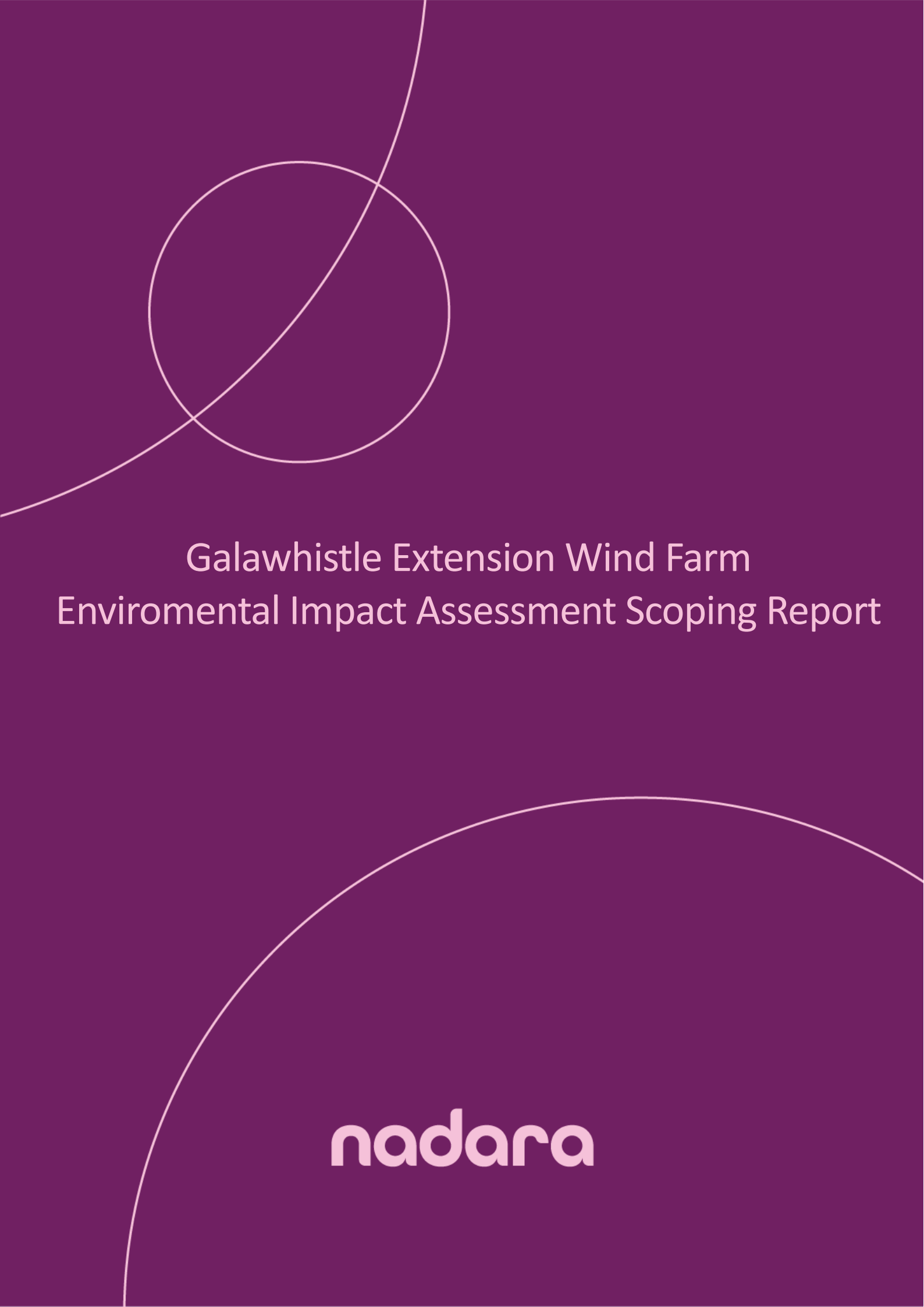




Galawhistle Extension Wind Farm Enviromental Impact Assessment Scoping Report

nadara

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GLOSSARY AND ABBREVIATIONS

Abbreviation	Description
AD	Air Defence
Agl	Above Ground Level
AIL	Abnormal Indivisible Load
AMP	Amplitude Modulation
AOD	Above Ordnance Datum
ATC	Air Traffic Control
ATS	Air Traffic Services
AWI	Ancient Woodland Inventor
BEIS	Business, Energy and Industrial Strategy
BEMP	Biodiversity Enhancement Plant
BERR	Business, Enterprise and Regulatory Reform
BGS	British Geological Survey
BoCC	Birds Of Conservation Concern
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute for Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CNS	Communication, Navigation and Surveillance
CT	Character Types
CTA	Control Area
dB	Decibel

Abbreviation	Description
DBA	Desk-Based Assessment
DESNZ	Department For Energy Security and Net Zero
DfT	Department For Transport
DTI	The Department of Trade and Industry
EcIA	Ecological Impact Assessment
ECU	Energy Consents Unit
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ES	Environmental Statement
FGS	Forestry Grant Scheme
ft	Feet
GCN	Great Crested Newt
GDLs	Garden And Designed Landscapes
GLVIA	Guidelines For Landscape and Visual Impact Assessment
GPG	The IOA 'Good Practice Guide'
GPPs	Guidance For Pollution Prevention
GWDTE	Groundwater Dependent Terrestrial Ecosystems
ha	Hectares
HER	Historic Environment Record
HES	Historic Environment Scotland
HRA	Habitats Regulations Assessment
HSI	Habitat Suitability Index
IEF	Important Ecological Features
IEMA	Institute Of Environmental Management and Assessment

Abbreviation	Description
IFPs	Instrument Flight Procedures
INNS	Invasive Non Native Species
IOA	Institute of Acoustics
IUCN	International Union for the Conservation of Nature
km	Kilometre
LCT	Landscape Character Types
LDP	Local Development Plan
LiDAR	Light Detection and Ranging
LNCS	Local Nature Conservation Site
LVIA	Landscape And Visual Impact Assessment
MAA	Military Aviation Authority
Met	Meteorological
MoD	Ministry Of Defence
MW	Megawatts
NATS	National Air Traffic Services
NBN	National Biodiversity Network
NCAP	National Collection of Aerial Photography
NERL	NATS En-Route Plc
NFI	National Forest Inventory
NHZ	Natural Heritage Zone
NLS	National Library of Scotland
NPF4	National Planning Framework 4
NRHE	National Record of the Historic Environment
NSA	National Scenic Areas
NSR	Noise-Sensitive Receptor

Abbreviation	Description
NVC	National Vegetation Classification
NWSS	Native Woodland Survey of Scotland
OPMP	Outline Peat Management Plan
OS	Ordnance Survey
PLHRA	Peat Landslide Hazard and Risk Assessment
PPGs	Pollution Prevention Guidelines
PRF	Potential Roost Feature
PSR	Primary Surveillance Radar
PWS	Private Water Supply
RAF	Royal Air Force
RLOS	Radar Line of Sight
RVAA	Residential Visual Amenity Assessment
SAC	Special Areas of Conservation
SBC	Scottish Borders Council
SEPA	Scottish Environment Protection Agency
SLA	Special Landscape Area
SLC	South Lanarkshire Council
SPA	Special Protection Areas
SPP	Species Protection Plan
SSRS	Saving Scotland's Red Squirrels
SSSI	Sites Of Special Scientific Interest
UK	United Kingdom
VP (Landscape)	Viewpoint
VP (Ornithology)	Vantage Point
WGS	Woodland Grant Scheme

Abbreviation	Description
WHS	World Heritage Site
WoSAS	West of Scotland Archaeology Services
WTAMR	Wind Turbine Am Review
ZTV	Zone Of Theoretical Visibility

1. INTRODUCTION

1.1 Overview

- 1.1.1.1 This Scoping Report is provided in support of a request to the Scottish Ministers for a Scoping Opinion under the terms of Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, as amended ('the EIA regulations').
- 1.1.1.2 Scoping is a statutory procedure by which an Applicant may ask a competent authority for its formal opinion on the information to be supplied within an EIA Report (EIAR). This provision allows the Applicant to be clear about what the authority considers the main effects of the proposal are likely to be, and therefore the topics on which the EIAR should focus.

