methodologies

The EIA Report will include an Ecological Impact Assessment (EcIA). This will consider the potential direct, indirect and cumulative impacts that the construction and operation of the Proposed Development could have on Important Ecological Features (IEFs), as per CIEEM (CIEEM, 2024) guidance. The assessment will be supported by appendices that will include details of survey methodologies and all survey data.

An assessment of relevant cumulative effects will be undertaken following published guidance. Where it is determined that a cumulative assessment is necessary, impacts will be assessed with other relevant renewable energy projects subject to the EIA process within a relevant search area, and their effects on a relevant reference population; for example, at a watercourse, watershed or Natural Heritage Zone (NHZ) level.

The EcIA will include the following elements:

- an outline of the baseline conditions;
- scoping of ecological features and impacts in/out of detailed assessment;
- an assessment of the potential impacts and effects on IEFs during construction and operation;
- an assessment of cumulative effects;
- an outline of any required mitigation; and
- a summary of significant residual effects.

Effects on IEFs will be assessed in relation to the species' reference population or habitat extent, conservation status, range and distribution. The assessment of potential effects will be informed by guidelines published by CIEEM (CIEEM, 2024) and NatureScot.

The assessment will involve the following process:

- identifying the potential impacts of the Proposed Development;
- considering the likelihood of occurrence of potential impacts;
- defining the nature conservation value and conservation status of relevant populations for each IEF to determine overall sensitivity;
- establishing the magnitude (both spatial and temporal) of the likely impact on each IEF;
- based on the above information, making a judgement as to whether or not the resultant effect would be significant in terms of the EIA Regulations;
- where a potential effect is deemed to be significant, measures to avoid, reduce, mitigate or compensate for the effect are suggested, where required;
- considering opportunities for enhancement, where appropriate; and



- determining residual effects following mitigation (including enhancement), and, where residual effects are assessed as remaining significant, considering appropriate proposals for compensation.

Determination of the level of sensitivity of an IEF is based on a combination of the feature's nature conservation value, defined on the basis of the geographic scale and conservation status, based on its distribution and/or population trend.

The magnitude of potential effects will be identified by considering the degree of change to baseline conditions predicted as a result of the Proposed Development, how IEFs are likely to respond to the Proposed Development, the duration and reversibility of an effect, best practice guidance and legislation, and professional judgement. Effects are judged in terms of magnitude in space and time, and effects can be positive, neutral or negative.

The significance of potential effects is determined by integrating the assessments of IEF sensitivity and magnitude of effect in a reasoned way, based on the available evidence and professional judgement.

A set of pre-defined significance criteria will be used in assessing the potential effects of the Proposed Development to establish whether there will be any effects which will be sufficient to adversely affect the IEF to the extent that its conservation status deteriorates above and beyond that which would be expected should baseline conditions remain (i.e., the 'do nothing' scenario).

6.4.4 Approach to Mitigation

6.4.4.1 Design Considerations

Where possible, significant impacts on ecological features will be avoided or minimised through the design process. Such considerations will include but are not limited to:

- avoidance of Class 1 peatland when locating turbines and other infrastructure;
- avoidance of active blanket bog habitat and GWDTEs when locating turbines and other infrastructure insofar as far as practicable;
- maintenance of a buffer from turbines to forest edge habitats to ensure a minimum 50m buffer from turbine blade tip to feature height for all turbines, as recommended by NatureScot *et al.* (2021) in relation to bats;
- maintaining buffers between infrastructure and any protected features in line with appropriate guidance;
- maintaining a 50m buffer between infrastructure and any watercourses, except where watercourse crossings are required (to be kept to a minimum); and
- design of the track length and alignment to reduce the extent of track where practicable and use of existing tracks where possible.

6.4.4.2 Good Practice

The following good practice mitigation measures are assumed to be in place for the purposes of the assessment:

- a Species Protection Plan (SPP) will be implemented as part of a Construction Environmental Management Plan (CEMP) during the construction phase to ensure that all reasonable precautions are taken to adhere to the relevant wildlife legislation;
- pre-construction and during-construction surveys will be undertaken by an Ecological Clerk of Works (ECoW), or suitably qualified ecologist, as part of the



SPP. An ECoW will be present to oversee activity at key points for the duration of the construction and reinstatement periods (at a frequency to be agreed with DGC and NatureScot); and

- a robust, site-specific CEMP will be implemented. This will set out how the Principal Contractor will manage the works in accordance with the commitments and mitigation measures detailed in the EIA Report, the SPP, statutory consents and authorisations, and industry good practice and guidance for environmental management, including appropriate pollution prevention measures, particularly in relation to watercourses.

6.5 Potential Significant Effects

6.5.1 Potential Effects Scoped In to the Assessment

There is potential connectivity between the Proposed Development and The Lowes LNCS. As such, this LNCS will be given further consideration as the site layout evolves, with the potential for it to be scoped into detailed assessment at the EIA stage.

There is potential connectivity between the Proposed Development and areas of ancient woodland located within the site boundary (**Figure 6.1**). While these areas are distant from the proposed turbine locations in both Scoping Layouts A and B, potential effects on ancient woodland cannot be scoped out of detailed assessment until the full extent of planned infrastructure and activities associated with the Proposed Development is confirmed.

Effects on priority peatland and Annex I habitats under the Habitats Directive cannot be scoped out until the presence and distribution of these habitats in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood. However, given the known presence of blanket bog within the west of the site (albeit fragmented; see **Figure 6.2**), from surveys undertaken to date, blanket bog will likely be scoped in as an IEF.

Effects on bats, fish populations (migratory salmonids and resident fish), deer, and protected species known to be present or are potentially present onsite in areas to be surveyed cannot be scoped out until the presence and distribution of ecological features, species, suitable habitats and respective levels of activity in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood.

6.5.2 Potential Effects Scoped Out of the Assessment

In line with CIEEM guidance (CIEEM, 2024), detailed assessment is not required for features that are sufficiently widespread, unthreatened, and resilient to potential effects of the Proposed Development. Therefore, adverse effects on common and widely distributed habitats or species are scoped out.

Based on the findings of work undertaken to date, the professional judgement of the EIA team, relevant project experience, and applicable policy or guidance, generally common and widely distributed habitats or species which are not legally protected, will be scoped out of the assessment. Specifically, this includes habitats and species which do not fall within the categories subsequently listed, i.e., 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 1992).

Adverse effects on statutory designated sites can be scoped out of the assessment. There are four statutory designated sites within 5km of the Proposed Development: Upper Nithsdale Woods SAC, Stenhouse Wood SSSI, Tynron Juniper Wood SAC and Tynron Juniper Wood SSSI (**Figure 6.1**). Potential effects on these statutory designated sites are



scoped out of assessment due to distance and the respective qualifying features (**Table 6.1**) and a lack of ecological connectivity with the site.

Adverse effects on Craigturra LNCS are scoped out of the assessment for the same reasons as the four statutory designated sites above.

Adverse effects on GCN and reptiles are scoped out of detailed assessment due to the absence of field survey signs, absence of relevant protected features for these species, low habitat suitability, and in cognisance of standard good practice and embedded mitigation (see **Section 6.4.4**).

Adverse effects on beaver and wildcat are scoped out of detailed assessment. Effects on these species are scoped out due to the absence of suitable habitat at the site, the site's geographical location being outwith the known range of the respective species and/or the lack of evidence of their presence locally from desk-based research and recent and historical surveys at the site.

6.6 Biodiversity Enhancement

The enhancement, restoration and creation of habitats of conservation value during the operational phase, through the delivery of a Biodiversity Enhancement Management Plan (BEMP), would further reduce potential effects on habitats. The Proposed Development provides an opportunity to deliver biodiversity enhancement at the site, in line with the objectives of NPF4 Policy 3 (Scottish Government, 2024), the Onshore Wind Policy Statement (Scottish Government, 2022a), and the Scottish Biodiversity Strategy to 2045 (Scottish Government, 2022b). Accordingly, an outline BEMP, or similar, will be provided with the EIA Report.

Specific biodiversity enhancement proposals will be developed through discussions with the Applicant, landowners, and relevant technical specialists in order to enhance, create and connect habitats of biodiversity value. Based on the existing knowledge of the site, biodiversity enhancement measures for the Proposed Development may include, but are not limited to, native broadleaf riparian planting, priority peatland restoration, and/or conifer replacement. The full suite of proposals will be presented within the outline BEMP in the EIA Report.

6.7 Consultation

It is proposed that consultation will be undertaken with the following stakeholders following receipt of scoping responses:

- NatureScot
- SEPA
- DGC
- River Nith Fisheries Board



6.8 Questions to Consultees

- Q6.1: Do consultees agree that, subject to further information coming to light from the further field surveys and the desk study, the scope of IEFs to be included in the assessment is appropriate?
- Q6.2: Do consultees agree that the methodology and scope of assessment is appropriate?
- Q6.3: Do consultees agree with the potential effects to be scoped out of the assessment?
- Q6.4: Do consultees agree with the list of stakeholders to be consulted with?

6.9 References

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The following references were provided through the NBN Atlas Scotland (NBN Atlas Scotland, 2025) (**Section 6.2.2.3**):

Amphibian and Reptile Conservation and Biological Records Centre. 2025. Records verified via iRecord.

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<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>. Accessed: June 2025.

NatureScot (2017). Compilation of records of 12 Article 17 terrestrial mammal species in Scotland.

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7.0 Ornithology

7.1 Introduction

This section of the EIA Scoping Report details the approach to baseline ornithological information gathering and the proposed scope and methodology of the assessment of potentially significant effects upon Important Ornithological Features (IOFs).

This section is supported by the following figures:

- **Figure 7.1:** Ornithological Designated Sites
- **Figure 7.2:** Vantage Point Survey Locations and Viewsheds
- **Figure 7.3:** Ornithological Survey Areas

The potential for significant effects upon ornithological features will be considered throughout the design process of the Proposed Development, and where possible will either be avoided completely through design iteration or will be prevented/minimised via good practice industry standard embedded mitigation measures.

All measures required to avoid, minimise or offset any potentially significant adverse effects upon IOFs, and opportunities to enhance baseline ornithological conditions as part of the Proposed Development, will be set out within the Ornithology chapter of the EIA Report.

7.1.1 Legislation, policy and guidance

In addition to the EIA Regulations, NPF4 and the local development plan, the following key pieces of legislation, planning policy and guidance, of relevance to ornithology, will be referred to during the completion of baseline studies and subsequent assessment.

Legislation

- Directive 2009/147/EC on the Conservation of Wild Birds ('the EU Birds Directive').
- The Habitats Regulations 1994 (as amended) and The Conservation of Habitats and Species Regulations 2010, as amended by The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 in Scotland (hereafter the 'Habitat Regulations').
- The Wildlife & Countryside Act 1981 (as amended).
- The Wildlife and Natural Environment (Scotland) Act 2011.
- The Nature Conservation (Scotland) Act 2004.

Policy

- Draft Planning Guidance: Biodiversity (November 2023).
- Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland (September 2023).
- Planning Advice Note 60: Planning for Natural Heritage (January 2000).
- Planning Advice Note 1/2013-Environmental Impact Assessment (August 2013).
- Onshore Wind Turbines: Planning Advice (May 2014).
- Dumfries and Galloway Biodiversity Partnership (2009) Dumfries and Galloway Local Biodiversity Action Plan.
- The Scottish Biodiversity List (2020).



Guidance

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2024).
- Developing field and analytical methods to assess avian collision risk at wind farms (Band et al., 2007).
- Using a collision risk model to assess bird collision risks for onshore wind farms (Band, 2024).
- Bird monitoring methods (Gilbert et al., 1998).
- Disturbance distances review: An updated literature review of disturbance distances of selected bird species (Goodship and Furness, 2022).
- Raptors: a field guide to survey and monitoring (Hardey et al., 2013).
- General pre-application and scoping advice for onshore wind farms. NatureScot, Inverness (NatureScot, 2024a).
- Calculating a theoretical collision risk assuming no avoiding action (SNH, 2000).
- Environmental Statements and Annexes of environmentally sensitive bird information: Guidance for developers, consultants and consultees (SNH, 2016a).
- Assessing connectivity with Special Protection Areas (SNH, 2016b).
- Dealing with construction and birds (SNH, 2016c).
- Recommended bird survey methods to inform impact assessment of onshore wind farms (NatureScot, 2025a).
- Assessing significance of impacts from onshore wind farms outwith designated areas (NatureScot, 2025b).
- Assessing the cumulative impacts of onshore wind farms on birds. Scottish Natural Heritage (SNH, 2018a).

Additional reference material which is relevant to the assessment will also be referred to within the Ornithology chapter of the EIA Report as required.

7.2 Consultation

The following statutory and non-statutory bodies have been consulted with in relation to ornithology as summarised in **Table 7-1**:

- Royal Society for the Protection of Birds (RSPB) Data Unit;
- Dumfries and Galloway Raptor Study Group (DGRSG); and
- NatureScot.

The purpose of these consultations has been to obtain existing ornithological information for the site, and surrounding area within proximity to the Proposed Development, and to inform the scope of baseline surveys.

For existing ornithological records, the time period requested for existing records from consultees listed, was the most recent 5-year period (from the date of request) for all relevant species and the most recent 10-year period for eagle records. The search area provided comprised the proposed turbine locations with at least a 2km buffer for all ornithological records, extended to at least 6km for eagle records.



Table 7-1: Summary of consultations undertaken to date

Consultee	Date of Consultation	Summary of Discussions
RSPB Data Unit	10/06/2024	Existing Ornithological Records Provided three records of black grouse, 16 red kite and three swift.
DGRSG	17/06/2024	Existing Ornithological Records Provided records of two goshawk nesting sites, one peregrine nest site and six red kite nest sites, as well as four red kite roost sites.
NatureScot (NS)	25/09/2024	Baseline Survey Scope Agreed that there is no connectivity between designated sites and the Proposed Development. Advised that if no recent records of black grouse were provided and the species were not recorded during surveys, then it would be appropriate to scope them out of the assessment. However, they also advised that they encourage black grouse management as part of any biodiversity enhancement plan. Advised that the use of information collected for other nearby wind developments (Fell and Whiteneuk Wind Farms) may not be relevant given data is outwith the 5-year validity window and the survey buffer overlap is only in the south west of the site boundary. Advised that while they usually suggest two years of ornithological surveys, NS accept that a second year of winter VP data is unlikely to show a dramatic increase in activity, at least not to the point where they are likely to be concerned about significant collision risk.

7.3 Environmental Baseline

Baseline ornithological studies to inform the design and assessment of the Proposed Development will comprise a desk-based review of existing ornithological information, together with a single year of ornithological field surveys undertaken in accordance with recommended methodologies set out in NatureScot guidance (2025a) and NatureScot site-specific advice (see **Table 7-1**).

The following provides a summary of the scope of these baseline studies. Full details including field survey methods, survey areas and conditions will be presented within the EIA Report, associated Technical Appendices and Figures.

7.3.1 Scope of Study / Study Area

The Ornithology chapter of the EIA Report will adopt the following study areas, within which baseline information in relation to ornithological features will be compiled:

- 20km for statutory designated sites with qualifying ornithological features, with 20km comprising the maximum core dispersal and/or foraging distance of ornithological qualifying features from Special Protection Areas (SPAs) cited within NatureScot guidance (SNH, 2016b) (**Figure 7.1**); and



- 2km for species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and Annex 1 of NatureScot guidance 'Recommended bird survey methods to inform impact assessment of onshore wind farms' (NatureScot, 2025b), extended to 6km for eagle species, as recommended within NatureScot guidance 'Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas' (NatureScot 2025a).

7.3.2 Desk Study

The following key sources have been consulted for existing ornithological information within the survey area:

- NatureScot Sitelink¹²;
- RSPB Data Unit (**Table 7.1**); and
- DGRSG (**Table 7.1**).

Wetland Bird Survey (WEBS) Data for Loch Urr¹³, and planning documentation for the nearby Fell Wind Farm (20/0148/FUL), Whiteneuk Wind Farm (ECU00002098) and Knarie Wind Farm (currently at Scoping stage) (ECU00006135) will also be also reviewed.

7.3.3 Designated Sites

There are four designated sites with ornithological qualifying interests located within 20km of the site (including access tracks), as illustrated in **Figure 7.1** and summarised in **Table 7-2**.

Following a review of the qualifying features of each designation, their spatial separation from the site, and the core foraging ranges specified within NatureScot guidance (SNH, 2016), only the potential for connectivity with the Loch Ken and River Dee Marshes SPA/Ramsar site, and underpinning River Dee (Parton to Crossmichael) Site of Special Scientific Interest (SSSI), is considered; on the basis of the designation's qualifying Icelandic greylag goose interest.

However, in review of the known distribution of feeding Icelandic greylag geese in Scotland (as per Mitchell, 2012), WEBS data for Loch Urr and survey data gathered for the nearby Fell and Whiteneuk Wind Farms, the site is not identified as being located within an area of known/established importance for foraging Icelandic greylag geese (or other migratory waterfowl). Given the absence of suitable habitats within the site for greylag geese (and other migratory waterfowl) the potential for connectivity with the Loch Ken and River Dee Marshes SPA is therefore considered limited to the occurrence of any greylag goose flight activity (although this may largely be associated with the British breeding population rather than the migratory Icelandic population associated with the SPA).

This was agreed in consultation with NatureScot (**Table 7-1**).

¹² Available at <https://sitelink.nature.scot/home>.

¹³ Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2022/23 © copyright and database right 2024. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers and previous support from WWT.



Table 7-2: Designated sites and their qualifying features

Site Name	Designation	Distance	Qualifying features
Loch Ken and River Dee Marshes	SPA and Ramsar	14.99km	Non-breeding Greenland white-fronted goose and greylag goose
River Dee (Parton to Crossmichael)	SSSI	17.93km	Non-breeding Greenland white-fronted goose, greylag goose and whooper swan
Laughenghie and Airlie Hills	SSSI	19.83km	Non-breeding hen harrier and breeding bird assemblage which includes osprey, teal, goosander, goldeneye, greylag goose, golden plover, curlew and raven

7.3.4 Field Surveys

Ornithological field surveys commenced in March 2023 and were undertaken through to August 2024 inclusive. Surveys were curtailed following consultation with NatureScot that a single year of surveys was likely to be sufficient to inform the design and assessment of the Proposed Development (see **Table 7-1**).

The following field surveys have been completed, with field survey areas adopted based on providing complete coverage of the proposed turbine layouts and ancillary infrastructure within the site applicable at the time of surveys:

- Flight activity surveys (2023 and 2024 breeding seasons and 2023/2024 non-breeding season), from three vantage points (VPs) as shown on **Figure 7.2**;
- Moorland breeding bird surveys (2023 breeding season); in suitable habitat within 500m of the maximum turbine layout;
- Black grouse surveys (2023 and 2024 breeding seasons); within 1.5km of the maximum turbine layout;
- Scarce breeding bird surveys¹⁴ (2023 and 2024 breeding seasons), within 2km of the maximum turbine layout; and
- Winter walkover surveys (2023/2024 non-breeding seasons), in suitable habitat within 500m of the maximum turbine layout.

VP locations and associated viewshed coverage are shown on **Figure 7.2**, with survey areas illustrated on **Figure 7.3**.

All field surveys have followed methodologies recommended by NatureScot (NatureScot 2025a), including species-specific survey methodologies as set out in Hardey *et al.* (2013) and Gilbert *et al.* (1998). The selection of target species for surveying and recording has been informed by both preliminary site visits and NatureScot guidance (NatureScot 2025a and NatureScot 2025b), applicable at the time of survey commencement¹⁵.

7.3.4.1 Flight activity

Over the duration of surveys (2023 and 2024 breeding seasons and 2023/2024 non-breeding season), seven target species were recorded for a total of 31 flights:

- Goshawk (four flights)

¹⁴ Scarce breeding birds include those listed on Annex 1 of the EU Birds Directive and/or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and in the case of the Proposed Development consists of any raptor or owl species listed on Annex 1 and/or Schedule 1.

¹⁵ These were Scottish Natural Heritage (SNH) published versions from 2017 and 2018 respectively.



- Hen harrier (two flights)
- Osprey (one flight)
- Red kite (19 flights)
- Whooper swan (one flight)

Collision risk analysis will be carried out once the final turbine layout is confirmed, however, given the low number of target species and flight activity recorded over the 18 months of surveys, it is likely that estimated collision risks will be low for all target species recorded.

7.3.4.2 Scarce breeding birds

Scarce breeding bird surveys were undertaken over the 2023 and 2024 breeding seasons to identify the breeding locations and status of Schedule 1 breeding raptor and owl species.

Surveys identified breeding locations of the following species:

- Goshawk – one breeding location (2024)
- Red kite nest – two breeding locations (2023)
- Short-eared owl – two breeding locations (2023)

One record of barn owl was also reported but no evidence of breeding was found.

Consultation with the RSPB Data Unit and DGRSG provided additional information on two goshawk nest sites, one peregrine nest site, six red kite nest sites and four red kite roosting sites.

All breeding and roosting locations, with the exception of a record for goshawk, are located outside of the site boundary.

7.3.4.3 Breeding waders

Breeding wader surveys were only carried out in the 2023 breeding season. This was due to the composition of mature and newly planted commercial forestry habitat within the site being unsuitable to support such species.

The surveys recorded only a small number of breeding wader territories. This included territories of lapwing, common sandpiper, curlew, oystercatcher and snipe, although most were noted around Ellrig Moss, which has been subject to recent planting under a Forestry Grant Scheme application (see **Section 3**), or outside of the survey area.

7.3.4.4 Black grouse

Black grouse surveys were carried out in April and May of the 2023 and 2024 breeding seasons to identify any black grouse activity, lek locations and lek sizes.

No observations of black grouse were made during these surveys, or incidentally during any other survey visits.

The RSPB Data Unit provided three historical records of black grouse, however, all are located more than 1.5km from the nearest proposed turbine location for Scoping Layout A and B. Consultation with NatureScot also identified that the presence of black grouse in the area had diminished and that if the species were not identified during baseline surveys, they could be scoped from the assessment, but that standard mitigation and habitat enhancement for the species should be considered as part of the Proposed Development.



7.3.4.5 Winter walkover

Winter walkover surveys were conducted in the 2023/2024 non-breeding season to record any aggregations of foraging migratory waterfowl and the potential for roosting non-breeding Schedule 1 raptor and owl species.

No evidence of Schedule 1 raptor winter roost locations or aggregations of migratory waterfowl were identified within the survey area. The habitat on site is predominantly mature and newly planted forestry, which is unsuitable for foraging waterfowl.

The DGRSG provided information of four monitored red kite roost sites, two of which are located within the study area but outwith the site boundary.

7.3.4.6 Other species

The RSPB Data Unit did not return any additional sensitive species records for the study area.

No existing records of nightjar have been collated, and no evidence of nightjar was recorded in surveys for the adjacent Whiteneuk Wind Farm. In the absence of existing records or recent evidence, the species is considered absent locally and targeted surveys are not considered necessary to inform the design and assessment of the Proposed Development.

7.4 Potential Sources of Impact

The assessment will consider the potential for significant effects upon IOFs during the construction, operation, and decommissioning of the Proposed Development as set out below.

Construction

In the absence of mitigation, potentially significant effects to IOFs during construction works for the Proposed Development could arise from:

- nesting and foraging habitat loss, fragmentation, and/ or alteration during the installation of infrastructure; and
- disturbance to nest sites, eggs, and/ or dependant young.

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

Potential impacts would likely be greatest during the breeding season (generally from March to August) but are variable between location and species. The potential for disturbance to occur to breeding sites of specific species will therefore be assessed on the basis of best available species guidance, including Goodship and Furness (2022) which will be referred to within the EIA Report.

Overall construction disturbance would be considered temporary and would only occur when construction works were being carried out. Construction works would not be expected to take place across the whole of the site concurrently but rather phased within smaller defined working areas across the site.

Operation

The operation of the Proposed Development, including maintenance activities, may cause disturbance and displacement of bird species from nesting, roosting and/ or foraging habitats.

The extent of operational displacement is also highly variable between species, and as such, a species-specific assessment will be undertaken, based upon the baseline studies, and will



be assessed based on the best available guidance, including Goodship and Furness (2022), which will be referred to within the EIA report.

The operation of the Proposed Development may result in a risk of collisions with operational turbines or other installed infrastructure. Where the level of flight activity requires it, the NatureScot collision risk model (Band *et al.* 2007 and Band, 2024) will be used to estimate potential collision mortality risks for target species.

Given the narrow range of target species and the low levels of flight activity, it is considered highly unlikely that potentially significant collision mortality risks to the target species recorded would occur due to the Proposed Development when it is fully operational.

Decommissioning

The potential for impacts on IOFs resulting from the decommissioning of the Proposed Development are considered to be similar to those identified for the construction phase. As such, the associated effects of decommissioning will not be assessed exclusively for IOFs but will be assessed in the EIA Report with reference to construction phase effects.

Access Track Route

Only relatively localised habitat works would be required to facilitate the construction of an access track into the site. On the basis that industry good practice mitigation, as set out within **Section 7.5.2**, will also be implemented, the potential for significant effects upon ornithological features as a result of relatively minor habitat losses, would be considered highly unlikely and is therefore not proposed to be assessed specifically within the EIA Report.

7.5 Method of Assessment and Reporting

The assessment will be undertaken adopting an established approach to the assessment of onshore wind farm developments in Scotland, as recommended in NatureScot guidance (NatureScot, 2025b) and impact assessment guidance published by the Chartered Institute of Environmental and Ecological Management (CIEEM, 2018).

The approach to assessment will also take account of existing guidance and published scientific literature in relation to birds and wind farms, together with professional judgement and experience of renewable energy EIAs.

The assessment will consider in detail only those impacts upon IOFs considered sensitive to wind farm developments, including features set out in Annex 1 of NatureScot guidance (NatureScot, 2025b), and upon which potentially significant effects may occur.

Impacts upon IOFs will be assessed in relation to the species' relevant reference population, conservation status, and range and distribution, based on best available evidence.

The assessment will be supported by Technical Appendices and Figures as appropriate and will include the following stages:

- description of the ornithological baseline;
- scoping in/ out of IOFs and associated impacts;
- identification and characterisation of potentially significant effects;
- outline of additional mitigation measures to avoid and reduce significant effects, where required;
- assessment of the significance of any residual effects after such measures;
- where required, identification of appropriate compensation measures to offset significant residual effects;



- identification and outline of opportunities for enhancement; and
- where required, cumulative assessments.

7.5.1 Cumulative Impacts

An assessment of cumulative effects will be undertaken for any IOF scoped into assessment, with reference to NatureScot guidance 'Assessing the cumulative impacts of onshore wind farms on birds' (NatureScot, 2025c), and where such effects may likely be significant.

Where appropriate, cumulative effects will be assessed in relation to other wind farm development proposals subject to the EIA process and where sufficient information is available. This will be undertaken at the regional Natural Heritage Zone (NHZ) level 19 within which the Proposed Development is located, or else as otherwise agreed in consultation with NatureScot prior to submission.

7.5.2 Approach to Mitigation

The design of the Proposed Development will seek to avoid and/or minimise any significant effects on birds, based on the known locations of breeding sites, potential roosts and key foraging habitats identified during baseline studies, and adoption of suitable bird disturbance distances set out in accordance with Goodship and Furness (2022).

Industry standard good practice measures, as set out in NatureScot guidance (SNH, 2016c) will also be implemented during construction/decommissioning and operation of the Proposed Development (and the assessment undertaken on this basis). This will include the following:

- a Bird Disturbance Management Plan (BDMP) as part of a Construction Environmental Management Plan (CEMP). This will ensure that precautions are taken in order to comply with legislation regarding the protection afforded to wild birds; and,
- pre- and during- construction/ decommissioning surveys carried out by an Ecological Clerk of Works (ECoW) or suitably qualified ornithologist as part of the BDMP.

7.5.2.1 Enhancement Measures

An Outline Biodiversity Enhancement Management Plan (OBEMP) will also form part of the Proposed Development and will be submitted as a technical appendix to the EIA Report.

The OBEMP will present draft habitat and species conservation management measures that will be committed to as part of the Proposed Development, and which will contribute to the enhancement of biodiversity in accordance with the principals of NPF4 Policy 3: Biodiversity, through restoring degraded habitats and creating and strengthening nature networks.

The finalisation of management measures and the areas over which those measures will take place, would be undertaken in consultation with relevant stakeholders following planning consent and any further site-investigations as required.

7.6 Matters Scoped Out

NatureScot guidance (2024b and 2025b) and CIEEM (2018) guidelines stipulate that the detailed assessment of impacts upon ornithological features that are widespread, unthreatened, and/or resilient to construction and operations of wind farms with standard mitigation, is not necessary. This includes species that do not require surveys to inform the



EIA but will require mitigation in order to comply with legislation – such as breeding passerines.

As such, with the support of relevant guidance and professional judgement, ornithological features which do not require detailed assessment, or are not expected to be significantly affected at a population level based on established baseline conditions, are proposed to be 'scoped out' of the impact assessment process. Specific mitigation measures may however be outlined within the EIA report to reduce and/ or avoid any potential negative effects that may be in breach of legislative compliance throughout construction, operation and decommissioning of the Proposed Development.

It is therefore proposed that the following species and designated areas are to be 'scoped out' since significant effects are unlikely:

- common and/ or low conservation species not recognised in statute as requiring special conservation measures i.e., not listed as Annex 1¹⁶/ Schedule 1 species);
- common and/ or low conservation species not included in non-statutory lists i.e., not listed as a Red-listed Birds of Conservation Concern species as per Stanbury *et al.* (2021 and 2024); and,
- passerine species, not generally considered to be at risk from wind farm developments (NatureScot 2024, 2025a and 2025b), unless particularly rare or vulnerable at a national level.

Following a review of designated sites within 20km of the site, and NatureScot's response to the pre-scoping consultation (**Table 7-1**), there is considered to be no connectivity between the site and the Loch Ken and River Dee Marshes SPA and Ramsar, the River Dee (Parton to Crossmichael) SSSI or the Laughenghie and Airlie Hills SSSI, based on spatial separation and unsuitability of habitat in within the site for ornithological qualifying features.