1.2 The Applicant

- 1.2.1.1 Renantis UK Limited ('the Applicant') forms part of the Nadara group following the merger with Ventient Energy in 2024. Nadara is **one of Europe's largest independent power producers**, with the aim to generate clean and reliable electricity while supporting local communities, economies and sustainable growth. The company's name was inspired by the Scottish Gaelic word 'Nàdarra', which means 'natural' – it embodies the natural energy we harness in the renewable energy plants that we develop, own and operate.
- 1.2.1.2 Working with nature, backed by shareholders, and with the support of local communities, Nadara develops, owns and operates 196 renewable energy sites across six countries
- 1.2.1.3 For further information about Nadara visit <https://nadara.com/>.

1.3 Background

- 1.3.1.1 The Applicant is developing proposals to extend the existing Galawhistle Wind Farm ('the existing wind farm'), which they currently own and operate. The existing Galawhistle Wind Farm is located approximately 7 km east of Muirkirk in East Ayrshire and 5 km west of the village of Douglas in South Lanarkshire. The area for the wind farm extension is located to the north of the existing site (**Figure 1.1**).

- 1.3.1.2 The existing wind farm was granted planning permission on 8th August 2012 by Scottish Ministers¹, with a variation to this application², allowing the use of 45 m blades and an increase in the overall maximum installed capacity of the Site to 66 MW, approved on 26th May 2015. The Site has been operational since 2017 and comprises 22 Vestas V90 3 MW wind turbines with either a hub height of 65 m or 75 m, blade length of 45 m and tip height of between 110.2 m and 121.2 m (the layout of the operational turbines is shown on **Figure 2.1**). In November 2022, an application³ was submitted to Scottish Ministers to extend the operational life of the wind farm for an additional 10 years until 2052 (ECU Ref: ECU00004538). This application was approved on 30th August 2023.
- 1.3.1.3 The existing wind farm (and the Proposed Development) forms part of an established cluster of wind farms (operational, consented and proposed) around Hagshaw Hill, referred to as the Hagshaw Energy Cluster⁴. A framework centred around collaboration has been developed for this cluster of wind farms between NatureScot, East Ayrshire Council (EAC), South Lanarkshire Council (SLC) and wind farm developers. The framework notes that the “...*Cluster is an established strategic location for large scale renewable energy projects, with a committed capacity of almost 585 MW. Future plans, policies and decisions by local authorities should reflect the cluster’s suitability for hosting a range of renewable energy developments which can be delivered at pace to achieve Scotland’s Net Zero ambitions*”⁵. The framework identifies opportunities for quality of design and delivering enhancement and benefits to local communities, the built and natural environment and the economy. The framework has been adopted by SLC and EAC as non-statutory guidance to be used as a material consideration in planning applications.

¹ Under Section 36C of the Electricity Act 1989 together with a direction under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997.

² ECU reference – EC00003123

³ Under s36C of the Electricity Act 1989 and the Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013.

⁴ Further details available at: <https://www.thehagshawenergycluster.co.uk/> [accessed May 2024]

⁵ The Hagshaw Energy Cluster (2023). A Development Framework for the Hagshaw Energy Cluster: Planning for Net Zero. Available at: https://www.thehagshawenergycluster.co.uk/pdfs/A%20Development%20Framework%20for%20the%20Hagshaw%20Energy%20Cluster_FINAL%20July%202023_low-res.pdf (Accessed July 2024).

1.4 Consenting Regime

- 1.4.1.1 At this stage it is anticipated that the Proposed Development would have an installed capacity of up to 36 MW. The existing wind farm, has a capacity of 66 MW and given the Proposed Development would constitute an “extension” to a generating station that will collectively have a capacity of greater than 50 MW, an application for consent would be made to the Scottish Ministers under section 36 of the Electricity Act 1989. The Applicant would also seek deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997.
- 1.4.1.2 The Proposed Development is of a type listed in Schedule 2 of the EIA regulations. Specifically, it constitutes an “extension” under Schedule 2, paragraph 2 to a “generating station” under Schedule 2, paragraph 1 (1). The Applicant is satisfied that the Proposed Development has likely significant effects by virtue of Schedule 3 factors, including its nature, size or location, and therefore have volunteered to undertake an EIA rather than request a formal screening opinion.

1.5 EIA Team

- 1.5.1.1 This report has been prepared by EIA experts at Ramboll UK Limited, with a select team of technical specialists providing inputs covering all the relevant environmental disciplines as set out in **Table 1.1**.

Table 1.1: Scoping Report Team of Technical Specialist

Discipline	Organisation
Lead EIA Consultant	Ramboll
Landscape and Visual Amenity	Ramboll
Cultural Heritage	AOC Archaeology Group
Ecology and Ornithology	RPS Tetra Tech
Hydrology and Hydrogeology	Ramboll
Geology and Soils	Ramboll
Traffic, Transport and Access	Systra
Noise and Vibration	TNEI

Discipline	Organisation
Aviation	Aviatica
Telecommunications	Aviatica
Socio-Economics	Ramboll
Carbon Balance	Ramboll

1.6 Policy Considerations

- 1.6.1.1 The Proposed Development relates to electricity generation from renewable energy sources and is a direct response to national planning and energy policy objectives.
- 1.6.1.2 The Proposed Development would make a significant contribution to the attainment of renewable energy generation and greenhouse gas reduction targets both at the Scottish and UK levels and the extent of this contribution will be described in the EIAR.
- 1.6.1.3 The EIAR will not provide generic policy analysis or undertake a planning balance exercise. However it will refer to and take account of relevant policies that have been considered as part of the assessments undertaken throughout the EIA. A separate Planning Statement will provide a detailed appraisal of the Proposed Development against the relevant Development Plan policies, national planning and energy policy and other material considerations.

1.7 Objectives and Purpose of the Scoping Report

- 1.7.1.1 The specific objectives of this report are to:
- seek agreement on the potential likely significant effects associated with the Proposed Development, and confirm that all potential likely significant effects have been correctly included in the proposed scope of the EIA ('scoped in');
 - seek agreement where effects that are not likely to be significant have been excluded ('scoped out'); and
 - invite comment on the proposed approach to baseline data collection, methodology for the prediction of environmental effects and the assessment of significance.

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

1.8 Public Consultation

- 1.8.1.1 The Applicant is committed to conducting community consultation and engagement throughout the development process. Online communication such as a project website and email updates will strengthen traditional methods such as newsletters and printed advertisements.
- 1.8.1.2 In accordance with ECU best practice guidance⁶, the Applicant is planning to host two rounds of public consultation events. The outcome of the consultation process will be compiled into a Pre-Application Consultation Report to accompany the application for consent, detailing the consultation undertaken and any changes made to the Proposed Development as a result of this consultation.

1.9 Structure of this Report

- 1.9.1.1 The remainder of this report is structured as follows.
- **Chapter 2: Description of the Proposed Development** provides a brief description of the nature and purpose of the development, typical construction activities and decommissioning proposals.
 - **Chapter 3: Scope of the EIA** provides a summary of the topics to be scoped in and scoped out of the EIAR, provides an outline of the consultation process and summarises the EIA approach to the EIA.
 - **Chapters 4 – 12: Scoped in** environmental topics with potential for significant effects. Each Chapter outlines the baseline conditions and overall assessment scope and methodology for the EIA.
 - **Chapter 13: Other Considerations** provides a summary of other environmental issues which will be considered in relation to the Proposed Development, including reference to how they will be assessed or if they are to be scoped out.

⁶ The Scottish Government (2022), Electricity Act 1989 - sections 36 and 37: applications guidance. Available at: <https://www.gov.scot/publications/good-practice-guidance-applications-under-sections-36-37-electricity-act-1989/pages/3/>

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site Selection

- 2.1.1.1 The site selection process for the Proposed Development involved a structured feasibility assessment focused on identifying land capable of accommodating additional turbines adjacent to the existing operational wind farm. This began with detailed constraint mapping to exclude areas affected by nearby residential properties, cultural heritage assets, ecological designations, peat resources, landscape sensitivities, aviation and radar considerations, and cumulative effects from surrounding wind farms. Potential turbine locations were then tested through an indicative layout that balanced these constraints with landscape and visual considerations and proximity to neighbouring developments. The resulting assessment concluded that a smaller scheme of up to five turbines, with a blade tip height of up to 200 m above ground level (agl), had the strongest prospects of feasibility.