With the completion of a desk study and ornithological surveys, it is proposed that some additional individual ornithological features can be scoped out of detailed assessment of the Proposed Development:

- foraging and roosting non-breeding migratory waterfowl; no observations or existing records of non-breeding aggregations of such have been recorded over the course of baseline studies to date and habitats within the site are largely unsuitable; and
- black grouse; no observations have been collected over the course of baseline studies despite historical records existing, which suggests the species may be absent locally.

Baseline studies have not identified the site as being of importance for species susceptible to elevated collision risk with lit turbines (NatureScot, 2020). As such, impacts upon ornithological features relating to turbine, or any other infrastructure lighting where this is proposed, will not be assessed within the EIA Report.

¹⁶ Listed on Annex 1 of the Birds Directive.



7.7 Questions to Consultees

- Q7.1: Do consultees agree that the scope of the field surveys and desk study that have been completed will be sufficient to inform the assessment?
- Q7.2: Do consultees agree that the embedded mitigation measures set out are appropriate and in accordance with industry good practice?
- Q7.3: Do consultees agree with the ornithological features and impacts to be scoped in or out of the assessment?
- Q7.4: Do consultees consider there to be any current or proposed local conservation initiatives that the Proposed Development could look to support as part of its contribution to restoring degraded habitats and creating and strengthening nature networks?

7.8 References

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NatureScot (2025b) Recommended bird survey methods to inform impact assessment of onshore wind farms. Updated March 2025. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> [Accessed 08th August 2025].

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8.0 Geology, Hydrology, Hydrogeology and Peat

8.1 Introduction

This section outlines the proposed scope of the EIA Report to assess the potential significant effects from the Proposed Development on geology, hydrology, hydrogeology and soils (including peat).

8.2 Environmental Baseline

8.2.1 Scope of Study / Study Area

The hydrological and hydrogeological study area and cumulative effects study area will extend to 500m from the site boundary (excluding the area within the southern access route which is already subject to separate assessments as part of the consented Fell Wind Farm or proposed Garcrogo Wind Farm) (**Figure 8.3**). The study area for geology, peat, and soils will be within the site boundary.

8.2.2 Field Surveys

The following field surveys have been undertaken within the main site area by MacArthur Green (part of SLR) and have been used to support this assessment:

- phase 1 peat probing undertaken at the site in October 2024, using a 100m-by-100m grid; and
- National Vegetation Classification (NVC) habitat mapping undertaken for the site in September 2024.

Additional peat surveys will be undertaken on the southern access route in due course to inform the EIA.

8.2.3 Desk Study

An initial desk study has been undertaken to determine the preliminary baseline characteristics by reviewing available information relating to geology, hydrology, hydrogeology, soils and peat. This has included a review of published geological maps, Ordnance Survey (OS) maps, aerial photographs, and site-specific data such as available peat probing data, NVC data, digital terrain models (slope plans) and geological literature.

8.2.4 Topography

Elevations across the site vary from a maximum of approximately 430m above Ordnance Datum (AOD) at Bogrie Hill in the south, to 120m AOD along the valley corridor of Jarbruck Burn to the north. There are a series of hilltops and associated valleys present across the site.

8.2.5 Designated Sites

Review of NatureScot's SiteLink indicates there are no hydrologically designated sites within the study area or within 5km downstream of the site.

8.2.6 Geology and Hydrology

The site is shown by British Geological Survey (BGS) mapping to be underlain by wacke sedimentary bedrock of the Gala Unit 2 and Gala Unit 4. This comprises graded bands that may include wacke sandstone, siltstone and mudstone in variable proportions. Minor linear bands of igneous extrusive and intrusive rocks are also present across the site. An inferred



fault is mapped across the eastern area of the site, trending from south west to north east, through Dalmacallan Forest.

No superficial deposits are recorded across most of the site, including where the turbines are proposed. The superficial geology, where present along river valleys to the west, north and east of the site, is shown by BGS mapping to comprise diamicton and alluvium. Land to the south west of the site is shown to be underlain by peat.

The superficial deposits beneath the site are unlikely to contain significant amounts of groundwater; any perched groundwater is likely to be in hydraulic continuity with watercourses. The bedrock has been classified by BGS as a 'low productivity aquifer', whereby limited amounts of groundwater may be found in near surface weathered zones and secondary fractures, with flow occurring through fractures and other discontinuities.

DGC have no records of historic landfills within the study area.

All of Scotland's groundwater bodies have been designated as Drinking Water Protected Areas (DWPA) under the Water Environment (Drinking Water Protected Area) (Scotland) Order 2013 and require protection for their current use or future potential use as drinking water resources.

Moniaive is the underlying groundwater body (SEPA ID: 150644), covering an area of 275km² and is currently classified as having "Good" overall status.

8.2.7 Soils and Peat

The National Soil Map of Scotland indicates that soils beneath the site generally comprise peaty gleyed podzols and brown earths, with dystrophic semi-confined peat to the north, and noncalcareous gleys to the east.

Peatland classification mapping as shown on **Figure 8.1**, indicates that the majority of the main area of the site where the turbines are located is comprised of mineral soils (Class 0) and soils categorised as Class 3, 4 or 5. These soils are not classified as nationally important carbon-rich soils. Small areas to the north west of the site, adjacent to Walls Burn, are categorised as Class 1 soils, while extensive areas to the south west, along the proposed access track, are categorised as Class 1 and 2 soils. These soils are classified as nationally important carbon-rich soils, deep peat and priority peatland habitat and are likely to be of high conservation value. No turbines are proposed within areas of Class 1 or Class 2 soils in both Scoping Layout A and Scoping Layout B.

A phase 1, low resolution, peat depth survey on a 100m-by-100m grid has been undertaken by MacArthur Green for the area of the proposed wind turbines and access track to the north. No peat probing has been undertaken within the wider Dalmacallan Forest to the east or for the proposed access track route from the southwest. The survey confirms that peat depths across the site are generally less than 1m deep. Areas of deeper peat (between 1m to 2m) are noted in small localised topographic depressions. The data collected has been interpolated to show probe depth across the main area of the site where the turbines are located, as shown in **Figure 8.2**. Of the probes recorded, 86.6% of probe depths were less than 0.5m (not classified as peat). There are small, isolated areas of deep peat present, with 3.5% of probe depths recording over 1.0m. The deepest probe reached a depth of 5.7m at the western edge of the main part of the site. Overall, the results of survey show the average depth across the site to be 0.34m. The current turbine locations (in both Scoping Layout A and Scoping Layout B) generally avoid areas of deeper peat. Further targeted phase 2 peat probing surveys will be undertaken to inform the site design, which will avoid siting infrastructure within areas of deep peat (over 1m deep), in accordance with Policy 5 (Soils) of NPF4, wherever practicable.



8.2.8 Groundwater Dependent Terrestrial Ecosystems

An NVC habitat mapping exercise has been conducted within the main part of the site as part of the ecology baseline assessment, and this has been used to identify potential areas of Groundwater Dependent Terrestrial Ecosystems (GWDTE). At the time of writing, no NVC survey has been undertaken across the area of the southern access route but this will be undertaken in due course to inform the EIA.

Based on the Scottish Environment Protection Agency (SEPA) guidance on assessing the impacts of development of groundwater dependent terrestrial ecosystems, there are several habitats across the site that could be dependent on groundwater. Due to the underlying geology, which does not support large quantities of groundwater; indicated soils; steep topography; and location of potential GWDTE habitats adjacent to watercourses and along indicated flows; it is unlikely that the habitats are sustained by groundwater. Moreover, due to commercial forestry activity at the site, the natural local hydrology has been artificially altered, with many areas of potential GWDTE mapped along forest rides. As such, it is likely that the habitats are sustained by rainwater / surface water runoff and subsequent waterlogging of soils.

8.2.9 Local Hydrology

SEPA rainfall data indicates that the local area received an annual rainfall of 1,663.8mm in 2024.

The local hydrology is shown on **Figure 8.3a**.

The ridge that follows Bogrie Hill, Girharrow Hill, Craes Hill and Lochur Hill to the south of the site forms a watershed between two main river catchments; land to the north is located within the River Nith catchment, whilst land to the south is located within the Urr Water catchment.

The eastern area of the site is situated within the nested surface water catchment of Cluden Water/Cairn Water, a tributary of the River Nith; this area of the site drains to Cairn Water (which then becomes Cluden Water) via Jarbruck Burn, Crawford Burn and their tributaries. The north west of the site is situated within the nested surface water catchment of Castlefairn Water, a tributary of Cairn Water; this area of the site drains to Castlefairn Water via Close Burn, Pointfoot Burn and their tributaries. The south west of the site drains to Urr Water via Fell Burn or via Loch Urr and its tributaries. The southern boundary of the site forms the headwaters of the Glessin Burn nested surface water catchment; no elements of the Proposed Development are located on land which drains towards this catchment.

None of the surface water catchments draining the site are designated as DWPA.

The following surface watercourses and waterbodies are monitored by SEPA under the Water Framework Directive:

- Castlefairn Water (waterbody ID: 10607) which has a current (2023) overall classification of 'good';
- Cluden Water/Cairn Water (waterbody ID: 10604) which has a current (2023) overall classification of 'good ecological potential' and has been designated as a heavily modified water body; and
- Urr Water (u/s Drumhumprey Burn) (waterbody ID: 10584) which has a current (2023) overall classification of 'good'.

8.2.10 Private Water Supplies

Consultation with DGC has been undertaken to gather details on private water supplies (PWS) within the study area. The council data is shown on **Figure 8.3a**. At the time of



writing, the PWS sources have not been verified by any field survey. Field surveys to verify PWS sources will be undertaken for the purposes of the EIA Report.

DGC holds records of three properties within 250m of the site which have a PWS. The source of the PWS is recorded as unknown, however, the properties are located downslope and downstream of the Proposed Development. As such, there is a potential pollution pathway between the Proposed Development and the PWS sources.

8.2.10.1 Flood Risk and Drainage

SEPA flood mapping is reproduced on **Figure 8.3b** and **Figure 8.3c**; the mapping indicates that the majority of the site is not at risk of flooding from rivers. Fluvial floodplains are mapped along Jarbruck Burn to the north of the site, Pointfoot Burn to the north west of the site, and Fell Burn to the south west of the site. In all instances, the mapped fluvial floodplain is largely confined to the watercourse corridors. In both Scoping Layout A and Scoping Layout B, no turbines are proposed in areas at risk of river flooding, however, any access tracks proposed to the west, near Pointfoot Burn, or the north, near Jarbruck Burn, may require a crossing over the mapped fluvial floodplain.

SEPA's surface water and small watercourse flood mapping indicates that lower areas of the site are at increased risk of surface water flooding. The areas at increased risk of surface water flooding are largely associated with mapped watercourses and their associated minor tributaries and associated overland contributing flow paths. However, due to forestry activity at the site, it is likely that the natural overland surface water flow paths have been artificially altered.

8.3 Potential Sources of Impact

Without mitigation or adherence to best practice, impacts on geology, hydrology, hydrogeology, soils and peat could occur during the construction, operational and decommissioning phases of the Proposed Development. A summary of the potential effects on ground conditions and the water environment resulting from construction, operation and decommissioning of the Proposed Development is provided below. These will be considered in the EIA Report.

8.3.1 Potential Impacts During Construction

The following potential impacts during the construction phase will be considered in the EIA Report:

- disturbance and loss of carbon rich soils and peat deposits;
- ground instability (including peat slide risk);
- impacts on surface water and groundwater quality due to pollution from fuel, oil, concrete or other hazardous substances;
- discharge of sediment-laden runoff to drainage system and watercourses;
- increased flood risk to areas downstream of the site during construction through increased surface runoff;
- changes in groundwater levels, or saturation of peat deposits, from dewatering excavations;
- changes in groundwater flow paths and contribution to areas of peat and GWDTE;
- impacts on the water environment from potential forest felling, such as acidification of watercourses;



- disturbance of watercourse bed and banks from the construction of culverts and/or watercourse crossings;
- adverse impacts to PWS; and
- disturbance and or pollution resulting from borrow pit formation and use.

8.3.2 Potential Impacts During Operation

The following potential impacts during the operational phase will be considered in the EIA Report:

- increased surface water runoff rates and flood risk, resulting from increases in areas of tracks and hard standing at turbines;
- changes in flood extents and flood depths upstream and downstream of river and floodplain crossings;
- changes in natural surface water drainage patterns (which may affect water contribution to areas of peat and GWDTE);
- changes to groundwater levels and groundwater movement; and
- longer term impacts on abstractions for water supplies, particularly any supplies dependent on groundwater.

8.3.3 Potential Impacts During Decommissioning

Decommissioning phase impacts are assumed to be similar to construction impacts, albeit with a shorter duration. Decommissioning effects will therefore be assessed accordingly.

8.4 Method of Assessment and Reporting

The potential effects from the Proposed Development on geology, hydrology, hydrogeology, soils and peat will be assessed by completing a desk study and field investigation followed by an impact assessment, the processes of which are detailed below.

8.4.1 Legislation, Policy and Guidance

In addition to the EIA Regulations, the assessment will be undertaken in line with current legislation, planning policy, and guidance, including:

8.4.1.1 Legislation

- European Union (EU) Water Framework Directive (2000/60/European Commission (EC))
- EU Drinking Water Directive (98/83/EC)
- The Water Environment and Water Services (WEWS) (Scotland) Act 2003 (WEWS Act)
- The Environment Act 1995
- Environment Protection Act 1990
- The Flood Risk Management (Scotland) Act 2009
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (Controlled Activities Regulations (CAR)) (as amended)
- The Water Supply (Water Quality) (Scotland) Regulations, 2001



- Private Water Supplies (Scotland) Regulations 2006
- The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017

8.4.1.2 Policy

- NPF4 Policy 2 (Climate Mitigation and Adaptation), Policy 5 (Soils), Policy 20 (Blue and Green Infrastructure), and Policy 22 (Flood Risk and Water Management);
- DGCLDP2 adopted on 3 October 2019. Specifically, the following policies:
 - NE11: Supporting the Water Environment
 - NE12: Protection of Water Margins
 - NE14: Carbon Rich Soil
 - NE15: Protection and Restoration of Peat Deposits as Carbon Sinks
 - IN7: Flooding and Development
 - IN8: Surface Water Drainage and Sustainable Drainage Systems (SuDS)

8.4.1.3 Guidance

- DGC (2020). Flooding and Development Supplementary Guidance
- DGC (2020). Surface Water Drainage and Sustainable Drainage Systems (SuDS) Supplementary Guidance
- DGC (2020). Wind Energy Development: Development Management Considerations Supplementary Guidance
- Planning Advice Notes (PANs) published by the Scottish Government
- CIRIA (1997). Ground Engineering Spoil: Good Management Practice CIRIA Report 179
- CIRIA (2015). Environmental Good Practice on Site C741
- CIRIA (2015). The SuDS Manual C753
- Forestry Commission (2006). Guidelines for the Risk Management of Peat Slips on the Construction of Low Volume/Low Cost Roads on Peat
- Forestry Commission Scotland & Scottish Natural Heritage (2010). Floating Roads on Peat - Report into Good Practice in Design, Construction and Use of Floating Roads on Peat with particular reference to Wind Farm Developments in Scotland
- Institution of Civil Engineers (2001). Managing Geotechnical Risk: Improving Productivity in UK Building and Construction
- NatureScot, SEPA, FCS, and Scottish Renewables (July 2024). Good Practice during Windfarm Construction
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- Scottish Government (2017). Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Development
- Scottish Government, Scottish Natural Heritage (now NatureScot) & SEPA (2017). Peatland Survey – Guidance on Development on Peatland
- Scottish Renewables, SEPA (2012). Developments on Peatland - Guidance on the assessment of peat volumes, re-use of excavated peat and the minimisation of waste
- SEPA (August 2024). Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems (SEPA, 2024)
- SEPA and NetRegs Pollution Prevention Guidelines (PPG) and replacement Guidance for Pollution Prevention (GPP)

8.4.2 Desk Study

The desk study will be updated to confirm the baseline characteristics across the whole study area relating to geology, hydrology, hydrogeology, soils and peat, including groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and PWS, surface water flows, flooding, rainfall data, water quality and soil data. This will include reviews of published geological maps, OS maps, aerial photographs, and site-specific data such as existing and additional peat probing and GWDTE data, digital terrain models (slope plans) and geological literature.

The desk study will identify sensitive features which may potentially be affected by the Proposed Development.

8.4.3 Field Surveys

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

A detailed site visit and walkover survey will be undertaken, to:

- verify the information collected during the desk and baseline study;
- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;
- visit any identified GWDTE (in consultation with the project ecologists);
- obtain PWS information and visit any PWS within the study area that could potentially be affected by the Proposed Development to confirm details of the location of the abstraction, its type and use, as required;
- prepare a schedule of potential watercourse crossings (where required);
- assess the site geomorphology and conduct additional peat depth probing where needed; and
- inspect rock exposures and establish, by probing, an estimate of overburden thickness (a probe is pushed vertically into the ground to refusal, and the depth is recorded).



The desk study and field surveys will be used to identify potential development constraints and inform the design of the Proposed Development.

Once the desk study is completed and sensitive soil and peat, geological and water features are confirmed, an EIA Report Chapter will be prepared to assess the potential effects on geology, hydrogeology, hydrology, and peat, as a result of the construction, operation, and decommissioning of the Proposed Development.

8.4.4 Assessment of Effects

Having regard to the nature of the Proposed Development and key baseline characteristics, it is considered at this early stage that the assessment would include:

- the positioning of turbines, tracks, and associated infrastructure in areas of no peat or shallow peat and in the least hydrogeologically and hydrologically sensitive areas by applying buffer zones around watercourses and other sensitive features;
- an assessment of the potential effects on soils and peat, including the identification of any areas susceptible to peat slide, using peat thickness and Digital Terrain Model (DTM) data to analyse slopes;
- an assessment of the likely effects of the Proposed Development on the hydrological regime, including water quality, water flow and drainage;
- in consultation with the project geologists and ecologists, an assessment of the potential effects on water (including groundwater) dependent habitats, including peat habitat and GWDTE, if confirmed;
- if required, suitable mitigation measures to prevent significant hydrological and hydrogeological effects; and
- an assessment of the potential flood risk and drainage impacts during construction and operation, including any proposed watercourse crossings.

It is anticipated the EIA Report would include the following technical appendices:

- Peat Landslide Hazard and Risk Assessment (PLHRA), if required;
- Peat Condition Assessment and Peat Management Plan (PMP), if required;
- Carbon Balance Assessment;
- Schedule of Watercourse Crossings;
- Private Water Supply Risk Assessment (PWSRA);
- GWDTE Risk Assessment, if required; and
- Outline Borrow Pit Appraisal, if required.

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

This approach provides a mechanism to identify the areas where mitigation measures would be required, and to identify mitigation measures appropriate to the risk presented by the Proposed Development. This allows effort to be focused on reducing risk where the greatest benefit may result.

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



Embedded mitigation measures will be considered when assessing the magnitude of impacts.

The sensitivity of the receiving environment together with the magnitude of the impact defines the significance of the effect, which will be categorised as either significant or not significant under the EIA Regulations.

8.4.5 Peat Landslide and Hazard Risk Assessment (PLHRA)

If infrastructure is proposed on areas of peatland where slopes exceed 2°, and best practice guidance requires it, a PLHRA will be completed using the site survey data and slope analysis (using DTM data), highlighting areas that may be impacted by a peat slide, to inform the identification of appropriate mitigation measures.

8.4.6 Peatland Condition Assessment

If infrastructure is proposed on areas of peatland, a targeted field assessment will be completed, alongside a desk study, to characterise and classify peatland conditions across the site. The peatland condition assessment will provide a baseline condition assessment that can be used to demonstrate that peat avoidance and impact mitigation is at the core of the Proposed Development design.

8.4.7 Peat Management Plan (PMP)

Results from the phase 1 peat survey will be used to confirm the extents of carbon rich soils and peat within the site, to inform site design and to minimise impacts on carbon rich soils and peat.

If avoidance of peat and carbon rich soils cannot be achieved and development on peat and/or carbon rich soils is required, a stage 1 PMP will be prepared as a supporting Technical Appendix in line with NPF4 and SEPA's Regulatory Position Statement: Developments on Peat (2012) and NatureScot's Good Practice Guidance on Wind Farm Construction. The Waste Framework Directive 2008/98/EC, transposed into National Law under The Waste Management Licensing (Scotland) Regulations 2011, sets out a requirement to apply a waste hierarchy.

In terms of this project, this hierarchy should be considered as follows:

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

The objective of the PMP is to demonstrate to SEPA and other relevant parties that: the extent and characteristics of peat at the site have been investigated; excavations in peat have been minimised wherever possible through design iterations and adoption of appropriate design and mitigation hierarchy; and that excavation and subsequent management of peat, including an estimation of quantities, has been considered as part of the EIA.

The following works will be completed:

- a detailed description of the in-situ peat characteristics at the site and the expected nature and classification (in accordance with von Post Classification or similar) of excavated peat;
- details of the construction activities that are likely to generate peat;



- peat depths across the site will be presented using a 100m grid (where access is possible) and a 10m grid at proposed infrastructure locations (the probing will also provide information of the substrate below the peat);
- the thickness of the peat will be established through probing, and the underlying sub-strata will be confirmed through the inspection of watercourses;
- the investigation will consider turbine locations, access routes, and borrow pit search areas for signs of existing or potential peat instability;
- augering of a representative selection of peat probe locations will be undertaken and the proportion of acrotelmic and catotelmic peat recorded; and
- output from the field survey will comprise a record of investigation locations and summary of peat depths and augering results.

As a minimum, the following sources of information will be referenced, and the relevant data utilised in developing the PMP:

- relevant chapters of the EIA Report;
- site survey data (topographical, peat probing and coring survey data);
- site layout and other design drawings;
- borrow pit appraisal report;
- ecological assessment NVC maps to determine vegetation type and condition, von Post field observations, erosion state, etc.; and
- hydrological assessment, such as information on peat hydrological controls (e.g., grips, forestry drainage, peat pipes, hags and gullies, erosion state, etc.).

8.4.8 Carbon Balance Assessment

A Carbon Balance Assessment will be undertaken to assess the potential CO₂ savings that would be made from the Proposed Development, based on assessing the electricity generation mix that the Proposed Development would displace at any given time, and the carbon released due to the construction of the Proposed Development. The assessment would involve the following steps:

- data gathering (assessment phase: input required from relevant disciplines to provide details on infrastructure dimensions, construction methods, peat depth, habitat loss etc.); and
- data input into the Scottish Government online Carbon Calculator / spreadsheet (incorporating the data collected into the carbon balance assessment).

The carbon calculator will be prepared in line with the following guidance:

- Calculating potential carbon losses and savings from wind farm on Scottish peatlands, Technical Note – v2.10.0. Scottish Government. 2016); and
- Smith et al. 2011. Carbon implications of windfarms located on peatlands – update of the Scottish Government Carbon Calculator tool.

8.4.9 Borrow Pit Appraisal

The identification and assessment of potential borrow pit locations will initially comprise a review of all relevant historical and geological maps, soil survey maps and aerial photographs, together with any available borehole records held by the BGS. This information



will be used in combination with elevation data for the site to identify preferred borrow pit search areas, based on topographic gradients and anticipated geology.

This document will incorporate an engineering geological assessment of the locations identified as potentially viable borrow pits, to determine whether they can supply materials of sufficient quality and quantity for the construction of the Proposed Development.

The report will include:

- justification for each proposed location;
- a description of the area assessed, and its suitability for development of a borrow pit ('search area');
- estimated dimensions of the borrow pit to be developed within the "search area";
- estimated volumes of overburden to be removed;
- description of geology;
- anticipated method of working / extraction;
- preliminary proposals for the restoration / reinstatement of each borrow pit;
- individual figures for each borrow pit showing:
 - the area of search and proposed dimensions in plan view on an OS background map;
 - an indicative cross-section of the proposed borrow pit with original and restored ground profile; and
 - a colour photograph of the proposed location, annotated with the indicative borrow pit layout.

8.4.10 Schedule of Watercourse Crossings

A Schedule of Watercourse Crossings will be prepared as a supporting Technical Appendix to the EIA Report. The following works will be completed:

- photographs and dimensions of watercourses will be collected where permanent watercourse crossings are proposed;
- collected information and locations for each proposed watercourse crossing point will be presented;
- the likely form of track crossing solution will be detailed; and
- the requirement for CAR application will be indicated, where applicable.

8.4.11 Private Water Supply Risk Assessment (PWSRA)

A PWS Risk Assessment will be prepared as part of the EIA Report. The following works will be completed:

- details of private and licensed water abstractions will be obtained from DGC and SEPA, presented on mapping and tabulated;
- the location of the PWS sources will be verified as part of the hydrological site survey;
- the presence of a complete source-pathway-receptor linkage and potential impacts will be assessed; and



- potential mitigation and monitoring recommendations will be outlined for any at risk PWS sources.

8.4.12 Groundwater Dependent Terrestrial Ecosystem Assessment

A Groundwater Dependent Terrestrial Ecosystems (GWDTE) Assessment will be prepared as part of the EIA Report. The following works will be completed:

- NVC mapping will be reviewed, verified by the project ecologists, to screen for potential GWDTE habitat using SEPA guidance; and
- areas of potential GWDTE will be assessed using desk materials and from visual observations collected on site. We have assumed no water sampling or intrusive ground investigation is required to complete the GWDTE assessment.

8.4.13 Cumulative Impacts

A review of other existing (operational and under construction), consented and proposed developments within 5km of the site will be undertaken and potential impacts on geology, hydrology, hydrogeology, soils and peat will be assessed to identify potential cumulative impacts. In accordance with NatureScot and Scottish Government guidance it is not usual to assess scoping stage sites unless they are of particular relevance to the Proposed Development, where sufficient detail is available to inform the assessment, and where they are likely to come forward to application. It is therefore proposed to scope out scoping sites from the cumulative assessment unless otherwise requested by DGC or ECU.

8.4.14 Approach to Mitigation

Embedded Mitigation

The design of the Proposed Development will be iteratively refined in response to constraints identified as part of the baseline and field studies, in order to avoid and/or minimise potential effects on receptors where possible.

For example, it is anticipated that the following mitigation measures will be included in the design of the Proposed Development:

- buffer of 50m applied to watercourses shown on 1:25,000 scale mapping;
- impacts on PWS sources/distribution networks and areas of confirmed GWDTE will be avoided, where practicable;
- site-specific peat probing has been undertaken which has established limited areas of deep peat deposits at the site. Micro-siting of the Proposed Development will avoid areas of deep peat (> 1m) where possible;
- where not possible to avoid deep peat deposits, additional targeted peat probing will be undertaken in accordance with current best practice guidance. Should impacts to peatland be identified, a contemporary PMP and PLHRA will be prepared (where required);
 - the site-specific PLHRA will identify areas of potential increased peat slide risk, which will be avoided through design of the Proposed Development, or mitigation measures to manage these risks will be outlined; and
 - the peat condition assessment and PMP will show how the integrity of carbon-rich soils and peat will be safeguarded.

Comprehensive best practice guidance has been developed to assist developers in minimising the risks associated with wind farm construction and operation and will be used



to develop site specific mitigation measures. Measures will be proposed to control and mitigate, for example, pollution risk (from anthropogenic and geogenic sources), flood risk, watercourse crossings, impacts on surface and groundwater flow paths, and management of peat and carbon rich soils.

Good practice measures will be applied in relation to pollution risk, and management of surface run-off rates and volumes. This will form part of the final Construction Environmental Management Plan (CEMP) to be implemented for the Proposed Development.

Additional Mitigation

Should the assessment of effects identify potential significant effects, additional mitigation measures will be presented in the EIA Report to suitably manage potential effects on the ground and water environment. An assessment of residual effects will then be undertaken.

8.5 Matters Scoped Out

It is proposed that the potential impacts outlined above will be assessed as part of the EIA Report.

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

- Effects on designated sites as there are not hydrologically connected designated sites within the study area or within 5km downstream of the site. It is therefore considered that there are no designated sites which could be impacted by the Proposed Development.
- Impacts on the Glessin Burn nested surface water catchment as no elements of the Proposed Development are located on land which drains to the watercourses in this catchment. As such, the Proposed Development will have no impact on surface water quality or quantity of Glessin Burn and its tributaries.
- It is proposed to scope out effects on geology. While there will be effects arising from rock extraction for borrow pits, track construction and for turbine and crane pad areas, these are limited in area and do not extend beyond the immediate development footprint. No particularly sensitive geological features have been identified within the site. Potential effects on carbon rich soils and peat will be assessed in full.
- A Geomorphological Assessment, as photographs and records of key existing or baseline water features would be recorded and presented in the assessment.
- A detailed Flood Risk Assessment. Published mapping confirms the Proposed Development is not located in an area at risk of coastal flooding or significant fluvial or surface water flooding. It is proposed, therefore, that a simple screening of the potential sources of flooding (fluvial, coastal, groundwater, pluvial, infrastructure etc.) is presented with the EIA Report and measures that would be used to manage flood risk and control the rate and quality of runoff will be specified. In accordance with SEPA Technical Flood Risk Guidance and Good Practice Guidance for river crossings, a detailed Flood Risk Assessment of the access tracks and watercourse crossings which cross mapped floodplains will be undertaken at the detailed design stage and would be secured by a pre-development planning condition. The assessment will establish accurate baseline flood extents and flood depths and provide suitable parameters for the design of the access road and the crossing to ensure that they are capable of passing the 200-year plus climate change peak flow, without adversely impacting peak flood extents and flood depths upstream or downstream of the crossing. The results of the detailed flood risk assessment will be included in the final CEMP, at the



detailed design stage. If any land raising is proposed within the floodplain, appropriate flood compensation will be incorporated within the detailed design of the access tracks and agreed with statutory consultees prior to construction.

- Detailed Drainage Design. A description of the design standards and appropriate sustainable drainage measures which would be used to control and manage incident rainfall would be specified in the EIA Report. The engineering design of the site drainage would be prepared as part of the detailed site design (post planning) and would form part of the final CEMP. This would be submitted to SEPA for approval at that stage and would be secured by a pre-development planning condition.
- Water Quality Monitoring as part of the baseline assessment. Classification data is available from SEPA for the watercourses at site and there are no known sources of potential water pollution at the site that might give rise for the need for water quality monitoring.
- Detailed borrow pit designs. A Borrow Pit Site Management Plan of pollution prevention measures would be prepared as part of the detailed site design (post planning) and form part of the final CEMP. This would be submitted to SEPA for approval at that stage and would be secured by a pre-development planning condition.

8.6 Consultation

Further consultation will be undertaken with SEPA, Scottish Water, DGC and other relevant organisations, as required, following receipt of scoping responses.

8.7 Questions to Consultees

- Q8.1: Published mapping confirms that whilst parts of the site are at risk of flooding from rivers and smaller watercourses, the proposed turbines are generally located on land not identified as being at flood risk. It is proposed, therefore, that a simple screening of potential flooding sources (fluvial, coastal, pluvial, groundwater etc.) is presented in the EIA Report. For river crossings and/or supporting infrastructure within the mapped floodplain, a detailed flood risk assessment will be undertaken at the detailed design stage of the project and included in the final CEMP. This would be secured by a pre-development planning condition. Is this approach acceptable?
- Q8.2: It is not proposed to prepare a detailed drainage design. Rather, measures that would be used to control the rate and quality of runoff from the wider site will be specified in the EIA Report. Again, is this acceptable?
- Q8.3: Site investigations, including additional peat probing, augering and condition assessment, PWS survey, and GWDTE assessment will be undertaken as part of the proposed assessment. Should any additional investigation or data sources be considered when assessing baseline conditions?
- Q8.4: It is not proposed to undertake any water quality sampling, establish groundwater monitoring points, surface water monitoring points or undertake leachability trials of any rock as there is published data that can be used to characterise baseline conditions and complete the impact assessment. Is this acceptable?
- Q8.5: Please advise if there is any specific information or methodology that should be used or followed as part of the PWS risk assessment?
- Q8.6: Do you agree that the scope of the proposed assessment is appropriate?



8.8 References

British Geological Survey, Onshore Geoindex. Available online at <https://mapapps2.bgs.ac.uk/geoindex/home.html> [Accessed July 2025].

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SEPA, Water Classification Hub. Available online at <https://informatics.sepa.org.uk/WaterClassificationHub/> [Accessed July 2025].

Scottish Government, Rainfall Data: Craigdarroch. Available online at <https://www2.sepa.org.uk/rainfall/> [Accessed July 2025].

The James Hutton Institute, National Soil Map of Scotland. Available at: <https://soils.environment.gov.scot/maps/soil-maps/national-soil-map-of-scotland/> [Accessed July 2025].



9.0 Archaeology and Cultural Heritage

9.1 Introduction

This section outlines the proposed scope and methodological approach for the archaeology and cultural heritage chapter of the EIA Report. The chapter will assess the potential effects resulting from the Proposed Development on archaeology and cultural heritage assets, which include:

- World Heritage Sites;
- Scheduled Monuments;
- Listed Buildings;
- Inventoried Gardens and Designed Landscapes (GDLs);
- Inventoried Battlefields;
- Conservation Areas; and
- non-designated heritage assets, such as locally and regionally important heritage features.

The cultural heritage impact assessment will:

- identify cultural heritage assets that may be subject to significant effects, both within the limits of the Proposed Development and within a defined Study Area;
- establish the potential for currently unknown archaeological assets to survive buried within the site;
- assess the predicted effects on these assets; and
- propose a programme of mitigation where appropriate.

The assessment will consider direct physical effects, direct effects on the setting of an asset, indirect effects (such as increased pollution or changes in water draining patterns which can indirectly affect the preservation of heritage materials), and cumulative effects (where assets affected by the Proposed Development are also likely to be affected by other unrelated development proposals).

This section is supported by the following:

- **Appendix 9.1** – Cultural Heritage Appraisal of Scoping Layout A;
- **Appendix 9.2** – Cultural Heritage Appraisal of Scoping Layout B;
- **Figure 9.1** – Heritage Designations Scoping Layout A; and
- **Figure 9.2** – Heritage Designations Scoping Layout B.

9.2 Environmental Baseline

9.2.1 Overview

A high-level review of the baseline conditions has been undertaken with reference to the available historic environment data and the site boundary and Scoping Layouts A and B described in this Scoping Report. This may be subject to change according to subsequent design iterations.



9.2.2 Assets within the Site Boundary

There are no designated assets within the site boundary as a whole, including along the southern and northern access routes, however, a preliminary search of the available historic environment record data¹⁷ shows a total of 20 non-designated heritage assets within the site boundary. These assets are outlined within **Table 9.1**.

These assets range in form, function and period; from funerary and ritual monuments characteristic of the prehistoric period to evidence of later land exploitation in the form of post-medieval farmsteads.

Regardless of their form, function and dating, these assets are distributed in areas away from the more upland areas of the site, concentrated more in the northern areas of the site away from the steeper slopes and closer to burns and more fertile land. They provide evidence for the varied land-use of the site from prehistory to the current day, demonstrating its transition from a potential site of prehistoric ritual significance to post-medieval agricultural use, to its modern-day usage for commercial forestry.

Due to the concentration of assets within the site, particularly from the prehistoric period, it is considered that there is the potential for unrecorded archaeological remains to be present within the site boundary.

A full commercial Historic Environment Records (HER) data search will be undertaken ahead of the baseline survey and used to inform an understanding of key constraints.

Table 9-1: Cultural Heritage Assets within the Site Boundary

NRHE Reference	Asset Name	Asset Type	Period
64754	Heathery Plantation	Cairns	Prehistoric (Potential)
64757	Heathery Plantation	Enclosure	Prehistoric (Potential)
64767	Lamb Rig	Ditch	Undated
74452	Lochurr	Cairnfield, Enclosure, Shielling Huts	Post-medieval
177999	Pointfoot	Structure	Undated
178015	Walls Burn	Farmstead	Undated
178027	Gullet Wood	Buildings	Undated
178028	Gullet Wood	Buildings	Undated
64746	Girharrow	Knife (Flint)	Prehistoric
64748	Glenharrow Burn	Cairnfield	Prehistoric
64750	Girharrow	Cist	Prehistoric (Potential)
64753	Girharrow	Cairn	Undated
64755	Girharrow	Cairn	Undated
64758	Girharrow Burn	Cairnfield	Undated
64760	Girharrow Burn	Cairnfield	Prehistoric
64763	Girharrow	Cairn	Prehistoric (Potential)

¹⁷ Data sourced from the National Record of the Historic Environment (NRHE), via digital download.



NRHE Reference	Asset Name	Asset Type	Period
74589	Cleughside	Cairn	Prehistoric
74556	Skelston Burn	Burnt Mound	Prehistoric
178010	Dalmacallan	Building	Undated
179237	Crawfordton Moss	Building	Undated

9.2.3 Assets outwith the Site Boundary

For Scoping Layout A, there are 21 Scheduled Monuments, nine Category A Listed Buildings, and one Inventoried Garden and Designed Landscape within 10km of the proposed turbine locations. In addition, there are a total of 41 Category B Listed Buildings and one Conservation Area within 5km of the proposed turbine locations.

For Scoping Layout B, there are a total of 19 Scheduled Monuments, nine Category A Listed Buildings, and one Inventoried Garden and Designed Landscape within 10km of the proposed turbine locations. In addition, there are a total of 40 Category B Listed Buildings and one Conservation Area within 5km of the proposed turbine locations.

9.3 Potential Sources of Impact

9.3.1 Potential Sources of Impact within the Site Boundary

The 20 non-designated recorded assets recorded within the National Record of the Historic Environment (NRHE) within the site boundary (**Table 9.1**) will be confirmed via a full commercial HER search ahead of the site survey. Whilst positioned outside of the current placement of the turbines, these known cultural heritage assets may be susceptible to a high level of direct or indirect impact as a result of the construction of the associated infrastructure (e.g. access tracks, substation) and any design changes will need to take into consideration the location of these assets to avoid any potential direct impacts on the heritage assets as far as possible.

Furthermore, there is the potential for direct impact on any as of yet unrecorded cultural heritage assets within the site as a result of the construction process. A targeted site walkover is proposed, in order to visit the locations of the proposed turbines and other associated infrastructure and inspect for any visible unrecorded assets. The potential for impact on unrecorded cultural heritage assets will be assessed within the chapter.

Relevant mitigation measures will be embedded within the design of the Proposed Development as design progresses. Potential mitigation is discussed in **Section 9.4.12** of this Scoping Report.

If there are any further ground-breaking works undertaken during operation or decommissioning of the wind farm (e.g., track widening), then there is the potential for further impact on recorded or unrecorded heritage assets. If this is the case, then further mitigation methods may be required.

9.3.2 Potential Sources of Impact outwith the Site Boundary

Direct impacts to an asset's setting are most likely to occur as part of the construction and operational phases of development.

To provide this preliminary list of assets that will be subject to a detailed assessment, designated assets that are within the scope of assessment and within 10km of each proposed turbine of Scoping Layouts A and B were subject to an initial appraisal (**Appendix**



9.1; Appendix 9.2). No designated heritage assets with long distance views as part of their setting were identified outwith 10km of the Proposed Development (Scoping Layouts A or B).

The appraisals are intended to create a proportionate scope for the assessment, and each asset will be subject to repeated appraisals throughout the EIA process, subject to changes to the proposed turbine layout. Assets that have been scoped in may be scoped out and vice versa, dependent on the final layout and as a result of consultee comments.

All designated cultural heritage assets within 10km of each Scoping Layout, along with the ZTV indicating their visibility of the proposed turbines, are depicted on **Figure 9.1** (Scoping Layout A) and **Figure 9.2** (Scoping Layout B).

Following the appraisal of assets set out in **Appendix 9.1** and **Appendix 9.2**, eight designated cultural heritage assets have been identified as requiring a detailed settings assessment within the EIA Report, as there is the potential for the Proposed Development to have a significant effect upon them. This list of assets scoped in for further assessment is the same for both Scoping Layout A and Scoping Layout B.

The assets scoped in for further assessment within the EIA Report after the initial heritage appraisal are outlined in **Table 9-2**. Furthermore, the locations of visualisations, in the form of photomontages, are proposed in **Table 9-2**. In the event that any viewpoints cannot be accessed and photos cannot be taken, wirelines will be produced. These visualisation locations are approximate, and final locations will depend on access and visibility of the final layout of the Proposed Development. Any changes in visualisation locations will be communicated to the appropriate consultees. The provided visualisations will include the developments considered for cumulative assessment.

Table 9-2: Assets Scoped In for Further Assessment due to Potential for Settings Impacts

Asset Reference	Asset Name	Type of Asset	Proposed Visualisation Location
SM5556	Sundaywell, fort 300m N of	Scheduled Monument	A photomontage will be produced from 281083, 584735.
SM663	Tynron Doon, fort	Scheduled Monument	A photomontage will be produced from 281965, 593937.
SM659	Rough Island, crannog	Scheduled Monument	A Photomontage will be produced from the approximate position of where the causeway would have connected with the shoreline at 276396, 584522. Due to the Crannog no longer being connected to the shore via causeway, and therefore causing access restrictions, a wireline will be produced from the centre of the Crannog at 276253, 584497.
SM1101	Craigmue Moor, Watch Knowe, fort	Scheduled Monument	A photomontage will be produced from 274267, 586437.
SM1125	Lochrinnie Mote, motte 250m WNW of Craigmue Lodge	Scheduled Monument	A photomontage will be produced from 272838, 587047.
SM695	Lower Ingleston, motte and bailey 400m ENE of	Scheduled Monument	A photomontage will be produced from 279883, 589991.



Asset Reference	Asset Name	Type of Asset	Proposed Visualisation Location
LB10307	Glenluiart House	Category A Listed Building	Glenluiart House is a private residence, as such, whilst a photomontage will be attempted to be created from the principal south facing rooms (276420, 590860), it may not be possible to gain access. If access cannot be gained, a wireline will be provided from the approximate height of the south facing windows.
LB10324	Maxwelton House	Category B Listed Building	Maxwelton House is a private residence, as such, whilst a photomontage will be attempted to be created from the principal southwest facing rooms (282201, 589686), it may not be possible to gain access. If access cannot be gained, a wireline will be provided from the approximate height of the southwest facing windows.
GDL00276	Maxwelton (Glencairn Castle)	Inventory Garden and Designed Landscape	A photomontage is proposed from the main drive at 282188, 589661. However, Maxwelton GDL is a private residence, as such it may not be possible to gain access to the grounds. If access is not possible then a wireline will be produced from the same location.

9.4 Assessment Methodology

9.4.1 Legislation, Policy and Guidance

In addition to the EIA Regulations, NPF4 and the local development plan, the following documents will be referred to:

Legislation

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

Planning Policy

The UK Government, Scottish Government, Historic Environment Scotland (HES) and the relevant local authorities have issued a number of statements of policy with respect to dealing with the historic environment in the planning system:

- Onshore Wind Turbines: Planning Advice (2014); and
- Historic Environment Policy for Scotland (HEPS 2019).

Guidance and Standards

Relevant guidance and technical standard documents comprise:

- HES Guidance on Managing Change in the Historic Environment: Setting (2020);



- A Guide to Climate Change Impact: On Scotland's Historic Environment (2019);
- Scottish National Heritage (NatureScot) and HES Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland (2019); and
- Chartered Institute for Archaeologists Standard and Guidance for Historic Environment Desk-Based Assessment (2014, updated 2020).

9.4.2 Proposed Sources

The sources to be consulted in the production of the EIA chapter include, but are not limited to, those outlined in **Table 9-3**.

Table 9-3: Proposed Sources

Subject	Author Summary	Source
Designated Cultural Heritage Assets	The database of HES	HES digital data download.
Conservation Areas	DGC and HES	HES digital data download, Conservation Area Appraisal from DGC if available
Non-designated cultural heritage assets (Local HER)	Data held by DGC	Digital data purchased from the DGC as a download
Non-designated cultural heritage assets (National database)	Trove online database curated by HES	Trove Online Database
Historic Mapping	National Library of Scotland	National Library of Scotland website
Unpublished reports	Various	Various
Published works of synthesis	Various	Various
Aerial Photography	HES	HES database Trove Online Database and National Collection of Aerial Photography (NCAP) (online)
Historic Land Use Assessment	HES	HES digital data download

9.4.3 Study Area

For the assessment, a Study Area (**Figure 9.1, Figure 9.2**) of 10km from the location of the proposed turbines has been defined. There is no guidance defining what the extent of an appropriate 'study area' should be for the archaeological and cultural heritage assessment of wind farms. The proposed Study Area, therefore, represents an exercise in professional judgement, using the Zone of Theoretical Visibility (ZTV) and the scale of the development, and will be refined to a point of agreement between stakeholders during consultation.

Assets recorded within the site and 1km of the site boundary will be analysed to inform the archaeological potential of the site.



9.4.4 Scope of the Assessment

9.4.4.1 Assets within the Site

All cultural heritage assets within the site boundary will be assessed in order to determine any direct and indirect impacts. Should DGC identify any non-designated assets that it considers to be of national/regional significance, and which they consider to derive significance from their setting, these should be made known to the Applicant via consultation.

9.4.4.2 Assets outwith the Site

All nationally significant designated assets within the aforementioned 10km Study Area will be subject to an initial setting assessment in order to determine any potential impacts (**Appendix 9.1**). Assets considered to be of national importance by DGC, including non-inventoried designed landscapes, will be subject to an appraisal and considered for further assessment once HER data has been purchased. A final scope of assets that have the potential for significant effects as a result of the Proposed Development will be agreed with the relevant consultees and assessed in full within the EIA Report.

9.4.5 Consultation

Based on the results of the baseline study, constraint mapping, using GIS software, shows mapped heritage assets in relation to a ZTV (**Figure 9.1, Figure 9.2**). This filters out those assets that do not require further assessment. These figures are provided to identify and agree on the most potentially sensitive assets; which may then require computer-generated visualisations to be produced as part of their assessment. Consultees (including HES and DGC) are invited to comment on the current scope of assets to be assessed in the EIA.

HES is also invited to comment in relation to the method of assessment employed in assessing those heritage assets within their remit; these include: Scheduled Monuments, Category A Listed Buildings, Inventoried Gardens and Designed Landscapes (GDLs), and Inventoried Battlefields.

DGC is invited to comment in relation to non-designated heritage assets and designated heritage assets of regional significance, and any non-designated assets which it considers to be of higher significance.

Additional follow up consultation, post-scoping, will be undertaken as required with HES and DGC to agree on the scope of assessment for the final design layout of the Proposed Development.

9.4.6 Field Surveys

A targeted site inspection will be carried out in relation to all recorded assets within the site boundary; the aim of this would be to establish the condition of any recorded assets and identify the potential for any additional presently unrecorded assets.

Targeted field inspection of assets scoped in for further assessment will also be undertaken following a desk-based comparison of asset mapping with ZTV and satellite imagery. This survey will inspect any designated heritage assets potentially susceptible to impact from change to their setting as a result of the Proposed Development.



9.4.7 Zone of Theoretical Visibility

The setting impact assessment will be assisted by the ZTV¹⁸ as presented on **Figure 9.1** and **Figure 9.2**. The ZTV is based upon the maximum level of theoretical visibility, i.e. the maximum height of the turbine blade tips, which in the case of the Proposed Development would be 200m for Scoping Layout A and 180m for Scoping Layout B.

9.4.8 Assessment and Types of Impact

Impacts have the potential to be caused by the Proposed Development where it changes the baseline condition of either the asset itself or its setting; it being noted that change does not necessarily result in a negative impact.

In accordance with best practice EIA guidance (Scottish Natural Heritage and HES 2018), the cultural heritage assessment will identify impacts and effects as either direct or indirect, adverse or beneficial, and short-term, long-term or permanent. The definition of impact is described below:

- Direct impacts (physical) 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 are those which would affect the heritage significance of an asset by causing change to its fabric indirectly, such as increased pollution or changes in water draining patterns which can indirectly affect the preservation of heritage materials.
- Direct setting impacts 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. Setting impacts may also 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 or allocated in a Local Development Plan.

Assessment will be undertaken separately for direct physical impact, indirect impact and direct setting impacts and will take into account the level of their heritage significance (where known) and the magnitude (extent) of the identified impacts.

Potential impacts on cultural heritage assets will be identified and assessed with reference to guidance set out by NatureScot and HES (2019). Assessment will be carried out in the following stages:

- initial consideration of intervisibility and other factors leading to the identification of potentially affected assets;

¹⁸ A ZTV shows the predicted degree of visibility of a proposed development from all points within a proportionate, defined study area around the site, as would be seen from an average observer's eye level (2m above ground level)



- assessment of the cultural heritage significance of potentially affected assets;
- assessment of the contribution of setting to the cultural heritage significance of those assets;
- assessment of the extent to which change to any contributing aspects of the settings of those assets, as a result of the Proposed Development, would affect their cultural heritage significance (magnitude of change); and
- determination of the significance of any identified effects.

Assessment on the potential impacts on the setting of cultural heritage assets will be carried out following the three-stage approach outlined in Managing Change in the Historic Environment: Setting (HES 2020):

- 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; and
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.

9.4.9 Cultural Heritage Significance

The categories of cultural heritage significance to be referred to are presented in **Table 9-4**, which will act as an aid to consistency in the exercise of professional judgement and provide a degree of transparency for others in evaluating the conclusions drawn.

The significance categories take into account factors such as designation, status and grading. For non-designated assets, consideration will be given to their inherent heritage interests, intrinsic, contextual, and associative characteristics. In relation to these assets, the assessment will focus upon an assessment of the assets' inherent capability to contribute to our understanding of the past; the character of their structural, decorative and field characteristics as informed by the HER and Trove (HES) records and / or site visit observations; the contribution of an asset to their class of monument, or the diminution of that class should an asset be lost; and how a site relates to people, practices, events, and/or historical or social movements. Assessments of the cultural significance of specific assets, where recorded within the HER, will be considered where appropriate.

Table 9-4: Cultural Heritage Significance

Cultural Heritage Significance	Example
Very High	Sites of international importance, including World Heritage sites.
High	Sites of National importance, including: Scheduled Monuments; Category A Listed Buildings; Gardens and Designed Landscapes included on the national inventory; Designated Battlefields Conservation areas containing nationally important buildings; and Non-designated assets of equivalent significance.
Medium	Sites of Regional/local importance, including:



Cultural Heritage Significance	Example
	Category B and C Listed Buildings; Conservation Areas containing buildings that contribute significantly to its character; and Non-designated assets of equivalent significance.
Low	Assets of local importance Heritage assets compromised by poor preservation and/or poor survival of contextual associations or with little of the asset remaining to justify a higher importance.
Negligible	Assets that are of very little or no heritage interest. Heritage assets where the ability to interpret their archaeological context has been removed/eroded.
Unknown	Further information is required to assess the significance of these assets.

In addition to identifying the cultural significance of a heritage asset, it is essential, where changes to setting are being assessed, to understand the contribution that setting makes towards the cultural significance of an asset. Elements of setting may make a positive, neutral, or negative contribution to the cultural significance of an asset. Therefore, in determining the nature and level of impact upon an asset and its setting by the Proposed Development, the contribution that setting makes to an asset's cultural significance and therefore its sensitivity to changes to its setting need to be considered.

This approach recognises the importance of avoiding significant adverse effects on the integrity of the setting of an asset in the context of the contribution that setting makes to the understanding, appreciation, and experience of an asset. It recognises that setting may be key in characterising, understanding, and appreciating some, but not necessarily all, assets. Indeed, assets of high or very high significance do not necessarily have high sensitivity to changes to their settings.

An asset's relative sensitivity to alterations to its setting refers to its capacity to retain its ability to contribute to an understanding and appreciation of the past in the face of changes to its setting. The ability of an asset's setting to contribute to an understanding, appreciation and experience of it and its cultural significance also has a bearing on the sensitivity of that asset to changes to its setting.

While certain cultural heritage assets of high or very high importance are likely to be sensitive to direct impacts, not all will have a similar sensitivity to effects on their setting; this would be true where setting does not appreciably contribute to their cultural significance. HES' guidance on setting makes clear that the level of effect may relate to *"the ability of the setting of an asset to absorb new development without eroding its key characteristics"* (HES, 2020). Assets with very high or high relative sensitivity to setting impacts may be vulnerable to any changes that impact their setting and even slight changes may erode their key characteristics or the ability of their settings to contribute to the understanding, appreciation, or experience of them. Assets where relative sensitivity to changes to their setting is lower may be able to accommodate greater changes to their settings without key characteristics being eroded.

The key criteria used for establishing an asset's relative sensitivity to changes to its setting is detailed in **Table 9-5**. This table has been developed based on SLR's professional judgement and experience of assessing setting impacts. It has been developed in line with relevant policy and guidance.



Table 9-5: Sensitivity of Setting

Relative Sensitivity	Explanatory Criteria
Very High	An asset, the setting of which is crucial to an understanding, appreciation, and experience of it, should be regarded as having very high sensitivity to changes to its setting. This is particularly relevant where setting, or elements of, make a crucial and essential direct contribution to significance.
High	An asset, the setting of which is major to an understanding, appreciation, and experience of it, should be regarded as having high sensitivity to changes to its setting. This is particularly relevant where setting, or elements of, contribute substantially to their cultural significance.
Medium	An asset, the setting of which makes a moderate contribution to the understanding, appreciation, and experience of it, should be regarded as having medium sensitivity to changes to its setting. This could be an asset for which setting makes a contribution to significance but whereby its value is derived equally from its other characteristics.
Low	An asset, the setting of which makes some contribution to the understanding, appreciation, and experience of it, should be regarded as having low sensitivity to changes to its setting. This could be an asset where its significance is derived mainly from other characteristics.
Negligible	An asset where setting makes a minimal contribution to the understanding, appreciation and experience of the asset, and it should be thought of as having a negligible sensitivity to changes to its setting.

The determination of an asset's relative sensitivity to changes to its setting is first and foremost reliant upon the determination of its setting and how setting aligns with other key characteristics which contribute to cultural significance. While cultural significance is defined by the criteria set out in **Table 9-4**, the sensitivity of setting criteria for each asset will be defined using professional judgement and, where appropriate, by a site visit conducted by the assessor. The resulting sensitivity of setting will then be defined and referenced within the assessment for use in applying professional judgement to determine whether the resulting effects are in line with policy.

9.4.10 Magnitude of Impact

Determining the magnitude of impact includes consideration of the nature of the activities proposed during the construction, operational and decommissioning phases of the Proposed Development. Activities could potentially include ground disturbance, and result in visual change, as well as noise, vibration, smell, dust, traffic movements etc. which could result in changes to setting.

Taking into account all embedded mitigation measures, which will be developed throughout the design process, the magnitude of impact will be assessed using professional judgement, with reference to the criteria set out in **Table 9-6**.



Table 9-6: Magnitude of Impact

Magnitude of Impact	Explanatory Criteria
High Beneficial	The Proposed Development would considerably enhance the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Medium Beneficial	The Proposed Development would enhance, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Low Beneficial	The Proposed Development would enhance, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Very Low Beneficial	The Proposed Development would enhance, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate, and experience it.
Neutral/None	The Proposed Development would not affect the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Very Low Adverse	The Proposed Development would erode, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would not be considered to affect the integrity of the asset's setting.
Low Adverse	The Proposed Development would erode, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would rarely be considered to affect the integrity of the asset's setting.
Medium Adverse	The Proposed Development would erode, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact might be considered to affect the integrity of the asset's setting.
High Adverse	The Proposed Development would considerably erode the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would probably be considered to affect the integrity of the asset's setting.

9.4.10.1 Significance of Effect

Table 9-7 provides a matrix that relates the cultural significance of the asset to the magnitude of impact on its cultural significance, to produce an overall anticipated level of effect (significance of effect). Effects may be beneficial or adverse, and may be short term, long term or permanent.



Table 9-7: Significance of Effect Matrix

Magnitude of Impact	Cultural Significance (Excluding Unknown)				
	Very High	High	Medium	Low	Negligible
High beneficial	Major	Major	Moderate	Minor	Very Minor
Medium beneficial	Major	Moderate	Minor	Very Minor	Negligible
Low beneficial	Moderate	Minor	Very Minor	Very Minor	Negligible
Very low beneficial	Minor	Very Minor	Negligible	Negligible	Negligible
Neutral/None	Neutral/Nil	Neutral/Nil	Neutral/Nil	Neutral/Nil	Neutral/Nil
Very low adverse	Minor	Very Minor	Negligible	Negligible	Negligible
Low adverse	Moderate	Minor	Very Minor	Very Minor	Negligible
Medium adverse	Major	Moderate	Minor	Very Minor	Negligible
High adverse	Major	Major	Moderate	Minor	Very Minor

Once the anticipated effects of the Proposed Development upon cultural heritage assets are defined, professional judgement will be used to determine whether those effects would be either 'significant' or 'not significant' for the purposes of EIA. As part of this determination process, regard will be given to any relevant guidance.

With reference to the matrix presented in **Table 9-7**:

- any effects identified as 'major' would most probably be considered 'significant;'
- any effects identified as 'moderate' might also be considered 'significant,' although professional judgement may determine otherwise based on the associated site-/asset-specific detail; and
- any effects identified as 'minor' or less are unlikely to be considered 'significant,' though again, professional judgement will be exercised.

A clear statement will be made in relation to all affected assets as to whether the identified effects upon them are considered to be 'significant' or 'not significant' for purposes of EIA.

9.4.10.2 Integrity

Policy 7h) of NPF4 states that development proposals affecting scheduled monuments will only be supported where; "*significant adverse impacts on the integrity of the setting of a scheduled monument are avoided.*"

A significant effect in EIA terms does not necessarily equate to a significant impact upon the integrity of setting. Where EIA defined significant effects are found, a detailed assessment of adverse impacts upon the integrity of the setting is made. Whilst non-significant effects are unlikely to significantly impact the integrity of the setting, the reverse is not always true. That is, the assessment of an effect as being significant in EIA terms does not necessarily mean that the adverse effect on the setting of the asset will significantly impact its integrity. Changes to factors of setting that contribute to cultural significance, such that the understanding, appreciation and experience of an asset are not adequately retained will have a significant adverse impact on the integrity of its setting.



9.4.11 Mitigation

Where adverse effects on cultural heritage assets are possible, the magnitude of impact can be reduced through measures to prevent, reduce and/or, where possible, offset these impacts. Suitable measures for reducing or removing any direct and indirect impacts will be embedded into the design of the Proposed Development where possible and will be outlined within the EIA Report. Where avoidance of impacts through embedded measures is not possible, a programme of archaeological works will be designed and agreed with the relevant authorities and implemented.

Suitable measures for minimising impacts through ground disturbance might include:

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

Suitable measures for mitigating any setting impacts during the iterative design process might include:

- alteration of the proposed turbine layout;
- deletion or removal of turbines; and/or
- reduction of proposed turbine heights.

9.4.12 Cumulative Effect

Wind farms that are under construction when the assessment is undertaken are considered as part of the baseline environment for operational impact assessments. Any effect resulting from operational wind farms has been considered as part of the baseline setting of the asset.

Cumulative effects will be assessed in line with the guidance provided in the EIA Handbook (Scottish Natural Heritage and HES, 2018). A cumulative effect is considered to occur when there is a combination of:

- a significance of effect on an asset or group of assets due to changes resulting from the Proposed Development; and
- an impact on the same asset or group of assets resulting from other wind farm development (consented or proposed, but not operational or under construction) within the surrounding landscape.

Assets with a minor or higher significance of effect resulting from the Proposed Development in isolation will be considered for cumulative assessment, as these assets are most likely to be susceptible to significant cumulative effects.

Wind farm developments will be considered for cumulative impacts as follows:

- wind farm planning applications within 15km of an asset which have been submitted and have a decision pending; and
- wind farm planning applications within 15km of an asset that have been granted permission but not yet constructed.



In accordance with NatureScot and Scottish Government guidance it is not usual to assess scoping stage sites unless they are of particular relevance to the Proposed Development, where sufficient detail is available to inform the assessment, and where they are likely to come forward to application. It is therefore proposed to scope out scoping sites from the cumulative assessment unless otherwise requested by DGC or ECU.

All wind farm developments considered as part of the cumulative assessment will be listed in full within the cultural heritage chapter of the EIA Report.