2.2 Site Description and Context

- 2.2.1.1 The Site (**Figure 1.1**) covers an area of approximately 470 hectares (ha). The Site is located on rough grazing land approximately 4 km west of the village of Douglas in South Lanarkshire and approximately 5 km northeast of Muirkirk in East Ayrshire. There are no residential properties within 1 km of the proposed turbine locations.
- 2.2.1.2 The Site lies within the plateau moorlands, a large-scale landscape of rolling hills and ridges with upland features. The smooth contours of the land are broken by the complex shapes of old and new mining sites and pits. The land is crossed by numerous streams and lakes, such as the River Ayr and Douglas Water, which create important routes for settlements along their banks. The Southern Uplands reaches across the southern extents of the Site, a region of broad and rounded hills cut by river valleys. The small streams flow into larger rivers that have carved out spacious valleys, interrupting the continuity of the upland and later plateau landscapes.
- 2.2.1.3 The habitat on-site comprises mostly upland habitats such as wet and dry modified bog, wet and dry heath, flush and grasslands.

- 2.2.1.4 The soil overlaying the Site is predominately associated with wet and acidic types of soil, as well as peat soil. There is a section of soil in the west of the Site which contains nationally important, deep peat and priority peatland habitat. The rest of the Site contains mineral soil.
- 2.2.1.5 Portions of the Site is located within a Coal Mining Reporting Area⁷, with areas of the Site containing mine entries and shallow coal mining, both past and current.
- 2.2.1.6 The existing wind farm is accessed by stone-capped access tracks, off the A70 road at Monksfoot. The power output from all the turbines is delivered by underground cables, that are buried alongside the access track, to a substation located adjacent to the site control room in the north of the Site.
- 2.2.1.7 There are multiple operational wind farms surrounding the Site including Cumberhead Wind Farm and Nutberry Wind Farm to the north, Dalquhandy Wind Farm and Douglas West to the northeast and Hagshaw Hill Extension Wind Farm and Hazelside Farm (single turbine) to the east. Additionally, there are multiple other operational wind farms located within 20 km of the Site, as well as wind farm developments within the planning system either approved (with some under construction), in planning or at scoping stage (**Figure 2.2**).
- 2.2.1.8 Settlements around the Site comprise a number of small towns and villages with scattered rural dwellings. Key settlements include Carluke, Glassford, Lanark, Larkhall and Muirkirk.

2.3 Proposed Development

2.3.1 Overview

- 2.3.1.1 Details of the Proposed Development will not be finalised until later in the EIA process. The turbine layout may evolve in response to site survey information, environmental and technical constraints, stakeholder feedback, including scoping opinions, and feedback gathered through public engagement. To allow early engagement, the description of the Proposed Development provided herein assumes

⁷ The Coal Authority (2023). Interactive Map. Available at: <https://mapapps2.bgs.ac.uk/coalauthority/home.html> (Accessed June 2024).

maximum feasible parameters, especially in relation to the number and height of the wind turbines.

2.3.1.2 The main elements of the Proposed Development would include:

- up to five wind turbines with a maximum tip height of up to 200 m (anticipated 119 m hub height and 163 m rotor diameter) with combined generation capacity of <50 MW;
- transformers that may have external housing or be housed inside the wind turbine towers, depending on the final turbine model selected;
- permanent foundations supporting each wind turbine and associated crane hardstanding at each turbine location;
- a series of new temporary and permanent on-site access tracks (pre-existing access tracks and infrastructure used for the existing Galawhistle Wind Farm will be retained/upgraded and used where possible) with associated watercourse crossings (where the final layout dictates);
- underground power and fibre optic cables, generally laid in trenches alongside access tracks;
- a control building and substation compound (with the option to instead use the existing substation for the existing Galawhistle Wind Farm);
- temporary construction compound(s) and laydown area(s); and
- permanent hardstanding to accommodate remote sensing equipment for measuring the wind conditions.

2.3.2 Wind Turbines

2.3.2.1 For the purposes of Scoping, an indicative turbine layout is presented in **Figure 2.1**, and the coordinates of the turbine locations are presented in **Table 2.1**.

Table 2.1: Indicative Turbine Layout Coordinates

Turbine Reference	X-Coordinate	Y-Coordinate
T1	274860	631269
T2	275577	631613
T3	276187	631690
T4	276870	632300

Turbine Reference	X-Coordinate	Y-Coordinate
T5	276945	631787

2.3.2.2 The worst-case candidate turbine can differ across the EIA disciplines (for example noise, ornithology, transport etc.) therefore different candidate turbines may be specified in the EIAR where necessary to inform assessments of effects and ensure that a reasonable worst case is presented.

2.3.2.3 The anticipated height of the wind turbines means that under current regulations there will be a statutory requirement for aviation lighting in accordance with Article 222 of the Air Navigation Order 2016. Any aviation lighting scheme will be agreed with the Civil Aviation Authority (CAA), Ministry of Defense (MOD) and other relevant consultees.

2.3.3 Grid Connection

2.3.3.1 The existing wind farm connects to the Coalburn Substation, via approximately 5 km of underground cabling. Together, the existing wind farm and extension will comprise a capacity of up to 102 MW. It is anticipated that the Proposed Development will utilise the same point of connection as the existing wind farm. As the grid connection for the existing wind farm does not afford connection for the entire installed capacity of 66 MW, with the current grid connection limited to 55 MW, approval for the 11 MW shortfall will be sought from the Distribution Network Operator (DNO) together with the anticipated 36 MW capacity anticipated for the Proposed Development.

2.3.3.2 The recent legal decision in the Raeshaw Farms Limited v Scottish Ministers case has resulted in greater consideration of the inter-relationship between energy developments and their grid connection. The grid connection will not form part of the consent application, but will be considered as one project for the purposes of the EIA and a high-level grid connection study will be included as a technical appendix to the EIAR, which will consider the likely significant effects (where they exist) of the grid connection alone, in-combination with the wind farm and cumulatively with other projects.

2.3.4 Site Access

2.3.4.1 An access review is currently underway to confirm the access routes into the Site and it is expected that general construction and Abnormal Indivisible Load (AIL) traffic will access the Site via the existing site

entrance off the A70. From here, it is anticipated that construction traffic would utilise the existing access tracks where possible, which may be subject to upgrades, to access the areas for the wind farm extension.

- 2.3.4.2 Prior to submission of the application for consent, potential construction traffic routes would be fully assessed, considering both vehicle numbers and the delivery of AIL to the Site to ensure the most appropriate and environmentally favourable solution is developed.
- 2.3.4.3 The proposed access route for general construction traffic and AIL will be clearly identified in the application submission. Further information on proposed traffic and transport arrangements is provided in **Chapter 11**.

2.3.5 Construction

- 2.3.5.1 Typical construction activities and work methods will be set out in the EIAR. Information will also be provided on appropriate environmental management measures, including pollution prevention measures, waste minimisation and management, and traffic generation and construction phasing.
- 2.3.5.2 An Outline Construction Environmental Management Plan (CEMP) will be submitted as part of the EIAR which will contain details of appropriate environmental management measures, including pollution prevention measures (in line with the Scottish Environment Protection Agency (SEPA) Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs)), waste minimisation and management measures and a Species Protection Plan (SPP) setting out measures to avoid, reduce, or mitigate potential effects on protected and notable species.

2.3.6 Biodiversity Enhancement

- 2.3.6.1 Biodiversity enhancement measures for the Site may include, but is not limited to, options such as peatland restoration. A Biodiversity Management Plan (BEMP) would be developed for the operational phase of the Proposed Development and agreed with Consultees. An Outline BEMP will be prepared and presented within the EIAR.

2.3.7 Wind Farm Lifecycle and Decommissioning

- 2.3.7.1 Once constructed it is anticipated that the Proposed Development would have an operational lifetime of 35 years.