9.4.13 Residual Effects

Residual effects are those that remain even after the implementation of suitable mitigation measures. Residual effects will be identified, and the significance of those residual effects defined with reference to **Table 9-6**.

9.4.14 Matters Scoped Out

On the basis of the work undertaken to date, the professional judgement of the cultural heritage team, and experience of other comparable projects, it is considered that direct (setting), indirect, and cumulative impacts of the Proposed Development on Category C Listed Buildings can be scoped out of the EIA in relation to cultural heritage. As per best practice guidance within the EIA Handbook (Scottish Natural Heritage and HES, 2018), Category C Listed Buildings are of local rather than national or regional importance, unless in the opinion of an assessor the importance should be higher.

Category B Listed Buildings located outwith 5km of the proposed turbine locations have been scoped out of any further assessment, as none are situated where views of the turbines would form part of their setting which is considered to contribute to their significance and/or to the ability to understand, appreciate and experience them.

In most cases, the significance of a Conservation Area derives from its character and the assets that it contains, rather than the contribution of the wider landscape. As such, any conservation area outwith 5km of the site has been scoped out, with the justification that, even if visibility between the Proposed Development and the conservation areas may still occur, the conservation areas' significance would not be diminished.

It is also considered that any assets that fall outwith the ZTV (and where important views associated those assets' approaches, and third points of appreciation also fall outwith the ZTV) can be scoped out of the EIA in relation to cultural heritage.

9.5 Summary of Scope

Cultural heritage assets both within the site and outwith the site will be considered for potential for direct, indirect, settings and cumulative impacts as a result of the Proposed Development.

In regard to direct and indirect impacts, mitigation will be embedded into the design of the Proposed Development, in order to avoid impact on known heritage assets. Furthermore, the potential for direct impacts on as yet unrecorded heritage assets will be considered within the EIA Report. If warranted, further mitigation will be agreed with the DGC Archaeologist.

A high-level appraisal has been undertaken of the designated heritage assets within 10km of each Scoping Layout (A and B) of the Proposed Development. These appraisals can be found in **Appendix 9.1** and **Appendix 9.2**. As a result of the appraisals, the assets scoped in for further assessment to be included within the EIA Report are as follows:

- Sundaywell, fort 300m N of (SM5556);
- Tynron Doon, fort (SM663);



- Rough Island, crannog (SM659);
- Craigmuirie Moor, Watch Knowe, fort (SM1101);
- Lochrinnie Mote, motte 250m WNW of Craigmuirie Lodge (SM1125);
- Lower Ingleston, motte and bailey 400m ENE of (SM695);
- Glenluiart House (LB10307);
- Maxwellton House (LB10324); and
- Maxwellton (Glencairn Castle) (GDL00276).

Furthermore, the potential for cumulative effects as a result of the Proposed Development on any sensitive heritage receptors will be considered.

9.6 Questions to Consultees

- Q9.1: Do consultees agree with the proposed scope of the assessment, including the proposed study area?
- Q9.2: Do consultees agree with the proposed assessment methodology?
- Q9.3: Are consultees satisfied with the mitigation measures proposed?
- Q9.4: Are consultees satisfied with the locations and types of visualisations proposed?
- Q9.5: Are the consultees satisfied with matters scoped out?



9.7 References

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10.0 Traffic and Transport

10.1 Introduction

This section outlines the proposed method which will be used to assess the potential effects associated with traffic and transport during the construction, operation and decommissioning of the Proposed Development. The assessment method will follow the guidance in the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, July 2023 and will involve:

- establishing the environmental baseline;
- identifying potential sources of impact;
- quantifying impacts;
- assessing effects;
- identifying mitigation;
- assessing cumulative effects; and
- identifying residual effects.

10.2 Environmental Baseline

10.2.1 Scope of Study / Study Area

The study area for the assessment will comprise the public road network likely to be used by traffic generated by the Proposed Development. The extent of the study area will be refined through the assessment, but it is likely to comprise the following roads as shown on **Figure 1.1a-b**:

- the C116N from Jarbruck to the A702;
- the A702 from the C116N to the A76;
- the A76 immediately to the north and south of the A702;
- the A713 in the vicinity of the A712;
- the A712 between the A713 and the A75;
- the C36S in the vicinity of where the proposed access track would cross it; and
- the C117S in the vicinity of where the proposed access track would cross it (to the north of the junction of the C117S and the U392N).

The A75 and A76 are trunk roads and are under the jurisdiction of Transport Scotland (TS). The remaining roads are managed and controlled by DGC.

The above roads will be visited by members of the project team to record their nature, noting characteristics such as their configuration, presence of footways, speed limits, any restrictions on the passage of vehicles, and to identify any sensitive receptors. The IEMA Guidelines identify such receptors as:

- *“People at home*
- *People at work*
- *Sensitive and/or vulnerable groups (including young age, older age, income, health status, social disadvantage and access and geographic factors)*



- *Locations with concentrations of vulnerable users (e.g. Hospitals, places of worship, schools)*
- *Retail areas*
- *Recreational areas*
- *Tourist attractions*
- *Collision clusters and routes with road safety concerns*
- *Junctions and highway links at (or over) capacity"*

The delivery of the turbine components during construction would require Abnormal Indivisible Load Vehicle (AILV) movements as some of the vehicles carrying the components would have at least one dimension that exceeds the maxima in The Road Vehicles (Construction and Use) Regulations 1986.

The assessment of the traffic and transport effects of the Proposed Development will be accompanied by an investigation of the feasibility of the AILVs routeing to the Site, which will consider additional sections of road to those listed above. It is currently envisaged that components would be delivered to King George V dock in Glasgow and AILVs delivering components to the Proposed Development site would use the route shown on **Figure 2.3**, which includes the M8, M74, M6, A75, A713 and A712 to reach the preferred point of access to the south west of the site.

10.2.2 Field Surveys

Traffic surveys will also be commissioned at locations on roads within the study area. These surveys will be carried out by Automatic Traffic Counter (ATC) for a week outwith school holidays and will record vehicle volumes, types and speeds.

10.2.3 Desk Study

Data on accidents within the last three years on the roads within the study area will be collated from the Crashmap website. The roads authorities for the roads in the study area will be consulted to understand if there are any locations on the road network within the study area where there have been atypically-high accident rates and if there are any plans for remedial works or improvements at those locations.

Online mapping and images will be reviewed to help inform the baseline.

10.3 Potential Sources of Impact

10.3.1 Construction

The Proposed Development would generate demand for transport during its construction and this demand would have the potential to impact on users of the transport network and potentially have an effect on those users. Transport demand would be generated during construction by staff traveling to and from the site and plant, components, materials and supplies being delivered to or removed from the site. This transport demand would lead to additional cars, vans, Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs) on the road network.

The typical number of daily construction-related vehicle movements that would be generated during each month of the construction programme will be estimated. These estimates will reflect the activities that would take place during the various phases of the construction programme and the amount of materials and number of items of equipment that would need to be delivered to or removed from the site. These estimates will also reflect the amount of



timber that would need to be removed from the site prior to construction of the Proposed Development commencing.

The Proposed Development includes search areas for borrow pits. Any aggregate won from these borrow pits would reduce the amount of aggregate needed to be delivered from offsite quarries (and hence generate vehicle movements on the public road network). The estimates of construction-related vehicle movements will reflect the amount of aggregate that it is considered could be won from the onsite borrow pits.

The number of staff likely to be present during each week or month of the construction programme will be estimated based on the Applicant's experience of other similar developments, and the phasing plan for the Proposed Development.

Professional judgment will be applied to estimate the routes taken by vehicles travelling to and from the site.

The potential effects from the passage of the ALLVs delivering the turbine components will be considered in the EIA Report.

10.3.2 Operation

The Proposed Development would generate only a handful of maintenance and inspection vehicle movements once operational and, therefore, no significant traffic and transport-related effects would be expected. Hence, assessment of potential effects during operation are proposed to be scoped out of the assessment.

10.3.3 Decommissioning

Decommissioning of the Proposed Development would generate additional HGV, car and LGV movements, although there would likely be fewer such movements than would be generated during construction (as some of the below ground infrastructure may remain), as such whilst commentary will be provided on its magnitude and significance, detailed assessment is proposed to be excluded from the EIA.

10.4 Method of Assessment and Reporting

10.4.1 Legislation and Guidance

In addition to the EIA Regulations, NPF4 and the local development plan, the assessment will be informed by the following specific legislation:

- The Road Vehicles (Construction and Use) Regulations (1986); and
- The Road Vehicles (Authorisation of Special Types) (General) Order 2003.

The IEMA Guidelines referred to above will be used to assess of the traffic and transport effects of the Proposed Development. That assessment will also be informed by:

- National Roads Development Guide, (Scottish Collaboration of Transportation Specialists (SCOTS));
- Transport Assessment Guidance, Transport Scotland;
- Planning Advice Note: PAN 75 - Planning for Transport, The Scottish Government; and
- Design Manual for Roads and Bridges (DMRB) TA 46/97 Traffic Flow Ranges for Use in the Assessment of New Rural Roads. (Although TA 46/97 has been withdrawn from the DMRB, Transport Scotland state that it remains applicable to trunk road projects in Scotland).



10.4.2 Initial Screening of Scale and Extent of Impact

The additional vehicle movements expected to be generated by the construction of the Proposed Development will be compared to the baseline traffic flows and the percentage increase in all vehicles and in HGVs only will be calculated. These increases will then be reviewed against the IEMA Guidelines, which state:

“Following the determination of a study area, it is recommended the competent traffic and movement expert applies two broad rules of thumb as criteria to assist in delimiting the scale and extent of the environmental assessment:

- Rule 1 Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)*
- Rule 2 Include highway links of high sensitivity where traffic flows have increased by 10% or more.”*

All sections of road within the study area would be subject to the threshold in Rule 1.

The application of Rule 2 in the IEMA Guidelines requires the identification of “*any other link or location where it is felt specific environmental or population sensitivities may occur*”. It is proposed that sections of road will be identified as being of high sensitivity based on the extract from the IEMA Guidelines in **section 10.2.1** and if they are subject to substantial use by sensitive groups (e.g. children, elderly or mobility impaired), they are at sensitive locations (e.g. fronted by schools, hospitals or care homes) or they have been identified by the relevant roads authority as having atypically-high accident rates.

10.4.3 Potential Effects

Where the estimated increase in traffic arising from the construction of the Proposed Development does not breach the relevant ‘Rule 1’ or ‘Rule 2’ threshold for any section of road, the significance of any effects would be concluded to be negligible and not significant in EIA terms. No further assessment work would be undertaken on such sections.

Where the estimated increase in traffic arising from the construction of the Proposed Development breaches the relevant threshold for any section of road, assessment of the potential effects would be undertaken on the issues listed below.

10.4.3.1 Severance

Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure and the separation of people from places and other people. The IEMA Guidelines state that “*Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively*” and “*caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic.*”

10.4.3.2 Road Vehicle Driver and Passenger Delay

The IEMA Guidelines state that “*Traffic delays to non-development traffic can occur at several points on the network surrounding a development site.*” Regarding the significance of effects, the Guidelines state that “*These delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.*”



No detailed traffic modelling (which would quantify delays to drivers) is proposed to be undertaken given the predominately rural nature of the road network around the site and the likelihood, based on professional judgment, that there is substantial spare capacity on the identified road network.

10.4.3.3 Non-Motorised User Delay

The IEMA Guidelines state that *“Pedestrian delay and severance are closely related effects and can be grouped together. Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site.”*

Regarding the significance of effects, the Guidelines state that *“Given the range of local factors and conditions that can influence pedestrian delay (e.g. a discrete delay may have a lesser impact in an urban environment than a rural setting), it is not considered wise to set down definitive thresholds. Instead it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect.”*

10.4.3.4 Non-Motorised User Amenity

The IEMA Guidelines define this as *“the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.”* The IEMA Guidelines also suggest that *“A tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled”* and that *“Thresholds are expressed as a starting point for any assessment and typically have been derived from studies of major changes in traffic flow and therefore should be used cautiously in any assessment. The assessment of amenity should pay full regard to specific local conditions.”*

10.4.3.5 Fear and Intimidation of and by Road Users

This considers the effects that moving vehicles have on people. It considers matters such as the volume of traffic, the proportion of heavy vehicles, the speed of vehicles and the proximity of traffic to people. The IEMA Guidelines set out a means to calculate a 'Degree of hazard score' based on the amount, composition and speed of traffic. This score is then used to identify a 'Level of fear and intimidation'; the degree of change in that level compared to the baseline is then used to categorise the magnitude of change.

10.4.3.6 Road User and Pedestrian Safety

The assessment of accidents relates to the potential for the traffic generated by a development to change accident rates on the road network. The IEMA Guidelines discuss a 'Safe System' approach but also state *“It is recommended that the traffic and movement expert engages with the relevant authorities to determine the best approach for determining the significance of road safety effects”*.

DGC as roads authority for the roads in the study area has a duty under Section 39 of the Road Traffic Act 1988 to *“carry out studies into accidents arising out of the use of vehicles on roads or parts of roads [...] within their area”* and *“in the light of those studies, take such measures as appear to the authority to be appropriate to prevent such accidents, including [...] the construction, improvement, maintenance or repair of roads for the maintenance of which they are responsible”*.



DGC will be consulted to determine if there are any locations on any of the roads within the study area which have atypically-high accident rates and, if so, what plans, if any, they have to address those rates.

10.4.3.7 Hazardous / Large Loads

As mentioned above, the Proposed Development would require some AILV movements to deliver some turbine components. A report on the feasibility of delivering these components will be included as an appendix to the EIA Report.

The number of such movements will be determined, and their potential significance will be based on the extent of works, if any, required to accommodate the vehicles, their number and the sections of road that they would use. There are, however, established procedures in place to manage such movements and it is considered that a risk or catastrophe analysis as described in paragraph 3.50 of the IEMA Guidelines is not required.

10.4.3.8 Application of 'Rule 1' and 'Rule 2' to Road Safety and Driver Delay

The IEMA Guidelines state *"It should be noted that the Rule 1 and Rule 2 'criteria' process may not be appropriate for some impacts, and it is generally accepted by regulators and practitioners that it should not be applied to assessments of air quality, noise, road safety and driver delay. For these impacts, a separate study area and assessment criteria should be agreed with the relevant stakeholders."*

The assessment criteria for potential noise effects are considered in **Section 11: Noise and Vibration** of this Scoping Report and those for air quality are considered in **Section 14: Other Considerations**. It is proposed that the study area for the assessment of both Road User and Pedestrian Safety and Road Vehicle Driver and Passenger Delay is the same as that for the other potential effects (i.e. that described in **Section 10.2.1**). The proposed assessment criteria for Road User and Pedestrian Safety and Road Vehicle Driver and Passenger Delay are described below as are the assessment criteria for the other potential effects listed above.

10.4.4 Magnitude of Impact

The magnitude of impact for each of the effects listed above will be on a scale of high, medium, low and negligible. The suggested application of that scale to each of the effects is shown in **Table 10-1**.

Table 10-1: Suggested Categorisation of Impact Magnitude by Potential Effect

Effect	Impact Magnitude			
	High	Medium	Low	Negligible
Severance	Change in road link traffic flow of over 90%.	Change in road link traffic flow of 60% to less than 90%.	Change in road link traffic flow of 30% to less than 60%.	Change in road link traffic flow of less than 30%.
Road Vehicle Driver and Passenger Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Non-Motorised User Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.



Effect	Impact Magnitude			
	High	Medium	Low	Negligible
Non-Motorised User Amenities	Judgement based on the individual characteristics of sections of road with change in total traffic flows or HGVs of 100% or more.			Change in total traffic flows or HGV flows of less than 100%.
Fear and Intimidation of and by Road Users	Two changes in level of fear and intimidation.	One change in level of fear and intimidation with >400 vehicle increase in average 18-hour vehicle flow or >500 Heavy Vehicles (HV) increase in total 18-hour HV flows.	One change in level of fear and intimidation with <400 vehicle increase in average 18-hour vehicle flow or <500 HV increase in total 18-hour HV flows.	No change in Level of fear and intimidation.
Road User and Pedestrian Safety	Judgement based on accident data. Low or negligible impact likely if section of road under consideration has not been identified by the relevant roads authority as having an atypically high accident rate.			Change in road link traffic flow of less than 10%.
Hazardous / Large Loads	Judgement based on number of such movements and nature of affected road network.			

10.4.5 Receptor Sensitivity

The sensitivity of receptors on the sections of road in the study area to potential effects from additional vehicle movements arising from the construction of the Proposed Development would be categorised. That suggested categorisation is shown in **Table 10-2**.

Table 10-2: Suggested Categorisation of Receptor Sensitivity

Receptor Sensitivity	Description
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident cluster sites (if identified as such by roads authority), retirement homes, urban/ residential roads without footways that are used by pedestrians.
Medium	Traffic flow sensitive receptors: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycleways, community centres, parks, recreation facilities.
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions, residential areas with adequate footways, sections of road with pedestrian crossing facilities and sections of road with footways remote from the carriageway (either by presence of a verge or of on-street parking).
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads/ junctions.

10.4.6 Significance of Effect

A suggested effect significance matrix based on impact magnitude and receptor sensitivity is shown in **Table 10-3**.



Table 10-3: Suggested Effect Significance Matrix based on Impact Magnitude and Receptor Sensitivity

Receptor Sensitivity	Impact Magnitude			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

For traffic and transport, major or moderate effects will be classed as significant in terms of the EIA Regulations.

10.4.7 Cumulative Impacts

A cumulative assessment will be undertaken, which will identify potential impacts from the cumulative increase in vehicle movements arising from the Proposed Development and any other developments which may increase vehicle movements on the road network within the study area.

The cumulative assessment will consider vehicle movements arising from any other developments that are the subject of valid consent applications and those have been consented (but not implemented or under construction) at the time of preparing the EIA report. Vehicle movements from any developments which are under construction or operation at the time of the traffic surveys will be captured in those surveys.

Documentation submitted with any relevant developments within the study area will be reviewed to identify any increases in vehicle movements on the same sections of the road network as the Proposed Development.

The significance of predicted cumulative effects will be assessed using the same process as described above.

10.4.8 Approach to Mitigation

The options to embed primary mitigation (e.g. onsite borrow pits and batching plants) in the design of the Proposed Development will be considered throughout the design process. If included, these measures would generate fewer vehicle movements on the public road network than would be generated if all materials were imported to the site.

Secondary mitigation measures will be suggested to avoid any potential significant effects e.g. stipulating that HGVs to and from the site should avoid a specific route or avoid passing by a sensitive receptor at specific times.

Tertiary mitigation measures would include standard practices that are commonly implemented by contractors e.g. sheeting of loads (to prevent dust) and wheel washes (to prevent mud and debris being deposited on the public road).

Secondary and tertiary measures would be described in a Construction Traffic Management Plan (CTMP). The traffic and transport chapter of the EIA Report will summarise the measures that could be included in a CTMP. The satisfactory submission of a CTMP could be made a condition of any consent granted for the Proposed Development.

Any further mitigation measures that may be required to address cumulative effects will be identified.



10.5 Matters Scoped Out

Transport effects arising from the operation of the Proposed Development are proposed to be scoped out.

10.6 Consultation

DGC will be consulted to understand if there are any locations on the road network within the study area where there have been atypically high accident rates and if there are any plans for remedial works or improvements at those locations.

10.7 Questions to Consultees

- Q10.1: Can you please advise of any developments that should be considered as part of the cumulative assessment?
- Q10.2: Can you please advise of any upcoming changes you are aware of to the transport network surrounding the site?
- Q10.3: Can you please advise of any comments you may have on the suggested scope?
- Q10.4: Do consultees agree with items proposed to be scoped out?

10.8 References

Davis, S., Hoare, D., Howard, R., Ross, A. (2023) Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Road Traffic and Movement. London: IEMA.

Highways Agency (1997). Design Manual for Roads and Bridges, TA 46/97 Traffic Flow Ranges for Use in the Assessment of New Rural Roads. HMSO: London.

The Road Vehicles (Construction and Use) Regulations (1986). 1986 No. 1078. HMSO: London.

The Road Vehicles (Authorisation of Special Types) (General) Order 2003. 2003 No. 1998. HMSO: London.

Scottish Collaboration of Transportation Specialists (SCOTS) (2017) National Roads Development Guide.

Scottish Government (2005). Planning Advice Note: Pan 75 - Planning For Transport. Edinburgh: The Scottish Government.

Transport Scotland (2012). Transport Assessment Guidance. Glasgow: Transport Scotland.



11.0 Noise and Vibration

11.1 Introduction

The noise assessment will focus on the potential for adverse noise impacts at the nearest noise sensitive receptors (NSRs) from the following aspects of the Proposed Development:

- construction noise from the wind turbine installation, infrastructure works, and offsite construction traffic;
- operational noise from the wind turbines; and
- operational noise from fixed plant and equipment associated with the substation.

NSRs are defined, in this context, to be residential properties that could be adversely affected by incident noise from the Proposed Development.

This section provides a summary of the noise effects anticipated at each stage of the Proposed Development and, where appropriate, details the proposed assessment methodologies.

11.2 Environmental Baseline and Potential Sources of Impact

The Proposed Development is located within a rural location, on land currently used for commercial forestry.

There are several scattered residential properties around the site perimeter, at the closest point, turbines are estimated to be approximately 1.2km from any noise sensitive residential receptor.

Should other receptors be identified at consultation stage, these will be considered within future assessments.

11.3 Potential Sources of Impact

11.3.1 Construction Noise

The noise assessment will consider the potential impacts of noise generated during construction of the Proposed Development on nearby NSRs.

Given the intervening distances between receptors and turbine locations, it is proposed to scope out construction vibration from detailed assessment (refer to **Section 11.6**) where vibration related impacts are unlikely to be significant or perceptible over receptor to source distances >250m including blasting.

Construction traffic noise will be risk assessed on the basis of haul route methods from BS5228 in relation to both the northern and southern access route options.

Blasting overpressure is proposed to be discussed qualitatively but scoped out of detailed assessment.

11.3.2 Operational Noise – Wind Turbines

An assessment of operational wind turbine noise will be undertaken. The assessment will also assess cumulative wind turbine noise impacts, considering all proposed (applications submitted), consented and operational wind farm sites within reasonable proximity to the Proposed Development, and that may have a contribution to noise effects at the identified NSRs.



Given the intervening distances between receptors and turbine locations, it is proposed to scope out operational vibration from detailed assessment.

11.3.3 Decommissioning Noise

Decommissioning noise is typically of a lower magnitude than during construction, as such whilst commentary will be provided on its magnitude and significance, detailed assessment is proposed to be excluded from the EIA.

The Scottish Guidelines on “*Streamlining Environmental Impact Assessment for Onshore Wind Farms, September 2025*”¹⁹ states regarding decommissioning effects:

“...it is assumed that these can be scoped out, or given brief treatment in the EIA Report if required, on the basis that effects are likely to be similar to or less than construction effects depending on the topic, and the baseline conditions at the time of decommissioning cannot be accurately known at the time of assessment”

On this basis qualitative discussion will be provided in the EIA Report however it should be understood that where construction noise does not indicate a significant effect the same would be expected to be true of the decommissioning phase which is of lower intensity.

11.4 Method of Assessment and Reporting

11.4.1 Guidance and Legislation

UK Government

The UK Government’s online guidance on noise ‘Guidance – Noise’ states that the management of the noise associated with wind turbines is considered in the “*National planning practice guidance for renewable and low carbon energy*” and the ‘*Assessment and rating of noise from wind farms (ETSU-R-97)*’.

The UK Government online guidance on renewable and low carbon energy ‘Guidance - Renewable and low carbon energy’ states:

“The report, ETSU-R-97: The assessment and rating of noise from wind farms should be used by local planning authorities when assessing and rating noise from wind energy developments. Good practice guidance on noise assessments of wind farms has been prepared by the Institute of Acoustics. The Department of Energy and Climate Change accept that it represents current industry good practice and endorses it as a supplement to ETSU-R-97. It is available on the Department of Energy and Climate Change’s website.”

In February 2023, a report was published by WSP produced on behalf of the (former) UK Government Department for Business, Energy & Industrial Strategy (BEIS); the primary aim of the report was to review current guidance in relation to wind farm noise assessment and make a recommendation as to whether the guidance requires updating. The WSP BEIS report concluded that current guidance would benefit from further review and recommends updates in a number of areas.

On 4 July 2025, the Department for Energy Security and Net Zero (DESNZ)²⁰ launched a consultation for the draft updated guidance on the ETSU-R-97 assessment methods for wind turbine noise, which ended on 29 August 2025. The consultation sought feedback on proposed updates to ensure that planning authorities have the best guidance for assessing noise emissions from onshore wind turbines, balancing opportunities for energy generation with potential noise impacts on residential amenity. Until the results published of this

¹⁹ Guidelines on Streamlining Environmental Impact Assessment- <https://www.scottishrenewables.com/>

²⁰ DESNZ is one of the ministerial departments created when BEIS was replaced in 2023.



consultation is published, current guidance remains applicable; although revised guidance may be issued before submission of the application and therefore any changes will be considered in the EIA as required.

Key proposed revisions that may be relevant at the time of production of the EIA Report for noise include:

- Alignment of day and night fixed limits for wind turbine noise, with an increase of the lower value for the day-time noise limit range to 37 dB L_{A90}.
- Expanded guidance on amplitude modulation assessment (particularly for existing wind farms).

A number of other technical updates have been made to the guidance, which seek to deliver on wider recommendations made in the 2023 Scoping Review (WSP 2023). These include:

- Updated descriptions of the profile of noise emissions from wind turbines, and relevant wind speed references and range, given evolutions in the technology since 1996.
- Clarification of guidance on determining noise limits such that developments are prioritised according to generation capacity.
- Providing clarification on the interpretation of 'financially involved' receptors for the application of noise controls.
- Developing further guidance on cumulative impacts, incorporating existing evidence and best practice advice.
- Providing example planning condition wording and associated technical notes which can be referenced to simplify planning controls.
- Defining the way in which character corrections are to be calculated and combined.

As the consultation progresses and it becomes clearer which elements of the developed guidance may be retained, these considerations will need to be addressed more fully in subsequent work.

The Scottish Government - Planning Information on Onshore Wind Turbines and PAN 1/2011

The Scottish Government's web-based information provides advice to local authorities on the planning issues associated with wind farm development. With respect to noise from wind farms, it recommends the use of ETSU-R-97: The Assessment and Rating of Noise from Wind Farms and the Institute of Acoustics' Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IOA GPG).

It goes on to refer to PAN 1/2011 as providing advice on the role of the planning system in helping to prevent and limit the adverse effects of noise, and states that the associated Technical Advice Note provides guidance which may assist in the technical evaluation of noise assessment.

PAN 1/2011 promotes the principles of good acoustic design and the appropriate location of new potentially noisy development. The associated Technical Advice Note offers advice on the assessment of noise impact and includes details of the legislation, technical standards and codes of practice appropriate to specific noise issues.

Appendix 1 of the Technical Advice Note: Assessment of Noise, describes the use of ETSU-R-97 in the assessment of wind turbine noise.



NPF4 Policy 11 (Renewables)

As a wind project it is clear that Policy 23 is relevant to the proposals:

“.....a) Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:.....

wind farms including repowering, extending, expanding and extending the life of existing wind farms;.....

e) In addition, project design and mitigation will demonstrate how the following impacts are addressed:

i. impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;....”

NPF4 Policy 23 (Health)

Policy 23 relates to health impacts, it is considered a transition to renewable energy will reduce emissions from energy production in Scotland and is thus relevant.

“a) Development proposals that will have positive effects on health will be supported.

e) Development proposals that are likely to raise unacceptable noise issues will not be supported. The agent of change principle applies to noise sensitive development. A Noise Impact Assessment may be required where the nature of the proposal or its location suggests that significant effects are likely.”

Onshore wind: policy statement (OWPS) 2022

The OWPS sets out Scotland’s ambition to deploy 20GW of onshore wind by 2030, as well as details on the formation of an onshore wind strategic leadership group, who will develop an onshore wind sector deal.

Section 3.7. ‘Noise’ states:

“3.7.1. ‘The Assessment and Rating of Noise from Wind Farms’ (Final Report, Sept 1996, DTI), (ETSU-R-97) provides the framework for the measurement of wind turbine noise, and all applicants are required to follow the framework and use it to assess and rate noise from wind energy developments.

3.7.2. The Institute of Acoustics (IOA) Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise was published in May 2013 to support the use of ETSU-R-97 when designing potential windfarm schemes, and the monitoring of noise levels from generating sites. The Scottish Government recognises this guide as a useful tool which developers can use in conjunction with ETSU-R-97.

3.7.3. The Scottish Government is aware that the UK Government has been considering the extent to which ETSU-R-97 may require updating to ensure it is aligned with the potential effects from more modern turbines. The Scottish Government supports this work and we anticipate the results of a short-term review project in due course.

3.7.4. Until such time as new guidance is produced, ETSU-R-97 should continue to be followed by applicants and used to assess and rate noise from wind energy developments.”

11.4.2 Cumulative Wind Farms

As set out above, ETSU-R-97 noise limits apply to the total noise from all wind turbines; therefore, potential cumulative impacts are very important. The IOA GPG advises that consideration should be given to cumulative noise impacts if the Proposed Development produces noise levels within 10 dB of the consented limit at an existing wind farm at common or mutual NSR locations.



Similarly, if the Proposed Development is predicted to produce noise levels at least 10 dB greater than those from any existing wind farm (but compliant in its own right), then a cumulative noise assessment would not be necessary.

Therefore, it is not possible to simply apply a fixed cut-off distance where a cumulative noise assessment would cease to apply.

Generally, any wind farms (operational, consented and applications) within 10km of the site (refer to **Figure 4.2**) will warrant consideration of potential cumulative noise impact at common receptors.

11.4.3 BS5228:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 1 (noise)

Part 1 of the standard sets out techniques to predict the likely noise effects from construction works, based on detailed information on the type and number of plant items being used, their location and the length of time they are in operation.

The noise prediction methods can be used to establish likely noise levels in terms of the $L_{Aeq,T}$ over the core working day. This standard also documents a database of information, including previously measured sound pressure level data for a variety of different construction plant undertaking various common activities.