- 2.3.7.2 A wind farm is typically visited up to four times a month by a maintenance crew. There would also be a requirement for maintenance of the access tracks and other ancillary infrastructure during the operational period.
- 2.3.7.3 Following the operational phase, the Proposed Development would either be decommissioned or repowered. Where decommissioning is required, above ground infrastructure would likely be dismantled and removed in accordance with industry best practice at the time. The decommissioning activities would likely involve:
- dismantling and removal of the turbines, met masts, site substation, and any other above ground infrastructure; and
 - removal to at least 1 m below ground level of the turbine and met mast foundations.
- 2.3.7.4 Decommissioning would be managed in a similar way to construction, and for most environmental effects, would be of a similar or lower magnitude. Detailed decommissioning proposals would be established and agreed with relevant authorities prior to commencement of decommissioning activities. This would take cognisance of guidance available at the time.
- 2.3.7.5 With this in mind, an assessment of the decommissioning of the Proposed Development will not be undertaken as part of the EIA, as at this stage the future baseline conditions cannot be predicted accurately and both the proposals for refurbishment/decommissioning and the future regulatory context are unknown. Decommissioning is, therefore, scoped out for all environmental topics and is not discussed further, but is likely to be addressed by a condition on the consent requiring a decommissioning plan to be submitted for approval towards the end of life of the Proposed Development.

2.4 Project Design and Alternatives

- 2.4.1.1 The Proposed Development design process has and will continue to take account of NatureScot's current design guidance on Siting and Designing Windfarms in the Landscape⁸ and will seek to establish a layout and turbine typology which is sufficiently coherent with

⁸ SNH (August 2017) version 3a Siting and Designing windfarms in the landscape. [pdf]. Available at: <https://www.nature.scot/doc/siting-and-designing-wind-farms-landscape-version-3a> [Accessed December 2025]

neighbouring development, particularly neighbouring wind farm developments and the existing wind farm.

- 2.4.1.2 The design iteration process will take account of other environmental and technical factors to establish the final layout for the Proposed Development. Key sensitivities which are likely to influence the design process include, but are not limited to:
- making use of existing infrastructure;
 - key views from surrounding settlements, landmark hills and transport corridors;
 - the settings of designated cultural heritage assets within the Site and the surrounding area;
 - sensitive ecological habitats, including blanket bog and peatland;
 - groundwater dependant ecological habitats;
 - watercourses and associated fisheries, riverine mammals and invertebrates; and
 - breeding birds, including raptors and waders (disturbance and collision risk).
- 2.4.1.3 The design of the Proposed Development will be optimised in relation to site survey information, environmental and technical constraints, scoping responses, community consultation, and other stakeholder engagement. This will be reported upon within the EIAR.

3. SCOPE OF THE EIA

3.1 Summary of Scope of EIA

3.1.1 Introduction

3.1.1.1 The EIA regulations (regulation 4(3)) require consideration of the potential likely significant effects on the following factors:

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

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

- Landscape and Visual Amenity.
- Cultural Heritage.
- Ecology.
- Ornithology.
- Hydrology, Hydrogeology and Geology.
- Traffic And Transport.
- Noise.
- Aviation and Telecommunications.
- Socio-Economics.
- Shadow Flicker.
- Climate Change.

3.1.1.3 The inclusion of an individual specialist topic category in an EIA process, and reporting of that assessment in the EIAR, will depend on identification of a likelihood of a significant effect occurring. This is usually confirmed by the EIA scoping process. The EIAR will set out the baseline, then assess and report on the likely significant effects, including, where applicable, direct, indirect, cumulative, short, medium- and long-term, permanent and temporary, beneficial and adverse effects.

3.1.2 Cumulative Effects

- 3.1.2.1 The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration is also given to the cumulative effects which might arise from the proposal in conjunction with other existing, approved and/or in planning development proposals in the vicinity.
- 3.1.2.2 Cumulative effects are defined as those effects arising from the addition or combination of the Proposed Development to other existing proposed developments, or those arising from synergistic.⁹ effects between factors.
- 3.1.2.3 The assessment of cumulative effects from the Proposed Development in combination with existing developments will be addressed during the assessment of effects of the Proposed Development, as pre-existing developments are part of the baseline environment. Cumulative effects will be addressed under each topic chapter.
- 3.1.2.4 Characteristics and thresholds of cumulative schemes to be considered as part of the assessment are set out in **Table 3.1**. Proposed developments at the scoping or pre-application stage will not be included in the assessment, as such proposals are not fully formed and may be subject to changes that cannot be foreseen. However, exceptions may be made where cumulative schemes have a defined timetable to submission and are considered to have the potential to result in cumulative effects, together with the Proposed Development. Any such deviations from this approach will be set out within the relevant technical chapters.

⁹ A synergistic effect is the result of two or more processes interacting together to produce an effect that is greater than the cumulative effect that those processes produce when used individually

Table 3.1: Cumulative Planning Application Search Characteristics and Thresholds

Cumulative Scheme Characteristics	Thresholds
Cumulative schemes to be considered include: • those within 45 km of the Site; • onshore wind developments where a turbine or turbines are greater than 50 m to tip height; • schemes under construction; • schemes which have a valid consent; or • schemes which have been submitted to the relevant authorities but not yet determined (subject to a cut-off point to allow assessment to be undertaken) • schemes which have been submitted for scoping where they have a known timescale to planning submission and where they have potential to play an important part in the cumulative effects of wind energy development.	All considered schemes will need to: A. comprise a construction and/or operational phase that is concurrent with the Proposed Development; B. share common sensitive receptors/resources which are assessed and described in the supporting environmental documentation, and have the potential to be significantly affected by the combination of the approved (committed) development and the Proposed Development; and have sufficient environmental assessment information freely and publicly available to inform a cumulative effects assessment.

3.1.2.5 It should be noted that not all cumulative developments would necessarily have a cumulative effect in respect of any particular environmental topic and therefore each technical assessment will provide a full justification for the list of schemes considered in their respective assessments.

3.1.2.6 As the cumulative baseline is constantly evolving, the schedule of cumulative schemes to be included in the assessment will be finalised following consultation with the relevant Consultees and at the point a finalised design is reached.

3.1.3 Topics to be Scoped Out

3.1.3.1 No significant effects are considered likely in respect to the following technical disciplines and accordingly these would be scoped out of the EIA (see **Chapter 15**).

- Socio-economics.
- Telecommunications.
- Climate Change.
- Air Quality.
- Population and Human Health.
- Ice Throw.
- Risk of Major Accidents and/or Disasters.

3.2 Consultation

- 3.2.1.1 Consultation alongside the EIA process is critical to the development of a comprehensive and proportionate EIAR. The views of statutory and non-statutory consultees are important to ensure that from the outset the EIA focuses on specific issues where significant environmental effects are likely, and where further investigation is required.
- 3.2.1.2 The consultation, as an ongoing process, enables embedded and additional mitigation measures to be incorporated into the Proposed Development to limit adverse environmental effects and optimise environmental benefits. Early and ongoing engagement with consultees will be important to influence the design process of the Proposed Development by seeking an appropriate level of feedback from consultees, to ensure that comments are considered in the evolving design.
- 3.2.1.3 Some consultation has been undertaken with statutory and non-statutory consultees prior to the submission of this Scoping report, e.g. informal consultation with NatureScot regarding the scope of the ornithology surveys. Following submission of this Scoping Report and as part of the EIA process, consultation will be undertaken with a range of statutory and non-statutory consultees.

4. LANDSCAPE AND VISUAL AMENITY

4.1 Overview

- 4.1.1.1 This Chapter has been prepared by Ramboll and sets out the proposed approach to assessing the potential effects of the Proposed Development on landscape character and visual amenity through a Landscape and Visual Impact Assessment (LVIA).
- 4.1.1.2 This Chapter is supported by the following figures:
- Figure 4.1: Tip Height Zone of Theoretical Visibility (ZTV) with Landscape Designations and Viewpoints;
 - Figure 4.2: Hub Height ZTV with Landscape Designations and Viewpoints;
 - Figure 4.3: Tip Height ZTV with Landscape Character Types (LCT) and Viewpoints;
 - Figure 4.4: Comparative ZTV Tip Height; and
 - Figure 4.5: Aviation Lighting ZTV.