Three example methods are presented for determining the significance of construction noise impacts. In summary, these methods adopt either a series of fixed noise level limits, are concerned with ambient noise level changes as a result of the construction operations or a combination of the two.

11.4.4 BS4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound

BS4142 is applicable for use in the assessment of control building / substation and transformer noise. It sets out a method for rating and assessing sound of an industrial and/or commercial nature, including “*sound from fixed installations which comprise mechanical and electrical plant and equipment*”.

The assessment procedure contained within BS4142 requires that initially the ‘rating level’ ($L_{Ar,Tr}$) that is (or would be) generated by the source under assessment is determined, externally, at the assessment location. Where this source does not include any acoustic features, such as tonality, impulsivity or intermittency etc., then the rating level ($L_{Ar,Tr}$) equals the specific sound level (L_s), which is the sound pressure level produced by the source using the $L_{Aeq,T}$ noise index. Where the source under assessment does include acoustic characteristics, then a series of corrections are added to the specific sound level to determine the rating level. The degree of correction applied to determine the rating level depends upon the results of either subjective or objective appraisals.

The background sound level at the assessment location, measured using the $L_{A90,T}$ index, is then subtracted from the rating level. The result provides an indication of the magnitude of impact, where the greater the difference, the greater the magnitude of impact.

The following guidance is presented with regard to the difference between the rating and background levels:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.



- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact.
- Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

It can be seen from the above that the degree of impact is also dependent upon the context in which the sound arises. Factors that are considered with respect to context include: the absolute level of sound, and the character and level of the residual sound (that in absence of the source under assessment) compared to the character and level of the specific sound.

With regard to the absolute level, it is stated, amongst other points, that “where background sound levels and rating levels are low, absolute levels might be as, or more relevant than the margin by which the rating level exceeds the background. This is especially true at night”.

The 1997 version of BS4142 stated that rating levels below 35 dB and background noise levels below 30 dB(A) were considered to be “very low”.

11.4.5 Design Manual for Roads and Bridges (DMRB)

DMRB (Highways Agency, 1989) provides standards and advice regarding the assessment, design and operation of roads in the UK. DMRB provides screening criteria, by which percentage changes in traffic flow can be related to a predicted change in road traffic noise. The guidance also provides significance criteria, by which the percentage of people adversely affected by traffic noise can be related to the total noise level due to road traffic, or the increase over an existing level.

DMRB provides screening criteria whereby a change in noise level of 1 dBL_{A10,18hr} is equivalent to a 25% increase or 20% decrease in traffic flow, and a change in noise level of 3 dBL_{A10,18hr} is equivalent to a 100% increase or 50% decrease in traffic flow.

The threshold criteria used for traffic noise assessment during the daytime is a permanent change in magnitude of 1 dB L_{A10,18hr} in the short term (i.e. on opening) or a 3 dB L_{A10,18hr} change in the long term (typically 15 years after project opening). For night time noise impacts, the threshold criterion of a 3 dB L_{night}, outside noise change in the long term should also apply but only where an L_{night}, outside noise greater than 55 dB is predicted in any scenario.

11.4.6 PAN 56 Planning and Noise

The above guidance will be considered in relation to guidance on blasting and overpressure assessment and design limits.

11.4.7 Proposed Study Area

The nearest NSRs surrounding the Proposed Development will be considered within the noise assessment, as well as receptors located in common proximity to cumulative wind farm developments. Typically, where preliminary noise models indicate a contribution 25dB L_{A90} at a receptor, this receptor will be included in further assessments.

Generally, any wind farms (operational, consented and applications) within 10km of the site (refer to **Figure 4.2**) will warrant consideration of potential cumulative noise impact at common receptors.

Where the cumulative noise model indicates a total cumulative sound level due to turbine noise below the lower fixed limit of 35dB L_{A90}, detailed assessment such as wind speed to



background sound level correlation exercises and further comparison against these thresholds will not be required.

11.4.8 Field Survey

The existing baseline noise environment at NSRs in the vicinity of the Proposed Development is anticipated to consist of a combination of natural biophonic and other man-made anthropological sound sources.

Natural sounds include birdsong and wind generated effects, such as wind in the trees and foliage.

Other sounds include road traffic noise, farming activities, noise from industrial activities, existing wind turbine developments, and local noises such as running water and boiler flues, with the levels of each noise source being dependant on the distance from the receptor and shielding.

As noted above, baseline noise levels used to derive the relevant noise limits must not include noise from existing wind turbine developments, and the derived ETSU-R-97 noise limits then apply to operational noise from all wind turbine developments.

A baseline noise survey will be undertaken to derive noise limits in line with ETSU-R-97. The locations for measurement (either at receptors or agreed suitably proxy locations) will be discussed with the DGC Environmental Health Officer (EHO), and the results will be corrected to ensure existing turbine noise is not included in the derivation of the limits devised.

All measurements will be long term (circa one month minimum) to facilitate capturing a full range of wind speed correlated dB L_{A90} background noise levels at 10-minute intervals such that noise level limits can be directed.

11.4.9 Assessment of Construction Noise

A construction noise assessment will be undertaken in accordance with BS5228-1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'.

11.4.10 Assessment of Operational Noise – Wind – ETSU-R-97

ETSU-R-97 details a methodology for establishing noise limits for proposed wind farm developments and these limits should not be exceeded. ETSU-R-97 states that noise limits should be set relative to existing background noise levels at the nearest receptors and that these limits should reflect the variation in both turbine source noise and background noise with wind speed.

Separate noise limits apply for quiet daytime and for night-time periods. Quiet daytime limits are chosen to protect a property's external amenity, and night-time limits are chosen to prevent sleep disturbance indoors, with windows open.

ETSU-R-97 recommends that wind farm noise for the quiet daytime periods should be limited to 5 dB(A) above the prevailing background or a fixed minimum level within the range 35 - 40 dB $L_{A90,10min}$, whichever is the higher.

The precise choice of criterion level within the range 35 – 40 dB(A) depends on a number of factors, including the number of dwellings in the neighbourhood of the wind farm (relatively few dwellings suggest a figure towards the upper end), the effect of noise limits on the number of kWh generated (larger sites tend to suggest a higher figure) and the duration and level of exposure to any noise.



These factors will be considered and a justification for deriving suitable noise limits will be included in the noise assessment.

It is proposed that appropriate noise limits can be derived and applied to the proposed wind turbines acting in isolation.

Meeting these derived noise limits would then ensure that cumulative operational noise levels from the Proposed Development alongside other wind turbines in the area remain within acceptable levels.

The noise limits for the Proposed Development will be calculated by logarithmically subtracting the existing predicted operational noise levels from the following noise limits that apply to cumulative noise from all wind farm developments within a 10km radius.

1. the greater of 43 dB L_{A90} or background plus 5 dB at night;
2. the greater of 40 dB L_{A90} or background plus 5 dB during the daytime; and
3. or the greater of 45 dB L_{A90} or background plus 5 dB at receptor locations that are financially involved with the development.

The exception to this is at receptors where an existing consented daytime noise limit exists, identified upon review of consented or operational wind farms, where this varies from the above, in such cases that limit will be applied as the relevant cumulative noise limit during the daytime from all development.

The derived noise limits will be discussed through consultation with DGC, and it is proposed that a report describing the derivation of the noise limits is included as a Technical Appendix to the EIA Report.

Additional baseline noise measurements may be undertaken to allow the cumulative noise limits to be related to background noise levels. The scope of the baseline noise measurements will be agreed with DGC.

In addition to the noise limits derived for the Proposed Development, consideration will also be given to the extent to which cumulative noise levels increase due to the Proposed Development.

Where the predicted increase is less than 1 dB, the increase in operational noise levels will be negligible, as the minimum perceptible change in noise level in the environment is about 3 dB (and the minimum perceptible change under laboratory conditions is about 1 dB).

The noise assessment for the Proposed Development will be undertaken in three stages:

1. determine the 'Total ETSU-R-97 Noise Limits' which are applicable to the operation of all schemes in the area;
2. undertake a cumulative assessment (where required) to determine whether predictions from all cumulative schemes meet the 'Total ETSU-R-97 Noise Limits'; and
3. derive a set of Site-Specific Noise Limits (for the Proposed Development) and undertake predictions to determine whether the Proposed Development can operate within the Site-Specific Noise Limits.

The guidance contained in the IOA GPG will be used to establish suitable Site-Specific Noise Limits that fully account for the proportion of the Total ETSU-R-97 Noise Limits which has been allocated to, and can realistically be used by, existing operational and consented wind farms in the area.

The noise assessment will include predictions of likely wind turbine noise levels across a range of wind speeds to demonstrate compliance with the Total ETSU-R-97 and Site-Specific Noise Limits.



A cumulative noise assessment will also be undertaken in order to consider the operational, consented and proposed (planning application submitted) wind farms within the vicinity of the Proposed Development. The assessment will be undertaken in accordance with ETSU-R-97 and the IOA GPG.

11.4.11 Assessment of Operational Noise - Substation

An operational noise impact assessment of fixed plant and services associated with the proposal will be undertaken in accordance with BS4142:2014+A1:2019. Presently this is limited to a substation associated with the wind turbine equipment.

11.5 Consultation

Any commentary received on methodology, items scoped in and out of assessment, and perceived mitigation needs will be captured within the EIA Report.

Further to this scoping request, SLR will seek opinion via correspondence with DGC's EHO regarding representative baseline noise survey locations.

If access is refused for any reason at private residences, SLR may then seek agreement with DGC of suitable accessible proxy measurement locations within the site boundary, which could also be considered representative, to facilitate assessments to be undertaken in a timely manner.

11.6 Matters Scoped Out

11.6.1 Eskdalemuir

11.6.1.1 Seismic noise

Seismic noise is defined as "*relatively persistent vibration of the ground, due to a multitude of sources, that is often an unwanted component of signals recorded by seismometers*". It is primarily generated by surface sources such as anthropogenic activity (transportation, industrial processes), wind and atmospheric phenomena, rivers and ocean waves.

Ground vibration can be measured and reported using various metrics including (but not limited to) peak particle velocity (PPV), amplitude (displacement), acceleration and frequency. The amplitude of seismic noise is measured in nanometres (nm) or micrometres (µm).

11.6.1.2 Eskdalemuir Seismic Array

Eskdalemuir Observatory, and the Eskdalemuir Seismology Array (EKA) is an environmental observatory near Eskdalemuir village in Dumfries and Galloway. The observatory was purposely located in an area of low background seismic activity, such that interference with measurements would be minimised.

There is also a second seismic array approximately 3 km to the north of Eskdalemuir, established by the United Kingdom Atomic Energy Authority for monitoring nuclear weapons testing as the UK's contribution to the monitoring network of the Comprehensive Test Ban Treaty (CTBT). The CTBT array has been in operation since 1962.

11.6.1.3 Eskdalemuir Noise Budget

The UK is bound by the CTBT not to compromise the detection capabilities of the EKA.

Departmental responsibility for the operation, maintenance and safeguarding of the EKA rests with the Ministry of Defence (MoD).



A 'noise budget' of 0.336nm for seismic noise from wind turbines has been set for the EKA; this applies to the cumulative seismic vibration of permitted wind turbines within 50km of the EKA and is defined as a root-mean square (rms) value for displacement.

When a proposed new wind farm development is added to the 'Noise Budget Tool' (a spreadsheet maintained by the MoD), it re-calculates the cumulative amplitude of the new development alongside all existing entries. This enables the MoD to assess whether the addition of the further proposed development would cause the cumulative total to exceed the noise budget. If so, an objection will be lodged. It is very unlikely that a development objected to by the MoD on these grounds would receive planning permission without the MoD subsequently removing its objection.

For the avoidance of doubt, all turbine bases and locations associated with the Proposed Development sit outside the 50km exclusion zone (see **Figure 2.2**) and therefore, further analysis regarding the Proposed Development's impact on Eskdalemuir is not considered necessary.

11.6.2 Vibration From General Construction Traffic

Given the nature of the construction activities proposed, and the relative distances from residential receptors, the risk of groundborne vibration impacting on NSRs is very low.

Research by the Transport and Road Research Laboratory found that the levels of groundborne vibration from tracked earth moving equipment (such as a bulldozer or excavator) are imperceptible to humans at a distance of approximately 20m, and those generated by vehicles with rubber tyres (e.g. a heavy lorry or dump truck) would be imperceptible at more than 10m from the haul road. Building damage thresholds are at least an order of magnitude higher, and thus of no concern either.

On public roads, vibration would not be significantly greater than that experienced from existing HGV or agricultural vehicle passes and thus is not explored further.

In regard to rock drilling at borrow pits, **Table 11-1** has been taken from the Australian document "Construction Noise Strategy (Rail Projects)" (NSW Transport Construction Authority) as indicative advice for safe working distance to comply with the vibration criterion levels published within BS 6472-1:2008 and BS 7385-1:1993.

Table 11-1: Recommended safe working distances for Hydraulic Hammers

Plant	Rating/Description	Safe Working Distance (m)	
		Cosmetic Damage	Human Response
Small Hydraulic Hammer	300kg / 5-12t excavator	2	7
Medium Hydraulic Hammer	900kg / 12-18t excavator	7	23
Large Hydraulic Hammer	1,600kg / 18-34t excavator	22	73

It is not believed there are any sensitive receptors in relative proximity (see safe working distances) to borrow pits, thus detailed assessment is proposed to be excluded.

11.6.3 Vibration from Piling

In regard to piling, piling is anticipated to be required during the construction of turbine bases.



Piling vibration impact has therefore been considered at scoping stage to devise where detailed assessment is warranted.

Predictions of the groundborne vibration generated by the piling have been performed using the methodology in BS 5228-2:2009+A1:2014. It is anticipated that that all piles will be driven to refusal and that the maximum pile driver hammer energy has the potential to be around 225kJ.

This is greater than the stated range of hammer energy in the prediction method, which is 1 to 85 kJ. BS 5228-2:2009+A1:2014 doesn't state an applicable distance range for the prediction methodology, however the research on which it is based (Groundborne vibration caused by mechanised construction works, Hiller and Crabb, 2000) validated the equation with measured levels at distances of up to 120m.

The closest residential NSR to any piling location is at least a minimum distance of 400m.

At this distance the predicted vibration level is <1mm/s. However, on the basis that the hammer energy levels and distance from the source exceed the range of accuracy of the standard the potential levels at the receptor have been considered further by examining the historic case study data in BS 5228-2:2009.

There are seven reported measurements of vibration levels generated by sheet steel piling at distances in excess of 100m and these are shown in **Table 11-2**.

Table 11-2: BS 5228-2:2009 relevant historic data on vibration from driven sheet steel piling

Soil conditions	Theoretical Energy Per Blow (kJ)	Distance (m)	PPV (mm/s)
Fill / 6 m alluvium / 4 m to 6 m peat, clay, sand and silt / 1.3 m sand and gravel / 5 m stiff clay / 9 m dense sand / hard chalk	71.6 to 143.2	130-250	0.1
			0.015 to 0.025
Not recorded	Not recorded	300	0.015

It should be noted that it may not have been the case that piles were driven to refusal. Nevertheless, given that the limit of 1mm/s (at which impact magnitudes become moderate for human receptors) this is 10 times the highest of the measured evidence levels from BS:5228 reference data, therefore it is considered highly likely that the actual levels will be below this noting the significantly larger intervening distances to receptors, and scoping out of detailed assessment is proposed.

11.6.4 Vibration from Blasting

In regard to vibration due to blasting activity at borrow pits, the level of vibration resulting from blasting is dependent on site-specific factors, such as distance from the blast, explosive charge weight and ground geology between blast and receiver.

Whilst vibration levels due to blasting activities are likely to be low, (due to the relative distance separation between the blasting sites and closest receptor positions), this would be confirmed most accurately by undertaking vibration tests during either blasting trials, or during the early stages of blasting operations.



As outlined in section E.2 of BS 5228-2, for the purpose of predicting site-specific ground vibration resulting from blasting it is necessary to complete a series of concurrent vibration measurements at different distances from the blast site.

These measurements are then used to produce a scaled-distance graph, which can be used to indicate likely vibration magnitudes at various distances and to establish maximum instantaneous charge size, to meet acceptable vibration PPV limits.

Potential adverse impact from ground vibration would therefore be avoided by employing good blast design, in particular to the use of the appropriate charge sizes, to meet vibration limits appropriate to both human response and to protect buildings from damage. The methodology for the vibration testing programme would be provided in the Construction Noise and Vibration Management Plan (CNVMP), when more detail on the design of the blasting activities are known.

Therefore, further detailed assessment is not considered warranted where there is established approach to avoid significant impacts from the outset through industry good practice.

Levels of vibration during the construction and decommissioning phases are therefore not expected to be perceptible, except if there are short term construction activities in the near vicinity of receptor locations, where levels of vibration in any case will remain significantly below the criteria set out in BS 5228 *"Code of Practice for Noise and Vibration Control on Construction and Open Sites"*.

As such, it is not proposed that a detailed vibration assessment of blasting would be undertaken in the EIA Report, in respect of the construction phase beyond the qualitative commentary provided above.

11.6.5 Operational Phase - Vibration

Similarly, given the intervening distance between the proposed wind turbines and identified NSR locations, an assessment of vibration impacts from operational turbines is proposed to be scoped out of the EIA Report for noise and vibration, justification is provided below.

Research undertaken by Snow²¹ found that levels of ground-borne vibration 100m from the nearest wind turbine were significantly below criteria for 'critical working areas' given by British Standard BS 6472:1992²², and were lower than limits specified for residential premises by an even greater margin.

Groundborne vibration from wind turbines can be detected using sophisticated instruments several kilometres (km) from the wind farm site, as reported by Keele University²³. The Snow report clearly shows that, although detectable using highly sensitive instruments, the magnitude of the vibration is orders of magnitude below the human level of perception and does not pose any risk to human health.

Given the separation distances between the Proposed Development and the noise sensitive receptors, vibration associated with construction and operation of the Proposed Development at the closest sensitive receptors will therefore be negligible.

Therefore, construction and operational phase vibration impacts have been scoped out of further assessment.

²¹ 16 ETSU (1997), Low Frequency Noise and Vibrations Measurement at a Modern Wind Farm, prepared by D J Snow

²² 7 BS 6472:1992 Evaluation of human exposure to vibration in buildings (1 Hz to 80 Hz)

²³ Microseismic and infrasound monitoring of low frequency noise and vibrations from wind farms: recommendations on the siting of wind farms in the vicinity of Eskdalemuir, Scotland". Keele University, 2005



11.6.6 Infrasound and Low-Frequency Noise

A study, published in 2006 by acoustic consultants Hayes McKenzie on the behalf of the Department of Trade and Industry (DTI), investigated low frequency noise from wind farms. This study concluded that there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines.

In February 2013, the Environmental Protection Authority of South Australia (EPASA) published the results of a study (EPASA, 2013) into infrasound levels near wind farms. This study measured infrasound levels at urban locations and rural locations with wind turbines close by, and rural locations with no wind turbines in the vicinity. It found that infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations. Infrasound levels were also measured during organised shut downs of the wind farms; the results showed that there was no noticeable difference in infrasound levels whether the turbines were active or inactive.

A subsequent study by Bowdler et al., (2009) concluded that:

“...there is no robust evidence that low frequency noise (including ‘infrasound’) or ground-borne vibration from wind farms generally has adverse effects on wind farm neighbours”.

During a planning Appeal (PPA-310-2028, Clydeport Hunterston Terminal Facility, approximately 2.5km south west of Fairlie, 9 Jan 2018), the health impacts related to low frequency noise associated with wind turbines were considered at length by the appointed Reporter (Mr M Croft). The Reporter considered evidence from Health Protection Scotland and the National Health Service.

In addition, he also considered low frequency noise surveys undertaken by the Appellant and the Local Authority both of which demonstrated compliance with planning conditions and did not identify any problems attributable to the turbine operations; some periods with the highest levels of low frequency noise were recorded when the turbines were not operating.

The Reporter concluded that:

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

Low-frequency noise and infrasound is considered in the WSP BEIS report.

The report considered a number of studies which investigated claimed links between adverse health symptoms and infrasound emissions from wind turbines. The report notes on page 116 that:

“It has been demonstrated in controlled experiments, including the involvement of participants self-reporting to be sensitive to wind turbine infrasound, that exposure to infrasound at levels representative of wind turbine emissions at dwellings is not associated with physiological or psychological health effects, whereas the expectation of effects from being exposed to wind turbine infrasound, and positive or negative messages influencing that expectation, can affect health symptom reporting.

Overall, the findings from the existing evidence base indicate that infrasound from wind turbines at typical exposure levels has no direct adverse effects on physical or mental health, and reported symptoms of ill-health are more likely to be psychogenic in origin.



It is expected that further evidence from ongoing studies into wind turbine infrasound effects will emerge soon, in particular from the NHMRC studies in Australia. However, based on the existing scientific evidence, it does appear probable that the above findings will not be contradicted by newer evidence.”

Since the publication of the WSP BEIS report, the study that was granted funding by NHMRC (the National Health and Medical Research Council of Australia) has been published in the Environmental Health Perspectives (EHP) journal, which is published by the United States National Institute of Environmental Health. The study aimed to test the effect of exposure to 72 hours of infrasound (designed to simulate a wind turbine infrasound signature) exposure on human physiology, particularly sleep. The study concluded that:

“Our findings did not support the idea that infrasound causes WTS. High level, but inaudible, infrasound did not appear to perturb any physiological or psychological measure tested in these study participants.”

It is therefore not necessary to carry out specific assessments of low frequency noise and infrasound and it is proposed that they are scoped out of detailed assessment in the full EIA.

11.6.7 Amplitude Modulation

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

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

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

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

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

In November 2017, an article entitled ‘A planning condition for wind farms’ was published in Vol 42 No 6 of the Acoustics Bulletin magazine. The article was written collaboratively by a



number of noise consultants and suggested a noise planning condition which included consideration of AM. The authors noted in the article that:

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

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

At the time of writing, there has been no official response to those recommendations from the IOA Noise Working Group and, as yet, no endorsement from any Scottish Government Minister or Department. The recommendation to impose a planning condition and the associated penalty scheme is at odds with the advice from the IOA GPG which currently states (paragraph 7.2.1):

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

The WSP BEIS report (WSP, 2023) discusses AM, and on page 119 states that:

“At present, it seems evident that reliable predictions of AM in the context of development planning and noise assessment guidance are unlikely to be practically feasible in the near future.”

In addition, there is no agreed methodology that can be definitely used to predict the occurrence of AM nor any agreed methodology (with industry consensus) to determine whether the effects of AM, should it occur, are actually significant.

In summary, ‘excess’ amplitude modulation (i.e. where the wind turbine noise has higher variability with momentary time than the 2 – 3 dB(A) considered within ETSU-R-97) is still the subject of research; current practice (at the time of publication of the IOA GPG) in relation to determining applications for wind turbine developments is to not impose a planning condition specific to this phenomenon.

It should also be noted that AM is also much less likely to occur with modern turbine technology and that historically any complaints linked to amplitude modulation have been investigated in terms of the Statutory Nuisance provisions of the Environmental Protection Act 1990.

On this basis it is therefore concluded that formal assessment of amplitude modulation is scoped out of the EIA Report based on the evidence and guidance in the public domain on the subject.

11.6.8 Operational Wind Farm Noise Below Fixed Limits

Detailed assessment of operational noise effects will be scoped out where the predicted noise levels from the Proposed Development are below 10 dB below the typical lowest noise limit applicable to cumulative wind farm noise, typically a level of 30dB L_{A90}, at an identified sensitive receptor.



11.6.9 Cumulative Wind Farm Noise Below Established Limits

Where predicted noise levels from the Proposed Development are 10 dB or more below the lowest applicable noise limit then its contribution at noise sensitive properties can be concluded to be negligible.

11.6.10 Uncorrelated Noise Sources

Cumulative operational noise from the proposed wind turbines in conjunction with other (non-wind turbine) sources, such as the substation aspect of the Proposed Development, has been scoped out as the noise limits apply to wind turbine noise only, this is due to there being no defined standard or applicable methodology to consider wind turbine noise in tandem with other “non” wind farm sources appropriately.

11.7 Questions to Consultees

- Q11.1: Can the consultees confirm that they agree with the proposed assessment methodologies, specifically the use of ETSU-R-97 and the IOA GPG to assess operational noise and BS5228 to assess construction noise?
- Q11.2: Can consultees agree that assessment of vibration, infrasound, low frequency noise and amplitude modulation be scoped out of the EIA?
- Q11.3: It is proposed that cumulative noise from the Proposed Development (i.e. a wind farm) is assessed in isolation from any other forms of development which have their own assessment criteria and methodologies and are therefore not comparable. Is this agreeable?
- Q11.4: Are the consultees aware of any additional potential noise-sensitive receptors, such as new housing developments in the vicinity of the site?
- Q11.5: Are there any other wind energy developments which should be taken into consideration in the cumulative noise assessment alongside those listed herein.
- Q11.6: What are the Council's requirements for the provision of information on noise during construction?

11.8 References and Standard Guidance

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12.0 Socio-economics, Tourism & Recreation

12.1 Introduction

BiGGAR Economics has been commissioned to provide specialist advice in relation to the socio-economics, recreation and tourism elements of the Proposed Development. Socio-economic and tourism assessments of onshore wind farms over the last decade have found no significant adverse effects under the EIA Regulations and there is no reason to expect significant adverse effects for the Proposed Development. It is therefore proposed that socio-economics, tourism and recreation is scoped out of the EIA Report.

Nevertheless, it is recognised that socio-economic and tourism issues will be of interest to stakeholders and local authorities and provide benefit to the local economy, albeit this may not be significant in EIA terms, and so a separate, standalone report on socio-economics and tourism will be provided and submitted alongside the EIA. This section describes what will be considered in the standalone socio-economic and tourism report and the approach that will be taken, although it should be noted that any proposed assessment referred to within the standalone report will not be an assessment in EIA terms.

12.2 Guidance & Legislation

There is no specific legislation or guidance on the methods that should be used to assess the socio-economic impacts of a proposed onshore wind farm development. The proposed method has however been based on established best practice, including that used in the UK Government and in industry reports on the sector. In particular, this assessment will draw from two studies by BiGGAR Economics on the UK onshore wind energy sector: a report published by RenewableUK and the Department for Energy and Climate Change (DECC) in 2012 on the direct and wider economic benefits of the onshore wind sector to the UK economy, and a subsequent update to this report published by RenewableUK in 2015.

There is also no formal legislation or guidance on the methods that should be used to assess the effects that wind farm developments may have on general tourism and recreation interests. The proposed method will consider specific attractions or tourism facilities to assess if there could be any effects from the Proposed Development.

The proposed method to assess the effects on recreational assets will follow the guidance provided by NatureScot (NS). This approach considers a number of potential effects, including direct effects on facilities, such as limitation or restrictions on access, and effects on the intrinsic quality of the resources enjoyed by people. In general, this guidance would consider recreational and access impacts to potentially be significant if there are:

- permanent or long-term effects on the resources on which enjoyment of the natural heritage depends, in particular where facilities have been provided by NS or others under statutory powers;
- permanent or long-term changes that would affect the integrity and long-term sustainable management of facilities which were provided by NS or others under statutory powers;
- where there are recreational resources for open air recreation pursuits affected by the proposal which have more than local use or importance, especially if that importance is national in significance;
- major constraints on, or improvements for, access or accessibility to designated natural heritage sites; and
- where mitigation and/or compensatory or alternative recreational provision is considered to be inadequate.



It is also important that the socio-economic and tourism report takes account of the relevant local and national policy objectives. The most relevant objectives for this are included in the following strategies:

- Scottish Government (2022), Scotland's National Strategy for Economic Transformation;
- Scottish Government (2023) Onshore Wind Sector Deal;
- Scottish Government (2022), Onshore Wind Policy Statement;
- Scottish Government (2021), Local Energy Policy Statement;
- DGC (2021), South of Scotland Regional Economic Strategy 2021-2031; and
- Scottish Tourism Alliance (2021), Scotland Outlook 2030.

It is also essential to take into consideration the national spatial strategy for Scotland, NPF4. The document considers:

- Scotland's spatial principles;
- national planning policy;
- national developments; and
- regional priorities.

In the context of energy generation, Policy 11 is relevant to the socio-economic impact of the Proposed Development. Paragraph (c) states that "*development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities*". The analysis will reach the conclusion on whether the project maximises the net economic impact in the context of this NPF4 Policy 11(c).

Paragraph (d) of Policy 11 sets out a number of impacts that should be addressed during project design and mitigation. That list does not include tourism.

Whilst NPF4 includes no requirement to consider tourism when considering net economic impact or in the project design and mitigation process, relevant employment statistics show that in the Dumfries and Galloway Local Authority area, the employment in tourism related sectors accounts for a 10.7% of total employment, which is higher than the figure for Scotland (9.2%). This indicates the importance of tourism in the local area surrounding the Proposed Development and it is recognised that local stakeholders may be interested in the potential impact. Therefore, a tourism assessment will be included in the standalone report.

In response to the requirements of the NPF4, a recently published report from Scottish Renewables gives guidance on Maximising Net Socio-Economic Benefits of Renewable Energy (2025)²⁴. The purpose of the guidance is to help developers understand what information they should include in submissions, to demonstrate how they have worked towards maximising the impact of their projects. In order to assess whether the developer has taken reasonable steps to ensure that the socio-economic benefits of project have been maximised, it will be important to consider whether the developer's approach is Place-based, Innovative, Collaborative, Transparent, Flexible or Deliverable. This guidance will be followed in the standalone report and informed through discussions with the developer.

²⁴ Scottish Renewables (2025), Maximising Net Socio-Economic Benefit of Renewable Energy Guidance and Reporting Framework



12.3 Baseline Description

12.3.1 Scope of Study / Study Area

The study areas for the report will be selected to meet the interests of key stakeholders and will be made of predefined geographies. The baseline will include a description of the current socio-economic, recreation and tourism resource within the study area. This will include a summary of the economic performance data and a description of the relevant tourism assets that will be covered in the report.

The baseline description will cover and compare the study areas of:

- Dumfries and Galloway; and
- Scotland.