4.2 Consultation

- 4.2.1.1 Limited consultation has been undertaken in relation to the agreement of viewpoints for this topic, completed in September 2024. However, this consultation was based on a previous iteration of the Site layout. Except for the consultation regarding viewpoints, this Scoping Report constitutes the initial consultation, regarding the assessment methodology and wider approach. Further direct consultation will be undertaken with NatureScot, SLC and EAC, including to agree the list of viewpoints again in advance of photography.

4.3 Baseline Conditions

4.3.1 Landscape Fabric

- 4.3.1.1 Baseline conditions within a 30 km radius Study Area from the outermost turbines of the Proposed Development are summarised below. The LVIA Study Area is defined in **Section 4.4.2**.

4.3.2 Topography and Hydrological Features

- 4.3.2.1 The plateau moorlands in which the Site is found is characterised by undulating hills and sloping ridges with exposed upland characteristics. It is a large-scale landscape, the undulating form of which is interrupted in places by complex topographical form of extant and legacy mine workings and extraction voids. Numerous watercourses and waterbodies are present, such as the River Ayr and Douglas Water, that bisect the plateaux.
- 4.3.2.2 The Southern Uplands extends across the southern extents of the LVIA Study Area. The extensive smooth domed or conical shaped hills of the Southern Uplands are incised by river valleys. The burns drain into major rivers which have carved out wide valleys disrupting the upland and later plateaux landscapes.

4.3.3 Landuse and Landcover

- 4.3.3.1 Key landuse and landcover within the LVIA Study Area comprises:
- upland moorland habitats;
 - commercial forest;
 - extensive commercial wind farms and energy infrastructure;
 - semi-improved pasture, scrub and marshland;
 - settlements concentrated along communication corridors, rural hamlets, steadings and scattered residential properties situated within straths and glens; and
 - legacy and active surface mines.

4.3.4 Landscape Character

- 4.3.4.1 The landscape character in the LVIA Study Area comprises a range of elevated uplands and incised upland valleys (**Figure 4.3**) including:
- Plateau Moorlands Landscape Character Type (LCTs 78 and 213);
 - Upland River Valleys (LCTs 69 and 207);
 - Southern Uplands (LCTs 177 and 217);
 - Rounded Landmark Hills (LCT 218); and
- 4.3.4.2 The Site is located on the boundary of the Plateau Moorlands Landscape Character Type (LCT) (LCT 78 and 213) as defined by NatureScot which, in the vicinity of the Site, is characterised by wind energy development (see emergent development pattern in **Figure 2.2**), undulating moorland, areas of commercial forestry and unrestored mine-workings.

4.3.5 Landscape Designations and Classifications

4.3.5.1 The Site itself is not subject to landscape designation or classification. Designations and classification are present within the LVIA Study Area as shown on **Figure 4.1**. The closest National Scenic Area (NSA) is Upper Tweeddale NSA which is 31.5 km to the east of the Site. Given the distance it is proposed to scope out Tweeddale NSA from the LVIA as there is limited potential for the Special Landscape Qualities (SLQ) of this designation to be affected.

4.3.5.2 The closest local and regional landscape designations to the Proposed Development (distances are referenced to the nearest turbine) are:

- SLC Douglas Valley Special Landscape Area (SLA) (approximately 1.5 km to the southeast);
- EAC Uplands and Moorlands Local Landscape Area (LLA) (approximately 1.5 km to the west);
- SLA Leadhills and Lowther Hills SLA (approximately 8 km to the southeast);
- SLC Middle Clyde Valley SLA (approximately 9 km to the northeast);
- SLC Upper Clyde Valley and Tinto SLA (approximately 10 km to the east); and
- Dumfries and Galloway Thornhill Uplands Regional Scenic Area (RSA) (approximately 10 km to the south).

4.3.5.3 The nearest Wild Land Area (WLA) is WLA 02 Talla-Hart Fell which is 33.5 km to the south southeast. Given the distance it is proposed to scope WLA 02 Talla-Hart Fell out of the LVIA.

4.3.6 Visual Amenity

4.3.6.1 Visual receptors in the Visual Study Area comprise settlements and residents of scattered dwellings, road users and recreational receptors (including hill walkers).

4.3.7 Settlement

4.3.7.1 Settlement comprises of a number of small towns and villages with scattered rural dwellings. The main settlements within the Visual Study Area that will be considered in the LVIA include:

- Carluke;
- Douglas;
- Glassford;
- Lanark;

- Larkhall;
- Lesmahagow;
- Motherwell
- Muirkirk;
- Strathaven; and
- Stonehouse.

4.3.7.2 The assessment will also consider effects on settled rural areas with a settlement pattern of dispersed residential properties.

4.3.7.3 Transport Routes and Recreational Routes

4.3.7.4 The key transportation and recreational routes that will be considered in the LVIA comprise:

- Road users on the M74, A70 and B743;
- Walkers on the River Ayr Way recreational trail;
- Hill walkers, including those on Tinto Hill and Dungavel Hill;
- Walkers on core paths within 10 km of the Site; and
- More distant visual receptors on summits, including Lowther Hills, Thornhill Uplands and Tinto Hills.

4.4 Assessment Scope and Methodology

4.4.1 Legislation, Policy and Guidance

4.4.1.1 The LVIA will be prepared in accordance with the following guidance and professional standards:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition, Landscape Institute and Institute of Environmental Management and Assessment (2013) ¹⁰;
- Technical Guidance Note 02/21, Assessing Landscape Value Outside National Designations, Landscape Institute (2021); ¹¹
- Guidance on Aviation Lighting Impact Assessment, NatureScot (November 2024) ¹²;
- National Landscape Character Assessment, NatureScot (2019) ¹³;

^{10 10} Landscape Institute and IEMA (2013). Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition. Available at: <https://www.landscapeinstitute.org/technical/glvia3-panel/> (Accessed May 2024)

¹¹ Landscape Institute. (2021) Technical Guidance Note 02/21 Assessing Landscape Value Outside National Designations.

¹² NatureScot. (November 2024) Guidance on Aviation Lighting Impact Assessment.

¹³ NatureScot. (2019) National Landscape Character Assessment.

- Special Landscape Qualities – Guidance on Assessing Effects, NatureScot (January 2025)¹⁴;
- Landscape Character Assessment: The Countryside Agency and Scottish Natural Heritage (2002)¹⁵;
- Technical Guidance Note (TGN) 06/19 Visual Representation of development proposals, Landscape Institute (2019)¹⁶;
- TGN 02/19 Residential Visual Amenity Assessment, Landscape Institute (2019)¹⁷;
- Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments, NatureScot (2021)¹⁸;
- Landscape Sensitivity Assessment Guidance, NatureScot (2022)¹⁹;
- Siting and Design Wind Farms in the Landscape Guidance - version 3a, NatureScot (2017)²⁰;
- Assessing impacts on Wild Land Areas – Technical Guidance, NatureScot (2023)²¹;
- Visual Representation of Windfarms Guidance, Version 2.2, NatureScot (2017)²²; and
- Pre-application Guidance for Onshore Wind Farms, NatureScot (October 2025)²³.

¹⁴ NatureScot. (January 2025) Special Landscape Qualities – Guidance on Assessing Effects.

¹⁵ The Scottish Countryside Agency and Scottish Natural Heritage (2002) Landscape Character Assessment. Available at: <https://digital.nls.uk/pubs/e-monographs/2020/216649977.23.pdf> (Accessed April 2026).

¹⁶ Landscape Institute (2019). Visualisation Representation of Development Proposals (Technical Guidance Note 06/19). Available at: <https://www.landscapeinstitute.org/visualisation/> (Accessed April 2026).

¹⁷ Landscape Institute (2019). Residential Visual Amenity Assessment (Technical Guidance Note 2/19). Available at <https://www.landscapeinstitute.org/technical-resource/rvaa/> (Accessed April 2026).

¹⁸ NatureScot (2021). Guidance – Assessing the Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments. Available at <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> [Accessed April 2026].