12.3.2 Desk Study

The socio-economic and strategic baseline will be based on a desk-based review of publicly available data sources. Data will be gathered from sources such as the Office for National Statistics and the National Records of Scotland. It will include:

- the population characteristics of the area, including regional and national demographic trends;
- employment and economic activity in the local area within the context of the national economy;
- wage levels in the area compared to the national level;
- the industrial structure of the local economy compared to the national level;
- deprivation statistics set within a national context; and
- the role of the tourism sector in the local economy.

12.4 Potential Sources of Impact

The report will include the potential socio-economic, tourism and recreation impacts associated with the Proposed Development.

An economic impact analysis will be undertaken using the methodology developed by BiGGAR Economics, which has been used to assess over 200 onshore wind farms across the UK. The potential socio-economic impacts that will be considered are:

- temporary effects on the identified study areas due to expenditure during the construction phase;
- permanent effects on the identified study areas due to expenditure associated with the ongoing operation and maintenance of the Proposed Development;
- permanent effects resulting from any additional public expenditure that could be supported by the additional tax revenue that would be generated by the development during the operational phase; and
- permanent effects on the local economy that could be supported by any community funding and/or shared ownership proposals during the operational phase of the Proposed Development.

The link between onshore wind energy developments and the tourism sector has been a subject of debate. However, the most recent research has not found a link between tourism employment, visitor numbers and onshore wind development.



In 2021, a study by BiGGAR Economics identified 16 wind farms with a capacity of at least 10MW that became operational between 2015 and 2019. Analysis of trends in tourism employment in the locality of these wind farms (15km radius) found that 11 of the 16 areas experienced more growth in tourism employment than Scotland as a whole. For 13 of the 16 wind farms, trends in tourism employment in the locality had outperformed the local authority in which they were based. This work reflected an update of previous work undertaken by BiGGAR Economics in 2017 that considered 28 wind farms constructed between 2009 and 2015 and the trends in tourism employment in the areas local to these developments. The analysis found that there was no relationship between the development of onshore wind farms and tourism employment at the level of the Scottish economy, at the local authority level nor in the areas immediately surrounding wind farm developments.

Nevertheless, the tourism sector is an important contributor to the Scottish economy, particularly in Dumfries and Galloway where the Proposed Development is located. Therefore, the report will consider the potential effects that the Proposed Development could have on tourism following a more focused approach on effects related to key tourist attractions and recreation assets.

12.5 Method of Assessment and Reporting

It is anticipated that the contents and layout of the standalone report will include:

- an introduction;
- an economic development and tourism strategic context;
- a baseline socio-economic context;
- a baseline tourism and recreation context;
- a socio-economic assessment;
- a tourism and recreation impact assessment;
- proposed measures and actions the developer could use to work towards maximising local economic and community impacts; and
- a summary of the key findings and conclusion.

The assessment of socio-economic impacts will focus on the level of activity/employment supported during the construction and operation phases. Government and industry reports will be used to determine the expected capital and operational expenditure associated with the Proposed Development, as well as the breakdown of expenditure by different contracts (e.g. turbine, balance of plant). An assumption will then be made based on the share of each type of contract that can be secured regionally and nationally. This increase in turnover will then be used to estimate the economic impact associated with the Proposed Development.

A workshop will be held with the developer to identify proposed measures and actions to work towards maximising the benefits from the Proposed Development for the local economy and community. This will include methods that the developer is currently undertaking, has committed to undertaking, or could proceed with.

To assess effects on tourism and recreation, the features that make the local area distinctive and attractive will be identified, and the potential impact of the Proposed Development on those key features will then be assessed.



12.6 Questions to Consultees

- Q12.1: Do you agree with the approach of scoping socio-economics, tourism and recreation out of the EIA and into a stand-alone report to better address the socio-economics requirements of NPF4?
- Q12.2: Do you agree that the scope of the proposed report and assessment is appropriate?
- Q12.3: Are there specific socio-economic, tourism and recreation effects that should be considered in the stand-alone report?



13.0 Other Considerations

13.1 Introduction

This section of the Scoping Report considers other topics related to wind farm development not covered in previous sections, including aviation and radar, infrastructure, shadow flicker, telecommunications, television reception, ice throw, air quality, population and human health, risk of major accidents and environmental management.

13.2 Aviation and Radar

The operation of wind turbines has the potential to cause a variety of adverse effects on aviation during turbine operation. These include but are not limited to:

- physical obstructions;
- generation of unwanted returns on Primary Surveillance Radar (PSR); and
- adverse effects on overall performance of Communications, Navigation and Surveillance (CNS) equipment.

It is proposed that aviation and radar are considered in a technical appendix which supports the EIA rather than as an EIA Chapter.

13.2.1 Scope of Study / Study Area

The Study Areas to be adopted vary according to the aviation receptor and will be as follows:

- Air defence and air traffic control Primary Surveillance Radars (PSRs): 110km radius from the site. This ensures that all such radars that have the operational range and unobstructed line of sight to the Proposed Development are included in the assessment.
- Secondary Surveillance Radars (SSRs): 10km radius from the site. The CAA advises that effects on SSR are unlikely at ranges greater than this.
- Aeronautical radio navigation beacons: 10km radius from the site. This is the safeguarding consultation radius adopted by NATS En Route, the principal operator of such equipment in the UK.
- Aerodromes with instrument flight procedures (IFPs): 60km from the site. This will ensure that all possible effects on IFPs are considered.
- All other licensed or certificated aerodromes: 20km from the site. This is to allow for potential impacts on obstacle limitation surfaces to be accounted for.
- Unlicensed aerodromes and landing sites: 10km from the site. This is to reflect advice contained in CAA guidance.
- Meteorological Office radars: 25km from the site. This is sufficient to encompass the Met Office wind farm consultation radius of 20km.

13.2.2 Desk Study

The aviation baseline will be determined from a review of the UK Aeronautical Information Publication (AIP), the UK Military AIP, published aeronautical charts and Aviatika databases on aviation infrastructure and facilities.



13.2.3 Aviation Assessment

During all phases, cranes and permanent structures have the potential to cause an obstacle hazard to low flying aircraft and to require upward alteration of the minimum altitudes prescribed in instrument flight procedures. During the operational phase, the rotating blades of wind turbines have the potential to degrade the performance of radars used for air traffic control, air defence and meteorological forecasting.

An aviation assessment will be conducted in accordance with guidance issued by the Civil Aviation Authority (CAA), CAP 764.

Cumulative impacts on aviation will be assessed by considering existing and consented wind farms within 30km radius of the Proposed Development.

13.2.4 Approach to Mitigation

Effects on low flying aircraft will be minimised by provision of information to the relevant authorities prior to construction to ensure that the Proposed Development is marked on aeronautical charts and listed in electronic obstacle databases, and by provision of obstacle lighting.

Effects on radars will be minimised by optimising turbine layout to avoid radar line of sight and by appropriate technical mitigation measures in consultation with radar operators.

Since the Proposed Development will comprise of turbines with blade tip heights in excess of 150m, the proposed turbines will need to be illuminated at the hub of selected turbines with medium intensity red aviation obstruction lighting. A lighting layout will be designed which minimises the number of lit turbines whilst fulfilling flight safety requirements and gain approval for the lighting layout from the CAA. This will be reported in the technical appendix to describe the effect of aviation lighting on the environment and to inform the LVIA. An infra-red lighting layout to fulfil MOD requirements will also be designed and approval obtained from the MOD and reported in the technical appendix.

13.2.5 Matters Scoped Out

It is proposed to scope out potential effects on aeronautical radio navigation aids, aeronautical radio communications facilities, SSRs, air defence radars, Meteorological Office radars and unlicensed aerodromes since there are no such facilities within the study area.

13.2.6 Consultation

Further consultation will be undertaken with NATS En Route, the Ministry of Defence, Prestwick Airport, CAA and other relevant organisations as required, following receipt of scoping responses.

13.3 Infrastructure

Details and locations of infrastructure including overhead power lines, gas pipelines and underground cables will be checked and taken into account during the design of the Proposed Development. Since this is a design consideration this will be embedded in the design and no specific assessment in relation to EIA criteria will be undertaken. Infrastructure is therefore scoped out of the EIA.

13.4 Telecommunications

Tall structures such as buildings and turbines can adversely affect the performance of fixed telecommunications links, if positioned close enough to those links.



As noted in **Section 2.2.1**, there are no known telecommunication links within the site that need to be avoided. The closest fixed link to the site runs from north west to south east, approximately 500m to the north east of the site boundary at its closest, operated by Airwave Solutions Limited.

Since this is a design consideration this will be embedded in the design and no specific assessment in relation to EIA criteria will be undertaken. Telecommunications are therefore scoped out of the EIA.

13.5 Television Reception

Wind turbines have the potential to adversely affect analogue television reception through either physical blocking of the transmitted signal or, more commonly, by introducing multi-path interference where some of the signal is reflected through different routes.

The Proposed Development is located in an area which is served by a digital transmitter and, therefore, television reception is unlikely to be affected by the Proposed Development as digital signals are rarely affected.

Television reception is therefore scoped out of the EIA.

13.6 Other Terrestrial Broadcasts

Broadcast radio (FM, AM and DAB digital radio) are transmitted on lower frequencies than those used by terrestrial television signals. Lower frequency signals tend to pass through obstructions more easily than the higher frequency signals, and diffraction effects also become more significant at lower frequencies. Both these factors will tend to lessen the impact of new structures on broadcast radio.

It is therefore proposed that an assessment of potential effects on broadcast radio is scoped out of the EIA.

13.7 Shadow Flicker

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

If shadow flicker cannot be avoided through design, technical mitigation solutions are available, such as shutting down turbines during the short period(s) when the potential for shadow flicker effects may occur.

In the UK, significant shadow flicker is only likely to occur within a distance of ten times the rotor diameter (of a wind turbine), from an existing residential dwelling (DECC, 2010). It is noted that in DGC's Supplementary Guidance: Wind Energy Development: Development Management Considerations it states that *"Maintaining a separation distance of at least 10 times the turbine rotor blade diameter from sensitive uses/receptors can help reduce the effects but this may need to be extended depending on specific locational circumstances"*.

Once the final turbine layout and parameters are fixed, the locations of residential properties in proximity to the site will be verified and if any are situated within 10 rotor diameters from the proposed candidate turbines, a shadow flicker model will be run and assessment undertaken to predict potential levels of effect.



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

Shadow flicker during operation is therefore scoped into the EIA at this stage.

13.8 Ice Throw

Ice build-up on blade surfaces can occur in cold weather conditions. Turbines can continue to operate with a very thin accumulation of snow or ice but will shut down automatically as soon as there is a sufficient build up to cause aerodynamic or physical imbalance of the rotor assembly. Potential icing conditions affecting turbines can be expected two to seven days per year (light icing) in Scotland (WECO, 1999).

The potential for ice throw to occur after start up following a turbine shut down during conditions suitable for ice formation is high. There are monitoring systems and protocols in place to ensure that turbines that have been stationary during icing conditions are restarted in a controlled manner to ensure public safety. The risk to public safety is considered to be very low due to the few likely occurrences of these conditions along with the particular circumstances that can cause ice throw. Due to the very low risk, it is proposed that ice throw is scoped out of the EIA Report.

13.9 Air Quality

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

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

13.10 Population and Human Health

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

13.11 Risk of Major Accidents and/or Disasters

The Proposed Development would be constructed in accordance with relevant health and safety legislation and would be subject to routine inspections during operation. Braking mechanisms installed on turbines allow them to be operated only under specific wind speeds and should severe windstorms be experienced, then the turbines would be shut down. In addition, given the elevated location of the site, flooding will not pose a significant risk to the operation of the Proposed Development nor will the construction of the Proposed Development contribute to flooding elsewhere. Therefore, it is considered unlikely that significant effects will arise as a result of the Proposed Development, and this topic is proposed to be scoped out of the EIA.



13.12 Environmental Management

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

13.13 Questions for Consultees

- Q13.1: Consultees are requested to confirm that infrastructure, telecommunications, television reception, broadcast radio, ice throw, air quality, and major accidents and disasters can be scoped out of the assessments.
- Q13.2: Is the proposed scope of the aviation assessment adequate to capture all potential effects on aviation?
- Q13.3: Consultees are requested to confirm that the proposed study area for shadow flicker effects, of 10 rotor diameters from proposed turbines, is sufficient.

13.14 References

DECC (2010) Update of UK Shadow Flicker Evidence Base. Available at:
http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/ored_news/ored_news/uk_shad_flick/uk_shad_flick.aspx [Accessed on 15 August 2025].

Wind Energy Production in Cold Climates (WECO) (1999). The Icing Map of Europe.



14.0 Summary of EIA Scope

Table 14-1 provides a summary of the technical topics scoped into the detailed assessment of the EIA Report due to their potential for significant effects, and the extent of the effects which will be scoped out of the EIA Report.

Table 14-1: Summary of EIA Technical Topics

Technical Topic	Potentially significant effects	Summary of effects scoped out of detailed assessment
Landscape and Visual	Construction, operational and decommissioning effects on: - LCTs: 19 Foothills – Dalmacallan; 10 Upland Glens - Castlefairn & Dalwhat; 15 Upland Fringe - Cairn Fringe; 5 Pastoral Valleys - Cairn & Old Water; 20 Foothills with Forest – Stroan; 19 Foothills – Keir; 6 Lower and Middle Dale (Valley) - Mid Nithsdale; 15 Upland Fringe – Dunscore; 19 Foothills – Tynron; 19 Foothills – Nithsdale. - Designations: Thornhill Uplands RSA; Terregles Ridge RSA; and Maxwellton (Glencairn Castle) GDL. - All visual receptors within the study area. - Residential Visual Amenity within 1.5-2km of the site. - Aviation lighting. - Cumulative effects arising from consented and application sites.	- Effects on the following LCTs: 10 Upland Glens – Shinnel; 15 Upland Fringe - Corsock Fringe; 4 Narrow Valleys - Urr Water; 22 Southern Uplands; 10 Upland Glens – Scar; 21 Southern Uplands – Nithsdale; 9 Upper Dale (Valley) - Upper Nithsdale; 13 Drumlin Pastures – Deeside; 13 Drumlin Pastures – Milton; 15 Upland Fringe - Ae Fringe; 15 Upland Fringe – Terregles; 9 Upper Dale (Valley) - Upper Glenkens; 8 Flooded Valley - Ken Valley; 20 Foothills with Forest – Ae; 4 Narrow Valleys – Ken; 21 Southern Uplands – Lowthers; 20 Foothills with Forest - Rhinns of Kells; 25 Rugged Granite Upland with Forest - Cairn Edward; 21 Southern Uplands – Carsphairn; 23 Coastal Granite Uplands - Dalbeattie Coastal Granite; 21 Southern Uplands – Lowthers; 10 Upland Glens – Dalveen; and 20 Foothills with Forest – Laurieston. - Effects on the following designations: Drumlanrig Castle GDL; Galloway Hills RSA; Dalswinton GDL; Cowhill Tower GDL; Solway Coast RSA; Leadhills and the Lowther Hills SLA; Torthorwald Ridge RSA; Nith Estuary NSA; Threave Gardens GDL; Dark Sky Park – Core; Raehills GDL; East Stewartry Coast NSA; Scot's Mining Company House GDL; Fleet Valley NSA; Moffat Hills RSA; Dark Sky Park - Craigengillan Estate; Craigengillan GDL; Arbigland GDL; Cally GDL; Broughton House GDL; Tweedsmuir Uplands SLA; Kinmount GDL; Dumfries House GDL; Douglas Valley SLA; Upper Clyde Valley and Tinto SLA; and Blairquhan GDL. - Effects on Wild Land. - Cumulative effects arising from sites at scoping.
Ecology	Construction, operational and decommissioning effects on: - the Lowes LNCS; - ancient woodland;	Effects on: Habitats not on Annex I to the Habitats Directive.



Technical Topic	Potentially significant effects	Summary of effects scoped out of detailed assessment
	- priority peatland and Annex I habitats; and - bats, fish populations (migratory salmonids and resident fish), deer, and protected species known to be present or are potentially present onsite.	- Species not on Annex II to the Habitats Directive. - 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 1992). - Statutory designated sites within 5km of the Proposed Development: Upper Nithsdale Woods SAC; Stenhouse Wood SSSI; Tynron Juniper Wood SAC and Tynron Juniper Wood SSSI. - Craigturra LNCS. - GCN and reptiles. - Beaver and wildcat.
Ornithology	Construction, operational and decommissioning effects on IOFS including: - Goshawk - Hen harrier - Osprey - Red kite - Whooper Swan - Short-eared owl - Breeding waders including: lapwing, common sandpiper, curlew, oystercatcher and snipe	Effects on: - Common and/ or low conservation species not recognised in statute as requiring special conservation measures i.e., not listed as Annex 1/ Schedule 1 species). - Common and/ or low conservation species not included in non-statutory lists i.e., not listed as a Red-listed Birds of Conservation Concern species as per Stanbury <i>et al.</i> (2021 and 2024). - Passerine species, not generally considered to be at risk from wind farm developments (NatureScot 2024, 2025a and 2025b), unless particularly rare or vulnerable at a national level. - Loch Ken and River Dee Marshes SPA and Ramsar. - The River Dee (Parton to Crossmichael) SSSI. - The Laughenghie and Airlie Hills SSSI. - Foraging and roosting non-breeding migratory waterfowl. - Black grouse. - Ornithology as a result of turbine lighting.
Geology, Hydrology, Hydrogeology and Peat	Construction and decommissioning effects on: - carbon rich soils and peat deposits; - ground instability (including peat slide risk); - surface water and groundwater quality; - surface runoff to drainage system and watercourses;	Effects on: - Designated sites. - Glessin Burn nested surface water catchment. - Geology. A Geomorphological Assessment. A detailed Flood Risk Assessment. A Detailed Drainage Design. Water Quality Monitoring.



Technical Topic	Potentially significant effects	Summary of effects scoped out of detailed assessment
	• flood risk; • groundwater levels, or saturation of peat deposits; • groundwater flow paths and contribution to areas of peat and GWDTE; • water environment from potential forest felling, disturbance and/or pollution incidents; • watercourse bed and banks from the construction of culverts and/or watercourse crossings; and • PWS. Operational effects on: • surface water runoff rates and flood risk; • flood extents and flood depths upstream and downstream of river and floodplain crossings; • natural surface water drainage patterns (which may affect water contribution to areas of peat and GWDTE); • groundwater levels and groundwater movement; and • abstractions for water supplies, particularly any supplies dependent on groundwater.	Detailed borrow pit designs.
Archaeology and Cultural Heritage	Construction, operational and decommissioning effects on: • Sundaywell, fort 300m N of (SM5556); • Tynron Doon, fort (SM663); • Rough Island, crannog (SM659); • Craigmue Moor, Watch Knowe, fort (SM1101); • Lochrinnie Mote, motte 250m WNW of Craigmue Lodge (SM1125); • Lower Ingleston, motte and bailey 400m ENE of (SM695); • Glenluiart House (LB10307); • Maxwellton House (LB10324); and • Maxwellton (Glencairn Castle) (GDL00276).	• Direct (setting), indirect, and cumulative effects on Category C Listed Buildings. • Category B Listed Buildings located outwith 5km of the proposed turbine locations. • Any conservation area outwith 5km of the site. • Any assets that fall outwith the ZTV (and where important views associated those assets' approaches, and third points of appreciation also fall outwith the ZTV).



Technical Topic	Potentially significant effects	Summary of effects scoped out of detailed assessment
Traffic and Transport	Construction and decommissioning effects on the following where traffic increases are considered to breach the Rule 1 or Rule 2 threshold for any section of the road: - Severance - Road Vehicle Driver and Passenger Delay - Non-Motorised User Delay - Non-Motorised User Amenity - Fear and Intimidation of and by Road Users - Road User and Pedestrian Safety - Hazardous / Large Loads Cumulative effects from the Proposed Development and any other developments which may increase vehicle movements on the road network within the study area.	Operational effects.
Noise and Vibration	- Construction and decommissioning noise in accordance with BS5228-1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. - Operational noise to take into account cumulative sites (operational, consented and application) and include predictions of likely wind turbine noise levels across a range of wind speeds to demonstrate compliance with the Total ETSU-R-97 and Site-Specific Noise Limits. - Operational noise impact assessment of fixed plant and services associated with the proposal (e.g. substation) will be undertaken in accordance with BS4142:2014+A1:2019.	- Effects on Eskdalemuir. - Vibration from general construction traffic. - Vibration from piling. - Vibration from blasting. - Operational vibration. - Infrasound and low-frequency noise. - Amplitude Modulation - Operational wind farm noise below fixed limits. - Cumulative wind farm noise below established limits. - Cumulative operational noise from the proposed wind turbines in conjunction with other (non-wind turbine) sources.
Shadow Flicker	Operational effects on: residential properties within 10 rotor diameters from the proposed turbines.	Construction and decommissioning effects.
Other Considerations	None	Effects on: Socio-economics, Tourism and Recreation



Technical Topic	Potentially significant effects	Summary of effects scoped out of detailed assessment
		• Aviation and Radar • Infrastructure • Telecommunications • Television reception • Broadcast radio • Ice throw • Air quality • Major accidents and disasters

The EIA Report will also be supported by the following Technical Appendices:

- Forestry Design Plans;
- Outline Biodiversity Enhancement Management Plan (OBEMP);
- Outline Construction Environmental Management Plan (CEMP);
- Peat Management Plan (PMP) and a Peat Landslide Hazard Risk Assessment (PLHRA) (if required);
- Abnormal Indivisible Load Vehicle (AILV) Assessment; and
- Aviation and Radar Assessment.

The following standalone reports will also be submitted with the application:

- Effects on Socio-economics, Tourism and Recreation; and
- Planning Statement.

15.0 Invitation to Comment

This document has been prepared in anticipation of an application under Section 36 of The Electricity Act 1989 (as amended) for a wind energy development at Dalmacallan Forest in the DGC administrative area.

You are invited to provide comment on this EIA Scoping Report.

Please send all Scoping responses to ECU at:

Energy Consents Unit

5 Atlantic Quay

150 Broomielaw

Glasgow

G2 8LU

Email: Econsents_Admin@gov.scot

The Applicant will welcome such input and undertake further consultation as needs be with each consultee as the EIA progresses.



Appendix 9.1

Cultural Heritage Appraisal of Scoping Layout A

EIA Scoping Report

Dalmacallan Wind Farm

Wind Power North One Limited

Appendix 9.1: Cultural Heritage Appraisal of Scoping Layout A

Scheduled Monuments

Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
SM5556	Sundaywell, fort 300m N of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	10	2.3	North west	Scoped in for further assessment.
SM5694	Brockloch, farmstead and field system 1000m WNW of Fraserford	Secular: farmstead	1	2.2	North west	The asset is a pre-improvement farmstead, which likely focused heavily on stock rearing. It lies on a south-facing slope, above a small valley containing the Glenesslin Burn. The south-facing slope would have allowed for maximum sunlight throughout the day, with its proximity to water providing a key resource for raising livestock. These aspects of the landscape form the primary aspects of its setting. As an agricultural asset, wider and distant views are unlikely to be important aspects of its setting. Up to one turbine tip is anticipated to be visible to the north of the asset, from varying points throughout the landscape. Views of the turbines are also anticipated to be limited when approaching the asset along the valley to the south. The turbines would not impact the ability to understand, appreciate, or experience the asset's agricultural setting, and as such, it is scoped out of further assessment.
SM4955	Moat, enclosure 300m NW of	Prehistoric domestic and defensive: settlement	0	9.6	West	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
SM5677	Barndennoch, ring ditches 350m N of	Prehistoric domestic and defensive: house	0	9.4	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM633	Capenoch Loch, long cairn	Prehistoric ritual and funerary: long cairn	0	7.1	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM663	Tynron Doon, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	16	7.2	South west	Scoped in for further assessment.
SM690	Nithside, motte & bailey 450m ESE of	Secular: bailey	0	9.8	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM662	Springfieldhill, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	16	9.8	North west	The asset is a prehistoric fort, situated on a hilltop at approximately 200m AOD. The fort is positioned at the north west edge of a hill, on a prominent mound, which overlooks a narrow valley to its north that contains the Laggan Burn, with the valley running roughly east to west. The burn joins the River Nith, c.3.5km to the east of the asset, which was likely a key route through the landscape. The aspects of the asset's setting which contribute to its significance are the assets elevated position above the valley, allowing it to monitor and control access along it, the asset's position near the River Nith, allowing it to control and monitor those approaching from the larger routeway through the landscape, and the assets visual dominance when approaching through the landscape. In



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						addition, the asset is situated c.1.5km south of an enclosed Iron Age settlement (SM4955) which occupies a neighbouring hilltop, with intervisibility between the assets being of potential importance. The ZTV indicates that up to 16 turbine tips would be visible from the asset in views to the north west. The turbines would not be present in views to the north, which include views to the contemporary enclosure and views towards the valley. Furthermore, the turbines would not be visible in views towards the River Nith to the east. The only aspect of the assets setting where the Proposed Development may feature in key views is when approaching from the east. However, the turbines would be in the periphery of views and would not impact the ability to understand, appreciate or experience the assets visual dominance. As such, the Proposed Development is not anticipated to impact the asset and it is scoped out of further assessment.
SM699	Maxwelton, motte	Secular: motte	15	3.5	South west	The asset, a medieval motte, is located along the west bank of Cairn Water, on a small rise within the river's flood plain. The asset is well positioned to monitor and control access along the Cairn Water valley, which runs north west to south east and the hills to the north and south of the valley would have formed an element of natural protection for the motte. The key approach to the motte would have been along the valley, likely following the river or the path of the modern B729 road, which runs to the asset's immediate east. When approaching through the valley, from the north west or south east, the motte would likely have been prominent and commanding in views. In addition, the asset is situated within a series of mottes which line the Cairn Water valley. The closest, Lower Inglestone (SM695), is located c.1.8km to the west. The assets may have shared visibility during their occupation, both controlling access along the valley. The asset's defensive position within the valley and its command and control



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						over access along it, along with its proximity to other mottes, are the primary contributors of the asset's setting to its significance. It is anticipated that up to 15 turbine tips would be visible from the asset, in view to the south west. The Proposed Development would not feature in views between the asset and the nearby Lower Ingleston motte, due to its placement outside of the line of sight. The turbines would appear in the background of views to the direct south east, which may cause a distraction in views in this direction. However, views to the south east do not form part of the key approach along the valley towards the asset, nor do they form part of the outward views from the asset along the valley. They would not impact the primary aspects of the asset's setting which contribute to its significance. As such, views of the turbines can be considered to form a minor distraction at most from the ability to appreciate, understand and experience the setting of the asset, and as such, it is scoped out of further assessment.
SM642	White Cairn, long cairn, Fleuchlarg	Prehistoric ritual and funerary: long cairn	14	5.5	West	The asset, a prehistoric long cairn, is located on a south-facing slope at the base of Fleuchlarg Hill. The asset is bounded by the higher ground of an unnamed hill to the south, with the cairn positioned in the lower ground, or valley, between the two hills. The cairn is situated c.0.8km east of Cairn Water, however, due to the undulating landscape, visibility of the asset from the river is limited. The asset was likely positioned to be appreciated when approaching along the minor valley at the base of Fleuchard Hill. The asset is oriented south west to north east, which may have been a key visual axis; however, due to the undulating landscape, there are limited long-distance views along the asset to the south west. Fleuchlarg Hill is visible along the axis of the asset when looking to the north east, which may have been a key outward view or visual focus.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						Due to its placement on lower ground, surrounded by larger hills, likely, the asset was not meant to be seen from a distance, nor act as a point of appreciation for long-distance views. In addition, as a funerary and ritual monument, the seclusion and protection offered by the surrounding hills may have been a key contributing factor to the asset's placement. The asset does not appear to be in proximity to other similar contemporary assets, indicating that intervisibility with other similar assets does not form part of the asset's setting. The asset's placement at the base of the hills, its approach from the east or west, its secluded location, and its potential connection with Fleuchlarg Hill are all primary aspects of the asset's setting which contribute to its significance. It is anticipated that 14 turbine tips would be visible from the asset to the west. The turbines would not be visible along the axis of the cairn, to the north east or south west, nor would they be present within views or approaches from the east. The distance of the turbines from the asset would ensure that they would not impact the sense of seclusion or isolation created by the surrounding hills. The proposed turbines would be visible in the approach from the east, looking west, which may cause a minor distraction in views in this direction. However, this is the singular aspect of the asset's setting that would be impacted by the proposals. As such, views of the turbines can be considered to form a minor distraction at most from the ability to appreciate, understand and experience the setting of the asset, and as such, it is scoped out of further assessment.
SM697	Lag Tower	Secular: tower	16	8.1	West	The asset, a 16th-century tower house, is located at 90m AOD on flat ground c.0.25km south of Glenmidge Burn. The asset is situated at the south western extent of the narrow valley that



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						follows Glenmidge Burn along the bases of Benan Hills and Kirkbridge Hill. The asset was likely positioned within view of this valley to control and command access through it. The landscape opens up to the south west, with undulating hills and views towards the Cairn Water valley, c.2.7km to the south west. Whilst the asset is too far to command or control access along Cairn Water itself, it's positioned along a potential key access route towards the larger valley. Approaches to the tower would likely have followed the low ground, demonstrated by the modern road that runs north east to south west, directly to the north of the asset, with the tower's prominence in these views acting as a visual display of dominance. In addition, the open landscape would have acted as a form of defence for the tower, allowing visibility of anyone approaching. The asset is situated c.1.6km north east of Moatland Motte (SM700), which, whilst not contemporary, likely held a similar defensive position along this particular approach towards Cairn Water. The proximity to the earlier motte may have contributed to the asset's placement. The asset's defensive position, its control over the Glenmidge Burn valley and the approach to Cairn Water, its visibility in key approaches through the lower ground, and its proximity to earlier assets are key parts of the asset's setting which contribute to its significance. It is anticipated that up to 16 turbine tips may be present within views from the asset to the west. The Proposed Development would not be present in views towards the valley to the north east, nor in views when approaching the asset from the land to the south east. The Proposed Development would be peripheral in views along the lower ground to the south west, and when approaching the asset from the north west, it would appear to the west. Their distance from the asset and placement outwith the key



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						lines of sight towards the earlier motte, the tower and from the tower towards Cairn Water indicates that they would act as a very minor distraction at most. As such, the Proposed Development would not impact the ability to understand, appreciate or experience the asset's defensive or commanding position within the landscape. It is therefore scoped out of further assessment.
SM700	Moatland, motte	Secular: motte	16	6.5	West	The asset, a medieval motte, comprises a natural hillock that has been altered into a motte by excavating a surrounding ditch. The asset is situated to the north of Birkshaw Burn, with lower-lying wetland and agricultural land surrounding it. The asset is c. 1.1km east of the confluence of Birkshaw Burn and Cairn Water. The motte is located along a stretch of lowland that approaches Cairn Water, bounded by an unnamed hill to the north and High Germany Hill to the south. The asset's positioning would have allowed for the monitoring of the entrance to the lowland along the Birkshaw Burn from Cairn Water, as well as the stretch of Cairn Water and its valley visible to the west. The asset would have been able to control and command access along this natural route. In addition, the asset's placement on a natural hill would have allowed for visual prominence and a show of command to those approaching along the lowland from the east and west. The asset's placement overlooking the confluence of Cairn Water and Birkshaw Burn, its ability to control access through the landscape and its visual prominence when approaching are the key aspects of its setting which contribute to its significance. The asset is not located within proximity to any similar contemporary assets; however, there are other medieval mottes, outwith visibility of the asset, that line the Cairn Water. A visual relationship with these assets does not contribute to the asset's significance.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						It is anticipated that up to 16 turbine tips would be visible from the asset. They would be present within views to the west, which would be located on the periphery of views along Birkshaw Burn towards the Cairn Water. Whilst present, they would cause a minor distraction at most to the ability to understand, appreciate, and experience the asset's control over access through this part of the landscape. In addition, the Proposed Development would not impact the visual prominence of the motte within the landscape when approaching from the east or west. As such, the asset is scoped out of further assessment.
SM659	Rough Island, crannog	Prehistoric domestic and defensive: crannog	14	2.0	North east	Scoped in for further assessment.
SM1101	Craigmuiie Moor, Watch Knowe, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	16	2.8	East	Scoped in for further assessment.
SM1125	Lochrinnie Mote, motte 250m WNW of Craigmuiie Lodge	Secular: motte	16	4.3	South east	Scoped in for further assessment.
SM1047	White Cairn, cairn, Corriedow Bridge	Prehistoric ritual and funerary: cairn (type uncertain)	0	9.4	North east	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM695	Lower Ingleston, motte and	Secular: motte	16	2.8	South west	Scoped in for further assessment.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
	bailey 400m ENE of					
SM705	Orchard Mote, earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	5.1	West	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM3139	Kirkland, church	Ecclesiastical: church	16	3.7	South west	The asset comprises the remains of a late 12th or early 13th-century church, formerly the Glencairn Parish Church and dedicated to St Cuthbert. The church is currently ruinous and situated within the graveyard of the newer Glencairn Parish Church (LB10312). The church would have served the wider community, those living in Glencairn Parish, which included the nearby village of Moniaive. The church was potentially situated along a pilgrim route, which may have provided a route to the shrines of St Cuthbert at Kirkcudbright and St Ninian at Whithorn. The church may once have been positioned to be visible when approaching through the landscape; however, its ruinous nature, its position within the newer kirkyard, and the presence of the newer church to the west mean that it is not noticeable from the wider landscape, nor when approaching along the road. As such, the aspects of the assets setting which contribute to its significance are its relationship with the surrounding kirkyard and the newer church to the west. Whilst up to 16 turbine tips are anticipated to be visible to the south of the asset, they would not impact the ability to understand, appreciate, and experience the asset's ecclesiastical setting and its relationship with the newer church and kirkyard. As such, the asset is scoped out of further assessment.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
SM5179	Auchenhay, settlement 1000m S of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	5	9.1	North	The asset, a prehistoric defensive settlement, is located at the base of a north west-facing slope of Drumhumpny Hill, overlooking a narrow valley which contains the confluence of the Knarie Burn, the Auchentay Burn and the Nether Barr Burn. The asset would have been well positioned to monitor and control access through the valley and along the burns, with Drumhumpny Hill providing some natural defence to the west. The main approaches towards the asset would have been through this same valley, from the south west and north east, with the asset likely having had some level of visual dominance along this approach. There are no contemporary assets nearby that share intervisibility with the defensive settlement. As such, the key aspects of the asset's setting which contribute to its significance are its command of the valley and its visual dominance during approaches. As the asset is not elevated in position, it can be assumed that long-distance views are not significant to the placement of the asset. It is anticipated that up to five turbine tips would be visible from the asset, in view to the north. The Proposed Development would be present in approaches from the south towards the asset and views along the valley to the north; however, the Proposed Development would not impact the ability to understand, appreciate and experience the assets control over the immediate landscape, nor its visual dominance in approaches. As such, it is scoped out of further assessment.
SM6285	Grennan Hill, fort 250m S of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	3	8.5	South west	The asset, a prehistoric fort, is located on a knoll on a south-facing slope of Grennan Hill. The asset overlooks Scaur Water, which runs to the south west of the asset, in a north west-to-south east direction. The asset is well placed to monitor and control access along Scaur Water and its valley, with the asset's elevation likely acting as an aspect of visual dominance to those approaching through the valley.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						The entrance of the asset is on the north east side, with the key approach to the asset likely from the easier terrain to the east. The west of the asset is bounded by a steep slope. The asset is located c.1.2km to the north east of Tynron Doon fort (SM663), which also would have monitored or controlled access along Scaur Water. Intervisibility between these assets is likely to be of significance. As such, the key aspects of the asset's setting which contribute to its setting are its command over access along Scaur Water, the approach towards the asset from the east, the visual dominance of the asset when approaching along Scaur Water and its visual relationship with Tynron Doon fort. It is anticipated that a up to three turbine tips would be visible from the asset, in views to the south west. The turbines would not be present in views from the asset along Scaur Water or towards the asset when approaching along Scaur Water. The turbines would be outwith views towards the asset when approaching from the east. A singular asset may be visible in views towards Tynron Doon Fort; however, it would not be anticipated to distract the viewer from the visual connection between the asset and the fort. As such, the Proposed Development would not be anticipated to impact the aspects of the assets setting which contribute to its significance. It is scoped out of further assessment.



Category A Listed Buildings

Designation reference	Designation Title	Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB4227	Dalgonar Bridge Over Cairn Water	15	6.6	North west	The asset, an early 19 th century bridge, spans the Cairn Water. The asset is primarily listed for its architectural interest. The assets setting is functional, comprises its position across the Cairn Water. The bridge replaced an earlier wooden structure, providing safe access across the river to the village of Dunscore, c.0.6km to the north east. Whilst it is anticipated that there would be up to 15 turbine tips visible from the asset, they would not impact the ability to understand, appreciate or experience the assets functional setting nor its relationship to the village of Dunscore. Furthermore, the proposed turbines would not impact the ability to appreciate the architecture of the asset. It is therefore scoped out of further assessment.
LB4230	Dunscore Village Dunscore Parish Church And Churchyard	15	7.1	North west	The asset, an early 19th-century church and potentially a 17th-century churchyard, is situated in the village of Dunscore and is primarily listed for its internal and external architectural value. The setting of the church and churchyard is derived primarily from its functional position within the parish, in an easily accessible place for the parishioners. The tower of the church is a visible landmark for those approaching the church in Dunscore, primarily along Black Brae and the B729, the primary routes into Dunscore Village facing south, east and west. Whilst it is anticipated that there would be 15 turbines visible from the asset in distant views to the north west, the Proposed Development would not impact views upon the approaches to the church, the ability to appreciate the church's architectural interest and the ability to understand, appreciate or experience the asset's connection to the historic Dunscore parish. In addition, the turbines are offset from the asset by a considerable distance, meaning that they would not compete for visual dominance against the church tower along the B729 and Black Brae approaches. It is therefore scoped out of further assessment.



Designation reference	Designation Title	Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10247	Capenoch House	0	8.3	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
LB10298	Moniaive Village Kilneiss House	16	3.7	South east	The asset is a cottage, reconstructed in 1884 by well-known architect Sir John J Burnet, in the Arts and Crafts architectural style. The cottage was redesigned for the renowned artist James Paterson. The asset primarily derives its significance from its architectural interest, including its extremely well-preserved Arts and Crafts detailing, as well as its historic value through its connection both the well-known architect and well-known artist. It is considered that the cultural significance of this asset is derived solely from its historical and architectural interest, and its setting does not contribute to its significance. The asset is set back from the road, with the main approach from the north-facing driveway. Whilst the Proposed Development would be visible to the south from the asset, it would not distract from the ability to understand, appreciate or experience the architectural quality of the asset, not its historical connections. It is therefore scoped out of further assessment.
LB10307	Glenluiart House	14	3.8	South east	Scoped in for further assessment.
LB10312	Kirkland Village Glencairn Parish Church	16	3.7	South west	The asset comprises a gothic church, constructed in 1836 to replace the earlier 12th or 13th century church that lies to its east. The asset is primarily listed for its architectural value. The asset is situated within its churchyard, which encompasses it to the north, east and west. Both the prior church and the churchyard provide context for the ecclesiastical setting of the asset. The church would have been the primary church for the Parish of Glencairn, and is currently one of two churches within the parish, providing a gathering place for those living nearby. The asset sits along the north of the A702, which runs east to west. This is the key approach to



Designation reference	Designation Title	Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					the asset, with the church tower particularly visible in the approach from the west. The aspects of the assets setting which contribute to its significance are its connection to the surrounding churchyard, the connection to the earlier kirk to the east, the placement of the church within the parish, and its visibility along the approach from the east and west. Whilst 16 turbines are anticipated to be visible from the asset, in views to the south west, these turbines would not impact the ability to understand, appreciate, or experience the asset within its immediate ecclesiastical setting nor its placement within the parish. While the turbines may be present in peripheral views when approaching from the east, they would not be placed as to distract from the visual dominance of the church tower. As such, the setting of the asset would remain unimpacted by the Proposed Development. It is scoped out of further assessment.
LB10340	Craigdarroch House	0	5.2	South east	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
LB17222	Tynron Village Tynron Parish Church	0	5.9	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
LB52649	Upright Motive No.1: Glenkiln Cross (Glenkiln Cross), Margreig Hill, Glenkiln	9	9.6	North west	The asset is a sculpture, created by Henry Moore, erected in 1956. The sculpture derives its significance in part from its historical interest, (due to its sculptor and rarity as a surviving in-situ artwork, as well as the part it played as a forerunner for public sculpture parks and trails) and its architectural interest through its design. In addition, the asset's setting contributes to its significance. Anecdotal evidence suggests that Moore identified its position within the remote Moorland landscape of Glenkiln as ideal for a sculpture when visiting with the landowner. The sculpture may have been placed in order to imitate a shepherd commanding a glen, and the asset's placement on a small hillock above the Glenkiln reservoir to its west allows the asset views over



Designation reference	Designation Title	Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					the landscape. The sculpture is approached directly from the track to the east, which remains a key point of appreciation for the asset. The ZTV indicates that up to nine turbine tips would be present in views from the asset. The turbines would not be present in views directly to the asset from the track to the east, nor in views from the asset when overlooking the reservoir and the glen. The turbines have the potential to be present in longer distance views when approaching the asset along the road from the south east, as well as in longer distance views when looking north-westwards up the glen. However, the distance of the turbines from the asset would mean that they would not compete for visual dominance and their placement to the north west would mean they would be on the periphery of any key views. The assets commanding presence over the glen would still be able to be understood, appreciated and experienced. As such, the asset would not be anticipated to be impacted by the Proposed Development and it is scoped out of further assessment.

Category B Listed Buildings

Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10292	Moniaive Village, Dunreggan: Inver Cottage And W. Glencross	16	3.4	South	The assets comprise Category B Listed Buildings within the village and Conservation Area of Moniaive. They comprise buildings from the 18 th and 19 th centuries and provide an insight into the development of Moniaive during the post-medieval period. The structures primarily derive their significance from their architectural value, comprising buildings of a variety of uses, all with well-preserved architectural features. The setting of the assets comprises the conservation area, which allows context for their construction, and their visual and spatial relationship with one another, which provides an understanding of the development of the
LB10294	Moniaive Village Dunreggan Former F.C. Manse And Stables	16	3.2	South	



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10295	Moniaive Village High Street Bridge A702 Over Dalwhat Water	16	3.5	South	village. The assets do not derive their significance from views outwith the village, which are screened in the most part by the surrounding built environment. The ZTV indicates that there would be up to 16 turbine tips visible from these assets in a bare-earth scenario. As the assets do not derive their significance from views of the wider landscape, the Proposed Development is not anticipated to impact the ability to understand, appreciate or experience them. As such, these assets are scoped out of further assessment.
LB10296	Moniaive Village High Street George Hotel	16	3.5	South	
LB10320	Waulkmill Bridge A702 Over Craigdarroch Water	16	3.2	South	
LB10331	Moniaive Village Broomfield Bank	16	3.8	South east	
LB10332	Moniaive Village Broomfield House And Gatepiers	15	3.8	South east	
LB10333	Moniaive Village Chapel Street Bank, Bank House And Gatepiers	16	3.4	South	
LB10314	Moniaive Village North Street Cottages (Formerly Maccreary's Workshop:/Corner With High Street	16	3.5	South	The assets, both 19 th century in date, are located along the B729 to the west of Moniaive. The assets primarily derive their significance from their architectural interest, comprising well-preserved 19th-century architectural features. The assets' immediate setting contributes to their significance, from their proximity to the village
LB10305	Dungalston Farmhouse (Caigdarroch Estate)	15	4	South east	



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10306	Ewanston House	11	3.7	South east	of Moniaive, ease of access along the main road, and positioning relative to associated farm land. Whilst the assets are positioned facing south, longer distance views do not contribute to the asset's significance. The assets are approached from along the B729, which remains the key point from which their architectural interest can be appreciated. Whilst the Proposed Development is anticipated to be visible in part from the assets, these views do not contribute to the significance of the asset. The ability to understand, experience, and appreciate the asset's setting and its architectural value would be retained. The assets are therefore scoped out of further assessment.
LB10308	Glenluiart Lodge, Outbuildings & Former Stables	9	3.8	South east	The asset comprises an early 20th century set of buildings, designed by W West Neve in the Arts and Crafts Style. The buildings primarily derive their significance from their architectural value, as well-preserved Arts and Crafts style buildings, as well as some historical interest due to their association with W West Neve, who designed multiple Arts and Crafts style buildings within Moniaive. The asset's setting comprises its relationship with Glenluiart house (LB10307), a Category A Listed Building situated to its north east. LB10308 comprises the outbuildings for the larger main house and the spatial relationship is important in providing context for the outbuildings placement. The ZTV indicates that up to nine turbine tips would be visible from the asset. However, views of these turbine tips would not impact the ability to understand, appreciate, or experience the asset's architectural or historical value and its spatial relationship to Glenluiart house. As such, the asset is scoped out of further assessment.
LB4162	Sundaywell Tower Farmhouse And Steading	10	2.6	North west	The asset is a potentially 17th century tower, converted into a 3-storey house in the late 18th century, alongside a largely 19th century steading. The asset is primarily designated due to its architectural interest, from the well-preserved features from multiple periods, and its historic interest as a site of continued use throughout multiple centuries. The asset's setting is limited to the immediate surrounding farmland, which its inhabitants would have, and still do, work. As the asset's setting is localised, views of the wider landscape do not contribute to its significance. As such, whilst there



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					are anticipated to be views of the Proposed Development from the asset, these views would not impact the ability to understand, appreciate and experience the asset's historical and architectural interest, as well as its connection to its immediate landscape. It is scoped out of further assessment.
LB4248	Bogrie	10	2.1	North west	The asset is a probable 17th century structure, formed from a partially demolished tower which has been converted into a 2-storey house, with associated steading range. The asset primarily derives its significance from its architectural and historic interest, with preserved evidence of different architectural styles, and its continued usage and adaptation over almost 400 years. The asset's setting is limited to the immediate surrounding farmland, which its inhabitants would have, and still do, work. Whilst historically, the tower may have been defensive and a point of appreciation may have been the approach from the south east, the partial demolition of the tower means that this former aspects of the assets setting can no longer be appreciated, understood or experienced. Whilst up to 10 of the proposed turbines would be visible from the asset, they would not impact the ability to understand, appreciate or experience the asset's architectural and historic interest, nor its localised farmland setting. As such, the asset is scoped out of further assessment.
LB4249	Chapel Mill Block	12	3.9	North west	The asset is an early 19th-century grain mill, which is primarily designated due to its architectural interest, as a well-preserved 19th-century agricultural building, as well as its historic interest, as it provides an insight into early 19th-century agricultural practices through its preserved internal machinery. The asset's setting comprises its localised rural location, which comprises farmland that would have been associated with the mill. Long-distance views do not contribute to the asset's significance. As such, whilst there are anticipated to be views of the Proposed Development from the asset, these views would not impact the ability to understand, appreciate and experience the asset's historical and architectural interest, as well as its connection to its immediate landscape. It is scoped out of further assessment
LB4250	Craigenputtock	3	3.9	North	The asset is an early 19th century farmhouse and steading, designated due to its architectural interest, as a well-preserved 19th century structure, and its historic interest, providing insight into early 19th century practices and the inhabitants. The



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					assets setting comprises its localised rural location, which comprises farmland that would have been associated with the farmstead. Long-distance views do not contribute to the asset's significance. As such, whilst there are anticipated to be views of the Proposed Development from the asset, these views would not impact the ability to understand, appreciate and experience the asset's historical and architectural interest, as well as its connection to its immediate landscape. It is scoped out of further assessment
LB6771	Craigdarroch, Sawmill Cottage	1	4.1	South east	The asset, an early to mid-19 th century cottage is primarily designated for its architectural interest, due to its well-preserved period features. The asset's setting is localised, comprising its position set back from a key road leading to Moniaive to the east. The asset appears to be located as to not be viewed from a distance, as it is located away from the road and within historic woodland. The key point of appreciation for the asset is to its immediate north, on its drive. A single turbine tip is anticipated to be visible, and would not be expected to cause a distraction to the ability to understand, appreciate or experience the asset, its secluded setting or its architectural interest. It is therefore scoped out of further assessment.
LB10309	Ingleston Martyrs' Monument	16	2.3	South west	The asset comprises a martyrs' monument memorialising the execution of five martyrs. The asset is designated due to its historic interest, memorialising a historic event. The assets setting is limited to the yard in which it is situated, as it denotes the location in which the martyrs were executed. As such, views of the proposed turbines would not impact the asset's significance, and it is scoped out of further assessment.
LB10316	Old Crawfordton Farmhouse And Adjoining Vaulted Structure	11	2.7	South west	The asset is a late 17 th or early 18 th century 2 storey house, with a single-storey vaulted structure that is potentially 16 th century in date. The asset is primarily designated for its historic and architectural interest, both for the well-preserved features of the house and the adjoining vaulted structure. A key point of appreciation for the asset is from the north, looking south. However, due to the steep slopes to the south of the building, it can be demonstrated that long-distance views in this direction were not intended. Up to 11 proposed turbine tips would be visible from the asset; however, they would not impact the ability to understand, appreciate or experience the asset's architectural and historic interest. As such, the asset is scoped out of further assessment.



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10317	Shankfoot Bridge (Loch Urr Road Over Castlefairn Water)	16	2.5	South east	The asset comprises a single-segment arch road bridge, built in the early 19 th century. The asset is designated for its architectural interest, with retained features such as its rubble-built ashlar dressings and its recessed ring arches. The asset setting is functional, spanning Castlefairn Water and carrying Loch Urr road over the watercourse. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate, and experience the asset. It is scoped out of further assessment.
LB10318	Snade Mill	0	4.6	West	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
LB10321	Kirkland Village Glencairn Parish Manse And Gatepiers	16	3.7	South west	The assets comprise the graveyard (and associated structures) and the parish manse. The assets derive their significance from their historical interest, as historic ecclesiastical assets within a small rural parish, and their well-preserved architecture. Their setting is limited to their position associated with the surrounding ecclesiastical assets, including the Category A Listed church (LB10312) and the scheduled ruined church (SM3139). Views of the wider landscape do not contribute to the assets' significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the assets. They are scoped out of further assessment.
LB10313	Graveyard At Glencairn Parish Church, Including Walls And Gatepiers, Excluding Graveyard Extension To North And Scheduled Monument SM3139, Kirkland Village	16	3.7	South west	
LB10322	Kirkland Village Cottages	16	3.6	South west	The asset comprises a series of 19 th -century terraced cottages within the village of Kirkland. The assets are primarily designated for their architectural value, as they have good retention of period features. The asset's setting is limited to its local placement within the village, and views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.
LB10310	Kirkland Bridge Over Cairn Water	4	3.5	South west	The asset comprises a single segmental span road bridge, built in the early 19 th century. The asset is designated for its architectural interest, with retained features such as its rubble-built ashlar dressings and its recessed ring arches. The asset setting is functional, spanning Cairn Water and providing access to either side of it. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.
LB50010	Kirkland, Signpost At Junction Of A702 And B729	16	3.7	South west	The asset is an inter-war period signpost, located at the junction of the A702 and B729. The asset is designated for its historical interest as a type of signpost that has now been mostly removed, as well as its architectural interest for the same reason. The asset's setting is functional, relating to its placement along the road upon which it acts as signage. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.
LB10323	Lower Ingleston Gatepiers	14	2.5	South west	The asset comprises a set of gatepiers, which denote the driveway entrance to Lowe Ingleston Cottage. The cottage itself is not designated. The asset primarily derives its significance from its historic and architectural interest, with its setting limited to its spatial relationship with the nearby cottage. Any visibility of the Proposed Development would not impact the ability to understand, appreciate or experience the asset and as such, it is scoped out of further assessment.
LB10324	Maxwelton House	16	3.7	South west	Scoped in for further assessment.
LB10325	Maxwelton House Episcopal Chapel And Lych Gate	16	3.8	South west	The assets comprise structures that form part of the Maxwelton Estate. Both LB10328 and LB10325 are located within the Maxwelton GDL (GDL00276), with LB10329 being located within the historic boundary of the Maxwelton estate, along the northern bank of Cairn Water.
LB10328	Maxwelton House Summerhouse To	16	3.7	South west	



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
	South West Of House				The assets are designated primarily due to their architectural interest. The chapel is mid-19th century in date in a Gothic architectural style and is a well-preserved ecclesiastical building from this period. Both summer houses are late 19th and early 20th century in date and are rustic in design. They are well-preserved outbuildings from this period. In addition, the assets derive their significance from their historic interest, as they form a group of buildings that make up the historic Maxwellton Estate. They provide an insight into the use and development of the estate in the 19th and early 20th centuries. The setting of the assets comprises the historic Maxwellton Estate, within which the assets had a function, either as an ecclesiastical building or as a recreational outbuilding. Both summerhouses may have been placed to overlook key aspects of a designed landscape; however, due to the surrounding historic woodland, it can be shown that long-distance views of the surrounding landscape were not intended. Similarly, the chapel is placed within historic woodland and whilst it appears to have been intended to be appreciated on the approach from the east, long distance and wide ranging views do not appear to be intended. Whilst the Proposed Development is anticipated to be visible from the assets, long distance views of the wider landscape are not aspects of their setting which contribute to their significance. The Proposed Development would not be anticipated to impact the ability to understand, appreciate, or experience their architectural value, their historic connection to the Maxwellton Estate or their function within the estate.
LB10329	Maxwelton House Summer House Beside Cairn Water	12	3	South west	
LB10339	Castlefairn Bridge (A702 Over Castlefairn Water)	16	3.7	South east	The asset comprises a single segmental arch road bridge, built in the early 19th century. The asset is designated for its architectural interest, with retained features such as its rubble-built ashlar dressings and its recessed ring arches. The asset setting is functional, spanning Castlefairn Water and providing access to either side of it. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10343	Crawfordton School (Main Block)	16	3.3	South west	The assets comprise a main house (Crawfordton) and its associated east lodge and gatepiers. The house was used as a school from the 1940s until 2006 and is currently under private ownership. The assets primarily derive their significance from their historical and architectural interest, both their multiple uses throughout history and the well-preserved 19th-century architecture. The setting of the gatepiers and lodge is limited to their spatial association with the main house, and the key approach would be from the south, when entering the main drive. The setting of the house includes the historic estate, which is bordered to the south by a thick band of historic tree plantation, and key views of the house along the approach from the north. Whilst it is anticipated that up to 16 turbine tips would be visible from the assets, they would not be present within views between the house and the associated outbuildings and structures. The turbine tips may be peripheral in views when approaching the house along the main drive, but they would not impact the ability to understand, appreciate and experience the historical or architectural interest of the asset. Furthermore, they would not distract from the ability to understand the asset's connection to its historic estate due to the tree plantation to the south, creating a distinctive visual barrier. As such, the Proposed Development is not anticipated to impact the ability to understand, appreciate and experience the asset's significance. It is therefore scoped out of further assessment.
LB10344	Crawfordton School East Lodge & Gatepiers	16	3.3	South west	
LB10338	Caitloch House And Gatepiers	4	4.7	South east	The asset is a mid-19th century baronial style house, potentially comprised of additions to an early 18th century house. The asset's significance primarily derives from its architectural interest, due to its well-preserved period features, and its historic interest due to the different phases of its construction. The asset's setting appears to be localised, comprising its positioning set back from a key route to towards Moniaive, which is located to the south east. The asset is placed within historic woodland, which screens it from views when approaching along the road, demonstrating an intention for the asset to be isolated and secluded. As such, a key point of appreciation for the asset would be from its immediate south east, on its drive.



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					The ZTV indicates that up to four turbine tips would be visible from the asset in a bare earth scenario, however, in reality the historic woodland would likely fully screen these external views. The Proposed Development would be positioned outwith views of the asset from the drive and as such, the ability to understand, appreciate and experience the asset, its architectural and historic interest and its secluded setting would not be impacted by the Proposed Development. It is scoped out of further assessment.

Inventoried Gardens and Designed Landscapes

Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
GDL00276	Maxwelton (Glencairn Castle)	16	3.4	South west	Scoped In for Further Assessment



Conservation Areas

Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
CA178	Moniaive	16	3.4	South	Moniaive is a small village in a valley flanked by the Dalwhat Water to its north and Craigdarroch Water to its south. The placement between these two rivers would have been advantageous for settlement due to the fertile soils on the terraces between the watercourses. The village is oriented linearly east to west, following the valley's natural topography. The main routes into and out of the village are from the east, west, and south, via the A702 and the B729. These roads converge in the centre of the village, where they become Ayr Street, the main thoroughfare running east to west. Only when exiting the village on the aforementioned routes is the village's placement in the surrounding and wider landscape able to be appreciated. The east and west routes are tree-lined, screening much of the wider views until further from the Conservation Area. Only on the southern route would a viewer be able to see the surrounding landscape from the Conservation Area without any built or planted screening. These views, while providing context for the village's placement do not contribute to the village's character. Moniaive contains 22 listed buildings, including the Category A listed Kilneiss House (LB10298) and the visually prominent Category B listed Tower House (LB10297), both located on the main street. At the crossroads of the A702 and B729 stands a stone cross, which acts as a key focal point when moving through the village. The character and significance of the conservation area lie in its architectural and historical value, with the village's historic buildings reflecting its development through the medieval and post-medieval periods. Key views within the conservation area follow the east–west orientation, offering clear sightlines to many of the village's historic landmarks, such as the stone cross and the Tower House, and helping to reveal the visual and spatial relationships between these important structures. The ZTV indicates that up to 16 turbine tips would be visible from the conservation area in a bare earth scenario. In reality, whilst within the village itself, views of the proposed turbines would be obstructed by the surrounding built environment. As such, the Proposed Development would not impact the ability to understand, appreciate or experience the character of the conservation area from within, specifically its historic and architectural interest.



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-16)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					The Proposed Development would be screened when entering and exiting the conservation area from the east or west, due to the tree-lined roads. However, it may be visible when exiting from the south. Whilst these southern views do provide some context for the placement of the conservation area, they do not contribute to the character of the conservation area. As such, views of the proposed turbines are not anticipated to impact the ability to understand, appreciate or experience the significance of the conservation area and it is scoped out of further assessment.