¹⁹ NatureScot (2022). Landscape Sensitivity Assessment Guidance. Available at: <https://www.nature.scot/doc/landscape-sensitivity-assessment-guidance-methodology> [Accessed MApril 2026].

²⁰ NatureScot (2017). Siting and Designing Wind Farms in the Landscape – Version 3a. Available at: <https://www.nature.scot/doc/siting-and-designing-wind-farms-landscape-version-3a> [Accessed April 2026].

²¹ NatureScot (2023). Assessing Impacts on Wild land Areas – Technical Guidance. Available at: <https://www.nature.scot/doc/assessing-impacts-wild-land-areas-technical-guidance> [Accessed April 2026].

²² NatureScot (2017). Visual Representation of Wind Farms: Guidance. Available at: <https://www.nature.scot/doc/visual-representation-wind-farms-guidance> [Accessed April 2026].

²³ NatureScot (October 2025). NatureScot Pre-Application Guidance for Onshore Wind Farms. Available at: <https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms> [Accessed April 2026].

4.4.2 Study Area

- 4.4.2.1 A 30 km radius Study Area will be adopted for the LVIA (i.e. extending from the outermost turbines of the Proposed Development)('LVIA Study Area'). This is considered proportionate given the position of the Proposed Development in an area where wind energy developments are an established feature of the baseline. There are a number of nearby wind farm developments some of which comprise turbines of up to 230 m. Consequently the extent of significant effects is likely to be smaller than those for a wind farm in an area without and existing pattern of wind farm development.
- 4.4.2.2 A 10 km radius Study Area ('Visual Study Area')will be used for Core Paths and local recreational trails, and a 2 km radius Study Area ('RVAA Study Area')will be applied for the Residential Visual Amenity Assessment (RVAA) in accordance with guidance (TGN 02/19 RVAA).
- 4.4.2.3 Whilst NatureScot's current guidance is to take account of cumulative developments up to 65 km from the Proposed Development for the size of turbines proposed, it is proposed to reduce the cumulative LVIA to developments within a 15 km radius Study Area to achieve a proportionate cumulative assessment and one which reflects the distribution of existing, consented and proposed wind energy developments in close proximity to the Site. Given the developed context around the Site it is unlikely that wind farm development over 15 km from the proposed turbines would result in significant cumulative effects on landscape and visual amenity.
- 4.4.2.4 All wind turbines under 50 m in height will be scoped out of the cumulative LVIA and only turbines greater than 80 m in height are considered beyond 10 km from the outermost proposed turbine.
- 4.4.2.5 A maximum 20 km Study Area will be used for the assessment of the effects of aviation lighting.

4.4.3 Baseline Characterisation

- 4.4.3.1 The LVIA will use a range of published data and information, including:
- site survey data;
 - aerial photography;

- NatureScot's National Landscape Character Assessment – Maps and Descriptions.²⁴;
- meridian data for transportation and recreational routes.²⁵; and
- address data for residential properties within 2 km of the Proposed Development. The potential habitability of properties will also be assessed.

4.4.3.2 This data will be verified during detailed field reconnaissance.

4.5 Likely Significant Effects

4.5.1 Potential Impacts Scoped In

4.5.1.1 The LVIA will consider potential impacts and likely significant effects on:

- Landscape fabric, caused by changes to the form of the landscape and its physical constituents;
- Landscape character, caused by changes in the key characteristics of the landscape as a result of the Proposed Development;
- The special qualities and integrity of designated and classified landscapes; and
- Visual amenity, caused by changes in the composition and scenic qualities of views on visual amenity as a result of the Proposed Development.

4.5.1.2 A detailed RVAA will also be undertaken in respect of individual habitable properties within the RVAA 2 km Study Area. The status, i.e. habitable nature of these residential properties, will be confirmed through further assessment and survey work.

4.5.1.3 The LVIA will assess primarily in-addition cumulative effect and will consider in-combination effects where relevant. The following scenarios will be assessed.

- Scenario 1: The Proposed Development in addition to the baseline context of operational and under construction developments i.e., the main LVIA.

²⁴ NatureScot (2019). Scottish Landscape Character Types Map and Description. Available at: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions> [Accessed April 2026].

²⁵ Available at: <https://meridian-gis-hub-cityofmeridian.hub.arcgis.com/> (Accessed April 2026).

- Scenario 2: The Proposed Development in addition to the baseline context in Scenario 1 and consented cumulative developments (i.e. consented but not constructed)²⁶.
- Scenario 3: The Proposed Development in addition to the cumulative context in Scenario 2 and proposed cumulative developments (i.e. those subject to a formal planning application)²⁷.

4.5.1.4 **Table 4.2** outlines the receptors likely to be impacted by the construction of the Proposed Development and the reasons for their inclusion in the LVIA.

4.5.1.5 Potential effects during the construction stage are expected to be highly localised and of short duration. These effects are anticipated to be mitigated through suitable construction controls defined within a CEMP. Given the limited geographical extent and the temporary nature of change arising from construction, a proportionate approach will be taken to the assessment of effects.

Table 4.1: Potential Construction Effects

Potential Effect	Reason/Comments
Landscape Effects	
Effects on Landscape Fabric	Effects are anticipated within the Site Boundary.
Effects on Landscape Character	Potential effects are anticipated within the host landscape (Plateau Moorlands Landscape Character Type (LCTs 78 and 213) and adjacent LCTs such as the Upland River Valleys (LCTs 69 and 207) including the Ayr valley and Logan Water and Avon Water. There is also potential for effects to extend to the Southern Uplands (LCTs 177 and 217), and Rounded landmark Hills (LCT 218) of the Tinto Hills.
Effects on Landscape Designations and Classifications	Potential effects may occur in nearby classifications and designations, including: • Douglas Valley SLA (1.5 km to the southeast of the Proposed Development);

²⁶ Where appropriate, scoping schemes will be included where there is certainty about their layout/design and the planning application for the scoping scheme is likely to coincide with the application for the Proposed Galawhistle Wind Farm Extension.

²⁷ Where appropriate, scoping schemes will be included where there is certainty about their layout/design and the planning application for the scoping scheme is likely to coincide with the application for the Proposed Galawhistle Wind Farm Extension.

Potential Effect	Reason/Comments
	• Uplands and Moorlands Local Landscape Area (1.5 km to the west); • Middle Clyde Valley SLA (9 km to the northeast); • Upper Clyde Valley and Tinto SLA (10 km to the east); • Leadhills and Lowther Hills (8 km to the southeast); and • Thornhill Uplands RSA (10 km to the south).
Visual Effects	
Effects on the visual amenity of road users, recreational receptors on footpaths and at hill summits	Effects may be experienced by users of neighbouring roads, recreational routes and summits, including: • Road users on the M74, A70 and B743; • Walkers on the River Ayr Way recreational trail; • Hill walkers, including those on Tinto Hill and Dungavel Hill; • Walkers on core paths within 10 km of the Site; and • More distant visual receptors on summits, including Lowther Hills, Thornhill Uplands and Tinto Hills.
Effects on the amenity of residents/visitors to settlements and residential properties	Potential effects on the amenity of nearby main settlements and scattered dwellings. Settlements for consideration in the LVIA include: • Glenbuck area; • Carluke; • Glassford; • Lanark; • Larkhall; and • Muirkirk. The RVAA will also consider individual properties deemed to be habitable within 2 km of the Proposed Development.

4.5.1.6 **Table 4.3** outlines the receptors likely to be impacted by the operation of the Proposed Development and the reasons for their inclusion in the LVIA.