Appendix 9.2

Cultural Heritage Appraisal of Scoping Layout B

EIA Scoping Report

Dalmacallan Wind Farm

Wind Power North One Limited

Appendix 9.2: Cultural Heritage Appraisal of Scoping Layout B

Scheduled Monuments

Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
SM5556	Sundaywell, fort 300m N of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	12	2.3	North west	Scoped in for further assessment.
SM5694	Brockloch, farmstead and field system 1000m WNW of Fraserford	Secular: farmstead	0-2	2.2	North west	The asset is a pre-improvement farmstead, which likely focused heavily on stock rearing. It lies on a south-facing slope, above a small valley containing the Glenesslin Burn. The south-facing slope would have allowed for maximum sunlight throughout the day, with its proximity to water providing a key resource for raising livestock. These aspects of the landscape form the primary aspects of its setting. As an agricultural asset, wider and distant views are unlikely to be important aspects of its setting. Between zero and two turbine tips are anticipated to be visible to the north of the asset, from varying points throughout the landscape. Views of the turbines are also anticipated to be limited when approaching the asset along the valley to the south. The turbines would not impact the ability to understand, appreciate, or experience the asset's agricultural setting, and as such, it is scoped out of further assessment.
SM4955	Moat, enclosure 300m NW of	Prehistoric domestic and defensive: settlement	0	9.8	West	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
SM5677	Barndennoch, ring ditches 350m N of	Prehistoric domestic and defensive: house	0	9.6	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM633	Capenoch Loch, long cairn	Prehistoric ritual and funerary: long cairn	0	7.1	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM663	Tynron Doon, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	17	7.4	South west	Scoped in for further assessment.
SM699	Maxwelton, motte	Secular: motte	16	3.5	South west	The asset, a medieval motte, is located along the west bank of Cairn Water, on a small rise within the river's flood plain. The asset is well positioned to monitor and control access along the Cairn Water valley, which runs north west to south east and the hills to the north and south of the valley would have formed an element of natural protection for the motte. The key approach to the motte would have been along the valley, likely following the river or the path of the modern B729 road, which runs to the asset's immediate east. When approaching through the valley, from the north west or south east, the motte would likely have been prominent and commanding in views. In addition, the asset is situated within a series of mottes which line the Cairn Water valley. The closest, Lower Inglestone (SM695), is located c.1.8km to the west. The assets may have shared visibility during their occupation, both controlling access along the valley. The asset's defensive position within the valley and its command and control over access along it, along with its proximity to other



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						mottes, are the primary contributors of the asset's setting to its significance. It is anticipated that up to 16 turbine tips would be visible from the asset, in view to the south west. The Proposed Development would not feature in views between the asset and the nearby Lower Ingleston motte, due to its placement outside of the line of sight. The turbines would appear in the background of views to the direct south east, which may cause a distraction in views in this direction. However, views to the south east do not form part of the key approach along the valley towards the asset, nor do they form part of the outward views from the asset along the valley. They would not impact the primary aspects of the asset's setting which contribute to its significance. As such, views of the turbines can be considered to form a minor distraction at most from the ability to appreciate, understand and experience the setting of the asset, and as such, it is scoped out of further assessment.
SM642	White Cairn, long cairn, Fleuchlarg	Prehistoric ritual and funerary: long cairn	14	5.7	West	The asset, a prehistoric long cairn, is located on a south-facing slope at the base of Fleuchlarg Hill. The asset is bounded by the higher ground of an unnamed hill to the south, with the cairn positioned in the lower ground, or valley, between the two hills. The cairn is situated c.0.8km east of Cairn Water, however, due to the undulating landscape, visibility of the asset from the river is limited. The asset was likely positioned to be appreciated when approaching along the minor valley at the base of Fleuchard Hill. The asset is oriented south west to north east, which may have been a key visual axis; however, due to the undulating landscape, there are limited long-distance views along the asset to the south west. Fleuchlarg Hill is visible along the axis of the asset when looking to the north east, which may have been a key outward view or visual focus.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						Due to its placement on lower ground, surrounded by larger hills, likely, the asset was not meant to be seen from a distance, nor act as a point of appreciation for long-distance views. In addition, as a funerary and ritual monument, the seclusion and protection offered by the surrounding hills may have been a key contributing factor to the asset's placement. The asset does not appear to be in proximity to other similar contemporary assets, indicating that intervisibility with other similar assets does not form part of the asset's setting. The asset's placement at the base of the hills, its approach from the east or west, its secluded location, and its potential connection with Fleuchlarg hill are all primary aspects of the asset's setting which contribute to its significance. It is anticipated that 14 turbine tips would be visible from the asset to the west. The turbines would not be visible along the axis of the cairn, to the north east or south west, nor would they be present within views or approaches from the east. The distance of the turbines from the asset would ensure that they would not impact the sense of seclusion or isolation created by the surrounding hills. The proposed turbines would be visible in the approach from the east, looking west, which may cause a minor distraction in views in this direction. However, this is the singular aspect of the asset's setting that would be impacted by the proposals. As such, views of the turbines can be considered to form a minor distraction at most from the ability to appreciate, understand and experience the setting of the asset, and as such, it is scoped out of further assessment.
SM697	Lag Tower	Secular: tower	17	8.3	West	The asset, a 16th-century tower house, is located at 90m AOD on flat ground c.0.25km south of Glenmidge Burn. The asset is situated at the south western extent of the narrow valley that



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						follows Glenmidge Burn along the bases of Benan Hills and Kirkbridge Hill. The asset was likely positioned within view of this valley to control and command access through it. The landscape opens up to the south west, with undulating hills and views towards the Cairn Water valley, c.2.7km to the south west. Whilst the asset is too far to command or control access along Cairn Water itself, it's positioned along a potential key access route towards the larger valley. Approaches to the tower would likely have followed the low ground, demonstrated by the modern road that runs north east to south west, directly to the north of the asset, with the tower's prominence in these views acting as a visual display of dominance. In addition, the open landscape would have acted as a form of defence for the tower, allowing visibility of anyone approaching. The asset is situated c.1.6km north east of Moatland Motte (SM700), which, whilst not contemporary, likely held a similar defensive position along this particular approach towards Cairn Water. The proximity to the earlier motte may have contributed to the asset's placement. The asset's defensive position, its control over the Glenmidge Burn valley and the approach to Cairn Water, its visibility in key approaches through the lower ground, and its proximity to earlier assets are key parts of the asset's setting which contribute to its significance. It is anticipated that up to 17 turbine tips may be present within views from the asset to the west. The Proposed Development would not be present in views towards the valley to the north east, nor in views when approaching the asset from the land to the south east. The Proposed Development would be peripheral in views along the lower ground to the south west, and when approaching the asset from the north west, it would appear to the west. Their distance from the asset and placement outwith the



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						key lines of sight towards the earlier motte, the tower and from the tower towards Cairn Water indicates that they would act as a very minor distraction at most. As such, the Proposed Development would not impact the ability to understand, appreciate or experience the asset's defensive or commanding position within the landscape. It is therefore scoped out of further assessment.
SM700	Moatland, motte	Secular: motte	17	6.7	West	The asset, a medieval motte, comprises a natural hillock that has been altered into a motte by excavating a surrounding ditch. The asset is situated to the north of Birkshaw Burn, with lower-lying wetland and agricultural land surrounding it. The asset is c. 1.1km east of the confluence of Birkshaw Burn and Cairn Water. The motte is located along a stretch of lowland that approaches Cairn Water, bounded by an unnamed hill to the north and High Germany Hill to the south. The asset's positioning would have allowed for the monitoring of the entrance to the lowland along the Birkshaw Burn from Cairn Water, as well as the stretch of Cairn Water and its valley visible to the west. The asset would have been able to control and command access along this natural route. In addition, the asset's placement on a natural hill would have allowed for visual prominence and a show of command to those approaching along the lowland from the east and west. The asset's placement overlooking the confluence of Cairn Water and Birkshaw Burn, its ability to control access through the landscape and its visual prominence when approaching are the key aspects of its setting which contribute to its significance. The asset is not located within proximity to any similar contemporary assets; however, there are other medieval mottes, outwith visibility of the asset, that line the Cairn Water. A visual relationship with these assets does not contribute to the asset's significance.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						It is anticipated that up to 17 turbine tips would be visible from the asset. They would be present within views to the west, which would be located on the periphery of views along Birkshaw Burn towards the Cairn Water. Whilst present, they would cause a minor distraction at most to the ability to understand, appreciate, and experience the asset's control over access through this part of the landscape. In addition, the Proposed Development would not impact the visual prominence of the motte within the landscape when approaching from the east or west. As such, the asset is scoped out of further assessment.
SM659	Rough Island, crannog	Prehistoric domestic and defensive: crannog	14	2.0	North east	Scoped in for further assessment.
SM1101	Craigmue Moor, Watch Knowe, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	17	2.9	East	Scoped in for further assessment.
SM1125	Lochrinnie Mote, motte 250m WNW of Craigmue Lodge	Secular: motte	17	4.3	South east	Scoped in for further assessment.
SM1047	White Cairn, cairn, Corriedow Bridge	Prehistoric ritual and funerary: cairn (type uncertain)	0	9.5	North east	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
SM695	Lower Ingleston, motte and bailey 400m ENE of	Secular: motte	17	3.0	South	Scoped in for further assessment.
SM705	Orchard Mote, earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	5.3	West	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
SM3139	Kirkland, church	Ecclesiastical: church	17	3.7	South west	The asset comprises the remains of a late 12th or early 13th-century church, formerly the Glencairn Parish Church and dedicated to St Cuthbert. The church is currently ruinous and situated within the graveyard of the newer Glencairn Parish Church (LB10312). The church would have served the wider community, those living in Glencairn Parish, which included the nearby village of Moniaive. The church was potentially situated along a pilgrim route, which may have provided a route to the shrines of St Cuthbert at Kirkcudbright and St Ninian at Whithorn. The church may once have been positioned to be visible when approaching through the landscape; however, its ruinous nature, its position within the newer kirkyard, and the presence of the newer church to the west mean that it is not noticeable from the wider landscape, nor when approaching along the road. As such, the aspects of the assets setting which contribute to its significance are its relationship with the surrounding kirkyard and the newer church to the west. Whilst 17 turbines are anticipated to be visible to the south of the asset, they would not impact the ability to understand, appreciate, and experience the asset's ecclesiastical setting and its relationship with the newer church and kirkyard. As such, the asset is scoped out of further assessment.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
SM5179	Auchenhay, settlement 1000m S of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	4	9.1	North	The asset, a prehistoric defensive settlement, is located at the base of a north west-facing slope of Drumhughry Hill, overlooking a narrow valley which contains the confluence of the Knarie Burn, the Auchentay Burn and the Nether Barr Burn. The asset would have been well positioned to monitor and control access through the valley and along the burns, with Drumhughry Hill providing some natural defence to the west. The main approaches towards the asset would have been through this same valley, from the south west and north east, with the asset likely having had some level of visual dominance along this approach. There are no contemporary assets nearby that share intervisibility with the defensive settlement. As such, the key aspects of the asset's setting which contribute to its significance are its command of the valley and its visual dominance during approaches. As the asset is not elevated in position, it can be assumed that long-distance views are not significant to the placement of the asset. It is anticipated that up to four turbine tips would be visible from the asset, in view to the north. The Proposed Development would be present in approaches from the south towards the asset and views along the valley to the north; however, the Proposed Development would not impact the ability to understand, appreciate and experience the assets control over the immediate landscape, nor its visual dominance in approaches. As such, it is scoped out of further assessment.
SM6285	Grennan Hill, fort 250m S of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	1	8.6	South west	The asset, a prehistoric fort, is located on a knoll on a south-facing slope of Grennan Hill. The asset overlooks Scaur Water, which runs to the south west of the asset, in a north west-to-south east direction. The asset is well placed to monitor and control access along Scaur Water and its valley, with the asset's elevation likely acting as an aspect of visual dominance to those approaching through the valley.



Designation Reference	Designation Title	Category	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
						The entrance of the asset is on the north east side, with the key approach to the asset likely from the easier terrain to the east. The west of the asset is bounded by a steep slope. The asset is located c.1.2km to the north east of Tynron Doon fort (SM663), which also would have monitored or controlled access along Scaur Water. Intervisibility between these assets is likely to be of significance. As such, the key aspects of the asset's setting which contribute to its setting are its command over access along Scaur Water, the approach towards the asset from the east, the visual dominance of the asset when approaching along Scaur Water and its visual relationship with Tynron Doon fort. It is anticipated that a singular turbine tip would be visible from the asset, in views to the south west. The turbines would not be present in views from the asset along Scaur Water or towards the asset when approaching along Scaur Water. The turbines would be outwith views towards the asset when approaching from the east. A singular asset may be visible in views towards Tynron Doon Fort; however, it would not be anticipated to distract the viewer from the visual connection between the asset and the fort. As such, the Proposed Development would not be anticipated to impact the aspects of the assets setting which contribute to its significance. It is scoped out of further assessment.



Category A Listed Buildings

Designation reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB4227	Dalgonar Bridge Over Cairn Water	11	6.8	North west	The asset, an early 19th-century bridge, spans the Cairn Water. The asset is primarily listed for its architectural interest. The asset's setting is functional, comprising its position across the Cairn Water. The bridge replaced an earlier wooden structure, providing safe access across the river to the village of Dunscore, c.0.6km to the north east. Whilst it is anticipated that there would be up to 11 turbine tips visible from the asset, they would not impact the ability to understand, appreciate or experience the asset's functional setting nor its relationship to the village of Dunscore. Furthermore, the proposed turbines would not impact the ability to appreciate the architecture of the asset. It is therefore scoped out of further assessment.
LB4230	Dunscore Village Dunscore Parish Church And Churchyard	16	7.3	North west	The asset, an early 19th-century church and potentially a 17th-century churchyard, is situated in the village of Dunscore and is primarily listed for its internal and external architectural value. The setting of the church and churchyard is derived primarily from its functional position within the parish, in an easily accessible place for the parishioners. The tower of the church is a visible landmark for those approaching the church in Dunscore, primarily along Black Brae and the B729, the primary routes into Dunscore Village facing south, east and west. Whilst it is anticipated that there would be 16 turbines visible from the asset in distant views to the north west, the Proposed Development would not impact views upon the approaches to the church, the ability to appreciate the church's architectural interest and the ability to understand, appreciate or experience the asset's connection to the historic Dunscore parish. In addition, the turbines are offset from the asset by a considerable distance, meaning that they would not compete for visual dominance against the church tower along the B729 and Black Brae approaches. It is therefore scoped out of further assessment.
LB10247	Capenoch House	0	8.3	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.



Designation reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10298	Moniaive Village Kilneiss House	17	4.1	South east	The asset is a cottage, reconstructed in 1884 by well-known architect Sir John J Burnet, in the Arts and Crafts architectural style. The cottage was redesigned for the renowned artist James Paterson. The asset primarily derives its significance from its architectural interest, including its extremely well-preserved Arts and Crafts detailing, as well as its historic value through its connection both the well-known architect and well-known artist. It is considered that the cultural significance of this asset is derived solely from its historical and architectural interest, and its setting does not contribute to its significance. The asset is set back from the road, with the main approach from the north-facing driveway. Whilst the Proposed Development would be visible to the south from the asset, it would not distract from the ability to understand, appreciate or experience the architectural quality of the asset, not its historical connections. It is therefore scoped out of further assessment.
LB10307	Glenluiart House	13	4.2	South east	Scoped in for further assessment.
LB10312	Kirkland Village Glencairn Parish Church	17	3.7	South west	The asset comprises a gothic church, constructed in 1836 to replace the earlier 12th or 13th century church that lies to its east. The asset is primarily listed for its architectural value. The asset is situated within its churchyard, which encompasses it to the north, east and west. Both the prior church and the churchyard provide context for the ecclesiastical setting of the asset. The church would have been the primary church for the Parish of Glencairn, and is currently one of two churches within the parish, providing a gathering place for those living nearby. The asset sits along the north of the A702, which runs east to west. This is the key approach to the asset, with the church tower particularly visible in the approach from the west. The aspects of the assets setting which contribute to its significance are its connection to the surrounding churchyard, the connection to the earlier kirk



Designation reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					to the east, the placement of the church within the parish, and its visibility along the approach from the east and west. Whilst 17 turbines are anticipated to be visible from the asset, in views to the south west, these turbines would not impact the ability to understand, appreciate, or experience the asset within its immediate ecclesiastical setting nor its placement within the parish. While the turbines may be present in peripheral views when approaching from the east, they would not be placed as to distract from the visual dominance of the church tower. As such, the setting of the asset would remain unimpacted by the Proposed Development. It is scoped out of further assessment.
LB10340	Craigdarroch House	0	5.4	South east	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
LB17222	Tynron Village Tynron Parish Church	0	6.1	South west	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.

Category B Listed Buildings

Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10292	Moniaive Village, Dunreggan: Inver Cottage And W. Glencross	17	3.9	South	The assets comprise Category B Listed Buildings within the village and conservation area of Moniaive. They comprise buildings from the 18 th and 19 th centuries and provide an insight into the development of Moniaive during the post-medieval period. The structures primarily derive their significance from their architectural value, comprising buildings of a variety of uses, all with well-preserved architectural features. The setting of the assets comprises the conservation area,
LB10294	Moniaive Village Dunreggan Former F.C.	17	3.7	South	



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
	Manse And Stables				which allows context for their construction, and their visual and spatial relationship with one another, which provides an understanding of the development of the village. The assets do not derive their significance from views outwith the village, which are screened in the most part by the surrounding built environment. The ZTV indicates that there would be up to 17 turbine tips visible from these assets in a bare-earth scenario. As the assets do not derive their significance from views of the wider landscape, the Proposed Development is not anticipated to impact the ability to understand, appreciate or experience them. As such, the assets are scoped out of further assessment.
LB10295	Moniaive Village High Street Bridge A702 Over Dalwhat Water	17	4.0	South	
LB10296	Moniaive Village High Street George Hotel	17	3.9	South	
LB10320	Waulkmill Bridge A702 Over Craigdarroch Water	17	3.7	South	
LB10331	Moniaive Village Broomfield Bank	17	4.3	South east	
LB10332	Moniaive Village Broomfield House And Gatepiers	16	4.2	South east	
LB10333	Moniaive Village Chapel Street Bank, Bank House And Gatepiers	17	3.9	South	
LB10314	Moniaive Village North Street Cottages (Formerly Maccreeary's Workshop:/Corner With High Street	17	4.0	South	
LB10305	Dungalston Farmhouse (Caigdarroch Estate)	16	4.4	South east	The assets, both 19th century in date, are located along the B729 to the west of Moniaive. The assets primarily derive their significance from their architectural interest, comprising well-preserved 19th-century architectural features. The assets' immediate setting



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
LB10306	Ewanston House	12	4.1	South east	contributes to their significance, from their proximity to the village of Moniaive, ease of access along the main road, and positioning relative to associated farm land. Whilst the assets are positioned facing south, longer distance views do not contribute to the asset's significance. The assets are approached from along the B729, which remains the key point from which their architectural interest can be appreciated. Whilst the Proposed Development is anticipated to be visible in part from the assets, these views do not contribute to the significance of the asset. The ability to understand, experience, and appreciate the asset's setting and its architectural value would be retained. The assets are therefore scoped out of further assessment.
LB10308	Glenluiart Lodge, Outbuildings & Former Stables	3	4.2	South east	The asset comprises an early 20th century set of buildings, designed by W West Neve in the Arts and Crafts Style. The buildings primarily derive their significance from their architectural value, as well-preserved Arts and Crafts style buildings, as well as some historical interest due to their association with W West Neve, who designed multiple Arts and Crafts style buildings within Moniaive. The asset's setting comprises its relationship with Glenluiart house (LB10307), a Category A Listed Building situated to its north east. LB10308 comprises the outbuildings for the larger main house and the spatial relationship is important in providing context for the outbuildings placement. The ZTV indicates that up to three turbine tips would be visible from the asset. However, views of these turbine tips would not impact the ability to understand, appreciate, or experience the asset's architectural or historical value and its spatial relationship to Glenluiart house. As such, the asset is scoped out of further assessment.
LB4162	Sundaywell Tower Farmhouse And Steading	11	2.6	North west	The asset is a potentially 17th century tower, converted into a 3-storey house in the late 18th century, alongside a largely 19th century steading. The asset is primarily designated due to its architectural interest, from the well-preserved features from multiple periods, and



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					its historic interest as a site of continued use throughout multiple centuries. The asset's setting is limited to the immediate surrounding farmland, which its inhabitants would have, and still do, work. As the asset's setting is localised, views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development from the asset, these views would not impact the ability to understand, appreciate and experience the asset's historical and architectural interest, as well as its connection to its immediate landscape. It is scoped out of further assessment.
LB4248	Bogrie	11	2.2	North west	The asset is a probable 17 th century structure, formed from a partially demolished tower which has been converted into a 2-storey house, with associated steading range. The asset primarily derives its significance from its architectural and historic interest, with preserved evidence of different architectural styles, and its continued usage and adaptation over almost 400 years. The asset's setting is limited to the immediate surrounding farmland, which its inhabitants would have, and still do, work. Whilst historically, the tower may have been defensive and a point of appreciation may have been the approach from the south east, the partial demolition of the tower means that this former aspects of the assets setting can no longer be appreciated, understood or experienced. Whilst up to 11 of the proposed turbines would be visible from the asset, they would not impact the ability to understand, appreciate or experience the asset's architectural and historic interest, nor its localised farmland setting. As such, the asset is scoped out of further assessment.
LB4249	Chapel Mill Block	14	4.1	North west	The asset is an early 19th-century grain mill, which is primarily designated due to its architectural interest, as a well-preserved 19th-century agricultural building, as well as its historic interest, as it provides an insight into early 19th-century agricultural practices through its preserved internal machinery. The asset's setting comprises its localised rural location, which comprises farmland that



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					would have been associated with the mill. Long-distance views do not contribute to the asset's significance. As such, whilst there are anticipated to be views of the Proposed Development from the asset, these views would not impact the ability to understand, appreciate and experience the asset's historical and architectural interest, as well as its connection to its immediate landscape. It is scoped out of further assessment.
LB4250	Craigenputtock	2	3.9	North	The asset is an early 19 th century farmhouse and steading, designated due to its architectural interest, as a well-preserved 19 th century structure, and its historic interest, providing insight into early 19 th century practices and the inhabitants. The assets setting comprises its localised rural location, which comprises farmland that would have been associated with the farmstead. Long-distance views do not contribute to the asset's significance. As such, whilst there are anticipated to be views of the Proposed Development from the asset, these views would not impact the ability to understand, appreciate and experience the asset's historical and architectural interest, as well as its connection to its immediate landscape. It is scoped out of further assessment.
LB6771	Craigdarroch, Sawmill Cottage	0	4.5	South east	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
LB10309	Ingleston Martyrs' Monument	17	2.5	South	The asset comprises a martyrs' monument memorialising the execution of five martyrs. The asset is designated due to its historic interest, memorialising a historic event. The assets setting is limited to the yard in which it is situated, as it denotes the location in which the martyrs were executed. As such, views of the proposed turbines would not impact the asset's significance, and it is scoped out of further assessment.
LB10316	Old Crawfordton Farmhouse And Adjoining Vaulted Structure	10	2.8	South west	The asset is a late 17 th or early 18 th century 2 storey house, with a single-storey vaulted structure that is potentially 16 th century in date. The asset is primarily designated for its historic and architectural interest, both for the well-preserved features of the house and the



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					adjoining vaulted structure. A key point of appreciation for the asset is from the north, looking south. However, due to the steep slopes to the south of the building, it can be demonstrated that long-distance views in this direction were not intended. Up to 10 proposed turbine tips would be visible from the asset; however, they would not impact the ability to understand, appreciate or experience the asset's architectural and historic interest. As such, the asset is scoped out of further assessment.
LB10317	Shankfoot Bridge (Loch Urr Road Over Castlefairn Water)	16	2.6	South east	The asset comprises a single-segment arch road bridge, built in the early 19 th century. The asset is designated for its architectural interest, with retained features such as its rubble-built ashlar dressings and its recessed ring arches. The asset setting is functional, spanning Castlefairn Water and carrying Loch Urr road over the watercourse. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.
LB10318	Snade Mill	0	4.8	West	Due to this asset, and contemporary assets with intervisibility, falling outwith the ZTV, this asset has been scoped out of further assessment.
LB10321	Kirkland Village Glencairn Parish Manse And Gatepiers	17	3.7	South west	The assets comprise the graveyard (and associated structures) and the parish manse. The assets derive their significance from their historical interest, as historic ecclesiastical assets within a small rural parish, and their well-preserved architecture. Their setting is limited to their position associated with the surrounding ecclesiastical assets, including the Category A Listed church (LB10312) and the scheduled ruined church (SM3139). Views of the wider landscape do not contribute to the assets' significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the assets. They are scoped out of further assessment.
LB10313	Graveyard At Glencairn Parish Church, Including Walls And Gatepiers, Excluding Graveyard Extension To	17	3.7	South west	



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
	North And Scheduled Monument SM3139, Kirkland Village				
LB10322	Kirkland Village Cottages	17	3.7	South west	The asset comprises a series of 19th-century terraced cottages within the village of Kirkland. The assets are primarily designated for their architectural value, as they have good retention of period features. The asset's setting is limited to its local placement within the village, and views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.
LB10310	Kirkland Bridge Over Cairn Water	2	3.5	South west	The asset comprises a single segmental span road bridge, built in the early 19 th century. The asset is designated for its architectural interest, with retained features such as its rubble-built ashlar dressings and its recessed ring arches. The asset setting is functional, spanning Cairn Water and providing access to either side of it. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.
LB50010	Kirkland, Signpost At Junction Of A702 And B729	17	3.7	South west	The asset is an inter-war period signpost, located at the junction of the A702 and B729. The asset is designated for its historical interest as a type of signpost that has now been mostly removed, as well as its architectural interest for the same reason. The asset's setting is functional, relating to its placement along the road upon which it acts as signage. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					understand, appreciate and experience the asset. It is scoped out of further assessment.
LB10323	Lower Ingleston Gatepiers	14	2.8	South	The asset comprises a set of gatepiers, which denote the driveway entrance to Lowe Ingleston Cottage. The cottage itself is not designated. The asset primarily derives its significance from its historic and architectural interest, with its setting limited to its spatial relationship with the nearby cottage. Any visibility of the Proposed Development would not impact the ability to understand, appreciate or experience the asset and as such, it is scoped out of further assessment.
LB10324	Maxwelton House	17	3.8	South west	Scoped in for further assessment.
LB10325	Maxwelton House Episcopal Chapel And Lych Gate	17	3.9	South west	The assets comprise structures that form part of the Maxwelton Estate. Both LB10328 and LB10325 are located within the Maxwelton GDL (GDL00276), with LB10329 being located within the historic boundary of the Maxwelton estate, along the northern bank of Cairn Water. The assets are designated primarily due to their architectural interest. The chapel is mid-19th century in date in a Gothic architectural style and is a well-preserved ecclesiastical building from this period. Both summer houses are late 19th and early 20th century in date and are rustic in design. They are well-preserved outbuildings from this period. In addition, the assets derive their significance from their historic interest, as they form a group of buildings that make up the historic Maxwelton Estate. They provide an insight into the use and development of the estate in the 19th and early 20th centuries. The setting of the assets comprises the historic Maxwelton Estate, within which the assets had a function, either as an ecclesiastical building or as a recreational outbuilding. Both summerhouses may have been placed to overlook key aspects of a designed landscape; however, due to the surrounding historic woodland, it can be shown that long-distance views of the surrounding landscape were not intended. Similarly, the chapel is placed within historic woodland and
LB10328	Maxwelton House Summerhouse To South West Of House	17	3.7	South west	
LB10329	Maxwelton House Summer House Beside Cairn Water	12	3.1	South west	



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					whilst it appears to have been intended to be appreciated on the approach from the east, long distance and wide ranging views do not appear to be intended. Whilst the Proposed Development is anticipated to be visible from the assets, long distance views of the wider landscape are not aspects of their setting which contribute to their significance. The Proposed Development would not be anticipated to impact the ability to understand, appreciate, or experience their architectural value, their historic connection to the Maxwellton Estate or their function within the estate. As such, they are scoped out of further assessment.
LB10339	Castlefairn Bridge (A702 Over Castlefairn Water)	17	3.7	South east	The asset comprises a single segmental arch road bridge, built in the early 19th century. The asset is designated for its architectural interest, with retained features such as its rubble-built ashlar dressings and its recessed ring arches. The asset setting is functional, spanning Castlefairn Water and providing access to either side of it. Views of the wider landscape do not contribute to its significance. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate and experience the asset. It is scoped out of further assessment.
LB10343	Crawfordton School (Main Block)	17	3.6	South	The assets comprise a main house (Crawfordton) and its associated east lodge and gatepiers. The house was used as a school from the 1940s until 2006 and is currently under private ownership. The assets primarily derive their significance from their historical and architectural interest, both their multiple uses throughout history and the well-preserved 19th-century architecture. The setting of the gatepiers and lodge is limited to their spatial association with the main house, and the key approach would be from the south, when entering the main drive. The setting of the house includes the historic estate, which is bordered to the south by a thick band of historic tree plantation, and key views of the house along the approach from the north.
LB10344	Crawfordton School East Lodge & Gatepiers	17	3.5	South	



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					Whilst it is anticipated that up to 17 turbine tips would be visible from the assets, they would not be present within views between the house and the associated outbuildings and structures. The turbine tips may be peripheral in views when approaching the house along the main drive, but they would not impact the ability to understand, appreciate and experience the historical or architectural interest of the asset. Furthermore, they would not distract from the ability to understand the asset's connection to its historic estate due to the tree plantation to the south, creating a distinctive visual barrier. As such, the Proposed Development is not anticipated to impact the ability to understand, appreciate and experience the asset's significance. It is therefore scoped out of further assessment.

Inventoried Gardens and Designed Landscapes

Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
GDL00276	Maxwelton (Glencairn Castle)	17	3.4	South west	Scoped In for Further Assessment



Conservation Areas

Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
CA178	Moniaive	17	3.4	South	Moniaive is a small village in a valley flanked by the Dalwhat Water to its north and Craigdarroch Water to its south. The placement between these two rivers would have been advantageous for settlement due to the fertile soils on the terraces between the watercourses. The village is oriented linearly east to west, following the valley's natural topography. The main routes into and out of the village are from the east, west, and south, via the A702 and the B729. These roads converge in the centre of the village, where they become Ayr Street, the main thoroughfare running east to west. Only when exiting the village on the aforementioned routes is the village's placement in the surrounding and wider landscape able to be appreciated. The east and west routes are tree-lined, screening much of the wider views until further from the Conservation Area. Only on the southern route would a viewer be able to see the surrounding landscape from the Conservation Area without any built or planted screening. These views, while providing context for the village's placement do not contribute to the village's character. Moniaive contains 22 listed buildings, including the Category A listed Kilneiss House (LB10298) and the visually prominent Category B listed Tower House (LB10297), both located on the main street. At the crossroads of the A702 and B729 stands a stone cross, which acts as a key focal point when moving through the village. The character and significance of the conservation area lie in its architectural and historical value, with the village's historic buildings reflecting its development through the medieval and post-medieval periods. Key views within the conservation area follow the east-west orientation, offering clear sightlines to many of the village's historic landmarks, such as the stone cross and the Tower House, and helping to reveal the visual and spatial relationships between these important structures. The ZTV indicates that up to 17 turbine tips would be visible from the conservation area in a bare earth scenario. In reality, whilst within the village itself, views of the proposed turbines would be obstructed by the



Designation Reference	Designation Title	No. of Turbine Tips Visible (0-17)	Distance to the Nearest Turbine (km)	Direction to the nearest turbine	Appraisal Comments
					surrounding built environment. As such, the Proposed Development would not impact the ability to understand, appreciate or experience the character of the conservation area from within, specifically its historic and architectural interest. The Proposed Development would be screened when entering and exiting the conservation area from the east or west, due to the tree-lined roads. However, it may be visible when exiting from the south. Whilst these southern views do provide some context for the placement of the conservation area, they do not contribute to the character of the conservation area. As such, views of the proposed turbines are not anticipated to impact the ability to understand, appreciate or experience the significance of the conservation area and it is scoped out of further assessment.