Table 4.2: Potential Operational Effects

Potential Effect	Reason
Landscape Effects	
Effects on Landscape Fabric	The operational wind turbines of the Proposed Development would have no additional effect on the landscape fabric of the Site.
Effects on Landscape Character	Effects are anticipated to be largely confined to the host landscape (Plateau Moorlands Landscape Character Type (LCTs 78 and 213) and adjacent LCTs such as the Upland River Valleys (LCTs 69 and 207) including the Ayr valley and Logan Water and Avon Water. The assessment will also consider the effects on the following LCTs within the Study Area that have theoretical visibility of the Proposed Development (Figure 4.5): • Southern Uplands (LCTs 177 and 217); and • Rounded landmark Hills (LCT 218) of the Tinto Hills. Any potential effects are likely to be localised given the highly developed nature of the landscape in the immediate vicinity of the Site and the emergent pattern of development towards similar large-scale turbines. The day time effects on these landscapes will be assessed and the effect of aviation lighting on turbines on their night character.
Effects on the Special Qualities and Integrity of Landscape Designations and Classifications.	Effects could potentially occur in neighbouring designations and classifications, including: • Douglas Valley SLA; • Uplands and Moorlands LLA; • Middle Clyde Valley SLA; • Upper Clyde Valley and Tinto SLA; • Leadhills and Lowther Hills; and • Thornhill Uplands RSA. Potential effects are, however, anticipated to be limited given the distance of the majority of designations from the Site and the highly developed nature of the landscape in the immediate vicinity of the Site. Where relevant to the special qualities of designated areas, both daytime and night time effects will be assessed.
Visual Effects	
Effects on the visual amenity of road users, recreational receptors on footpaths and at hill summits	Operational effects, including sequential effects, lighting effects and cumulative effects, on neighbouring roads and recreational routes are anticipated to be localised. Road and recreational routes that are to be addressed in the LVIA include: • Road users on the A70, M74 and B743; • Walkers on the River Ayr Way recreational trail; • Hill walkers, including those on Tinto Hill and Dungavel Hill; • Walkers on core paths within 10 km of the Site; and • More distant visual receptors on summits, including Lowther Hills, Thornhill Uplands and Tinto Hills.

Potential Effect	Reason
	Potential visual effects are anticipated to occur primarily along sections of the A70 and core paths within 10 km of the Site, where the Proposed Development has potential to introduce additional large scale turbines to skylines that may contrast with the scale of existing development. From elevated summits, the Proposed Development would be seen within an extensive and complex cumulative context. Where relevant, both daytime and night time effects on the visual amenity of these receptors will be assessed.
Effects on the amenity of residents/visitors to settlements and residential properties	Operational effects including sequential effects, lighting effects and cumulative effects, on the following settlements and properties: • Glenbuck area; • Carluke; • Glassford; • Lanark; • Larkhall; and • Muirkirk. The RVAA will also consider habitable properties within 2 km of the Proposed Development. Where relevant, both daytime and night time effects on the amenity of settlements and properties will be assessed.

4.5.2 Assessment Viewpoints

- 4.5.2.1 In order to inform the assessment of landscape and visual effects, a series of assessment viewpoints are proposed. The location of these viewpoints are shown in **Figure 4.1** and **Figure 4.3** and described in **Table 4.1**.

Table 4.3: Assessment Viewpoints

Viewpoint No.	Location	Co-ordinates	Receptors Present at Viewpoint
1	Glenbuck Heritage Village Interpretation Site	274913 629523	Landscape: LCT 78 – Plateau Moorlands. Visual: Recreational receptors and visitors to the heritage village.
2	A70 Glenbuck Loch	275297 628758	Landscape: LCT 69 – Upland River Valleys. Visual: Road users; nearby recreational receptors on the River Ayr Way; residential receptors.
3	River Ayr Way, approach to Glenbuck Loch	273624 628566	Landscape: LCT 69: Upland River Valley. Visual: Walkers on long range trail; nearby road users on the A70.
4	Core path south of Coalburn	281524 634047	Landscape: LCT 201 – Plateau. Farmland. Visual: Recreational receptors; nearby residential receptors.
5	A70, east of Muirkirk	270695 627936	Landscape: LCT 69: Upland River Valley. Visual: Road users; nearby residential receptors.
6	Middlefield Law	268110 630767	Landscape: LCT 78 – Plateau Moorlands. Visual: Hill walkers.
7	Cairn Table	272414 624269	Landscape: Boundary of LCT 78 and 213 – Plateau Moorland. Visual: Hill walkers.
8	Cycleway 74, west of Abington	288782 626176	Landscape: LCT 213 – Plateau Moorlands. Visual: Recreational receptors/cyclists; road users on the B7078.
9	Footpath, Sheil Hill	278290 617448	Landscape: LCT 177 – Southern Uplands Dumfries and Galloway. Visual: Hill walkers.
10	A70, Boghead	263425 624733	Landscape: LCT 69 – Upland River Valleys. Visual: Road users; nearby residential receptors.
11	Slough Hill, Lowther Hills	284727 617331	Landscape: Boundary of LCT 177 and 217- Southern Uplands. Visual: Hill walkers.

Viewpoint No.	Location	Co-ordinates	Receptors Present at Viewpoint
12	Black Hill	291130 636595	Landscape: LCT 210 – Undulating Farmland and Hills; Upper Clyde Valley and Tinto SLA. Visual: Hill walkers.
13	River Ayr Way, north of Airds Moss	260821 626470	Landscape: LCT 69 – Upland River Valley. Visual: Walkers on long range trail; nearby road users on the A70.
14	Glassford	272761 646693	Landscape: LCT 201 – Plateau Farmland; Middle Clyde Valley SLA. Visual: Recreational receptors; nearby residential receptors; road users on a minor local road.
15	Dungavel Hill	294277 630558	Landscape: LCT 218 – Rounded Landmark Hills; Upper Clyde Valley and Tinto SLA. Visual: Hill walkers.
16	The Dimple, Tinto Hills	295316 634368	Landscape: LCT 218 – Rounded Landmark Hills; Upper Clyde Valley and Tinto SLA. Visual: Hill walkers at promoted vantage point.
17	East Mount Lowther, Lowther Hills	287817 609987	Landscape: LCT 177 – Southern Uplands; Thornhill Uplands RSA. Visual: Hill walkers at promoted vantage point.
18	Blackhill Cairn Fort	283192 643533	LCT 201 – Plateau Farmland; South Lanarkshire SLA Recreational receptors and visitors to the heritage feature.
19	Loudon Hill	260856 637914	Landscape: LCT 69 – Upland River Valley. Visual: Hill walkers.

4.5.2.2 Three night time viewpoints are proposed and the assessment will take account of any cumulative lighting impacts, as appropriate. The proposed night time viewpoints are:

- VP2 A70 Glenbuck Loch;
- VP3 Core Path south of Coalburn; and
- VP5 A70 east of Muirkirk.

- 4.5.2.3 These locations are based on lights on the nacelles of all five of the proposed turbines. Should a reduced lighting scheme be agreed with aviation consultees these viewpoints will be reviewed and agreed with NatureScot, SLC and EAC. The Aviation Lighting ZTV (**Figure 4.5**) shows locations from which lights on the proposed turbines would potentially be visible, and the relative intensity of lights based on optical nacelle lights on each of the proposed turbines.

4.5.3 Issues Scoped Out

- 4.5.3.1 Decommissioning effects associated with the Proposed Development are likely to be of limited duration and geographical extents and to constitute landscape and visual effects far less than those associated with the construction phase.
- 4.5.3.2 Accordingly, it is not intended to include decommissioning of the Proposed Development in the LVIA. In any event, the decommissioning of the Proposed Development would be subject to a separate decommissioning plan.

4.5.4 Cumulative Effects

- 4.5.4.1 In assessing potential cumulative landscape and visual effects, consideration will be given to cumulative effects arising mainly from in-addition combined and/ or consecutive (concurrent) visibility (where the observer is able to see two or more developments from one viewpoint location), and sequential effects (where a number of similar developments would be visible individually or simultaneously over a sequence of connected viewpoints, such as would be found along a road or footpath). The cumulative assessment will focus on in-addition effects and will consider in-combination effects where relevant.
- 4.5.4.2 The LVIA will provide a detailed assessment of likely in-addition effects arising from the Proposed Development, existing/ under construction, consented and proposed developments. Commentary will be made on the effect of known scoping schemes where these schemes have a known timescale to planning submission and where they have potential to play an important part in the cumulative effects of wind energy development.

4.6 Questions to Consultees

- Q4.1: Are the methodology, data sources, and extent of the Study Area accepted?

- Q4.2: Are the receptors and impacts scoped out of the assessment accepted?
- Q4.3: Are the assessment viewpoints proposed accepted, including those proposed as night-time viewpoints?

5. CULTURAL HERITAGE

5.1 Overview

- 5.1.1.1 This Chapter has been prepared by AOC Archaeology Group and discusses the scope and methodological approach for the assessment of likely significant effects upon archaeological and cultural heritage assets that are anticipated to arise from the Proposed Development.
- 5.1.1.2 This Chapter is supported by the following figures and appendices:
- Figure 5.1: Heritage Assets within Site and 1 km Study Area;
 - Figure 5.2 (5.2.1-5.2.4): Designated Heritage Assets within the 10 km Study Area and ZTV;
 - Figure 5.3: Designated Heritage Assets within the Douglas Conservation Area;
 - Figure 5.4: Designated Heritage Assets Proposed for Visualisation;
 - Appendix 5.1: Heritage Asset and Event Gazetteer; and
 - Appendix 5.2: Cultural Heritage Baseline Review.

5.2 Consultation

- 5.2.1.1 Consultation with Historic Environment Scotland (HES) was initiated in August 2024,²⁸ in relation to the proposed cultural heritage visualisations to inform the baseline photography schedule for September/ October 2024. A consultation response was received on the 5th September 2025, with HES advising that the list of proposed visualisations is considered a reasonable starting point. As this consultation was completed against a previous iteration of the Site layout, further direct consultation will be undertaken with HES, including to agree the list of cultural heritage viewpoints again in advance of photography.
- 5.2.1.2 No direct consultation has been undertaken to date with West of Scotland Archaeology Service (WoSAS), as historic environment advisors to EAC and SLC. A Historic Environment Record (HER) extract from WoSAS was requested and received in July 2024 and the online

²⁸ Email to HM – Consultations dated 15 August 2024.

data was accessed via the WoSAS online map enabled HER search and used to inform this Scoping Report.

- 5.2.1.3 Further direct consultation with Consultees may be required, and if necessary, will be undertaken during the EIA process.

5.3 Baseline Conditions

- 5.3.1.1 The scoping baseline has been informed by a review of the National Record of the Historic Environment (NRHE) data held by HES²⁹, and regularly updated by local Historic Environment Record (HER's)³⁰ and a high-level review of historic mapping available online via the National Library of Scotland (NLS)³¹. The location of all heritage assets within 1 km of the Site are shown on **Figure 5.1** and designated heritage assets within 10 km of the Site are shown on **Figure 5.2**. Where designated heritage assets have been discussed in the following text, these assets have been labelled on **Figure 5.1** and **Figures 5.2**.
- 5.3.1.2 Historic mapping held by the NLS³¹ has been used to provide a brief description of past land uses of the Site. A more detailed historic map regression will form part of the EIAR. HES' Historic Land-use Assessment (HLA) map³², which contains data on past and present land use, has also been consulted.
- 5.3.1.3 Each heritage asset identified has been given an Asset Number unique to this Scoping Report. A Gazetteer of Heritage Assets and Events (**Appendix 5.1**) includes information regarding the type, period, location, reference number, designation and any other relevant descriptions, as derived from the consulted sources.
- 5.3.1.4 The baseline heritage context can be summarised as follows, with further detail provided in **Appendix 5.2**:
- There are no designated heritage assets within the Site;
 - Within the 1 km Study Area, there is one Scheduled Monument; Glenbuck Ironworks, 470 m NW of Glenbuck Home Farm (SM2931 - Asset 11);

²⁹ HES, Downloads 2024, updated April 2026, Available at: <https://portal.historicenvironment.scot/downloads>

³⁰ An up to date HER extract was received from WoSAS in July 2024 and this has been used to inform this Scoping Report.

³¹ NLS, 'National Library of Scotland – Maps', 2024. Available at: <https://maps.nls.uk/>

³² HES, 'HLA Map – Scotland's Historic Land Use', 2024, Available at: <https://hlapmap.org.uk/>

- Within the 1 km and 5 km Study Areas there are 37 designated heritage assets: one Scheduled Monument, one Conservation Area, two Category A Listed Buildings, eight Category B Listed Buildings, 25 Category C Listed Buildings and seven heritage assets deemed to be probably of national significance (V's) on the WoSAS Non-Statutory Register (NSR);
- Within the 10 km Study Area there are eight Scheduled Monuments; and
- There are eight non-designated heritage assets recorded within the Site and a further 44 non-designated assets recorded within the 1 km Study Area.

5.4 Assessment Scope and Methodology

5.4.1 Legislation, Policy and Guidance

5.4.1.1 Legislation and policy concerning the protection and conservation of cultural heritage assets is included in:

- Ancient Monument and Archaeological Areas Act (1979) as modified by the Historic Environment (Amendment) (Scotland) Act 2011³³;
- Planning (Listed Buildings and Conservation Area) (Scotland) Act 1997 (as amended)³⁴;
- Historic Environment (Amendment) (Scotland) Act 2011³⁵;
- National Planning Framework for Scotland (HES 2019a), including Designation Policy and Selection Guidance (HES 2019b; updated 2020)³⁶;
- Our Past, Our Future: The Strategy for Scotland's Historic environment (HES 2023)³⁷; and

³³ Ancient Monuments and Archaeological Areas Act (1979) (c46). London: UK Government. Available at: http://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf

³⁴ Planning (Listed Buildings and Conservation Areas) (Scotland) Act (1997) (c9). London: UK Government. Available at: <https://www.legislation.gov.uk/ukpga/1997/9/contents>

³⁵ Historic Environment (Amendment) (Scotland) Act (2011) (c3). London: UK Government. Available at: <https://www.legislation.gov.uk/asp/2011/3/contents>

³⁶ Scottish Government, 2023. National Planning Framework 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

³⁷ HES, 2023. Our Past, Our Future: The Strategy for Scotland's Historic Environment. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=79204155-9eb2-4d29-ab14-aff200ec2801>

- South Lanarkshire Local Development Plan³⁸.

5.4.1.2 The assessment will be undertaken in accordance with the following guidance to assist in the determination of potential effects on heritage assets:

- Managing Change in the Historic Environment: Setting (HES 2016a; updated 2020) ³⁹;
- Our Past, Our Future: The Strategy for Scotland's Historic Environment⁴⁰;
- NatureScot and HES's published guidance contained within 'Environmental Impact Assessment Handbook v5' (SNH & HES 2018) ⁴¹;
- Scottish Renewables' Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms (2025)⁴²;
- Institute for Archaeologists' (CIfA) Code of Conduct⁴³;
- CIfA Regulations for Professional Conduct⁴⁴;
- CIfA Standard and Guidance for Historic Environment Desk Based Assessment⁴⁵; and

³⁸ South Lanarkshire Council, 2021. Local Development Plan 2. Available at: <https://www.southlanarkshire.gov.uk/developmentplan2> (Accessed 19/12/2025)

³⁹ Historic Environment Scotland, 'Managing change in the Historic Environment: Setting' 2016, Revised 2020. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549>

⁴⁰ HES. 2023. *Our Past, Our Future: The Strategy for Scotland's Historic Environment*. <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=79204155-9eb2-4d29-ab14-aff200ec2801> Accessed 23/03/2024.

⁴¹ SNH and HES, 'Environmental Impact Assessment Handbook' 2018. Available at: <https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf>

⁴² Scottish Renewables, 2025, Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms. Available at: https://www.scottishrenewables.com/assets/000/005/061/Streamlining_EIA_Guidance_September_2025_original.pdf?1758009802 (Accessed: 14/01/2026)

⁴³ The Chartered Institute for Archaeologists. (CIfA) (2014; Revised 2017, 2019, 2020, 2021 & 2022). Code of Conduct; professional ethics in archaeology. Available at: <https://www.archaeologists.net/sites/default/files/Code%20of%20conduct.pdf>

⁴⁴ The Chartered Institute for Archaeologists. (CIfA). 2019, updated 2021). Regulations for Professional Conduct. Available at: <https://www.archaeologists.net/sites/default/files/Regulations%20for%20professional%20conduct.pdf>

⁴⁵ The Chartered Institute for Archaeologists. (CIfA) (2014). Standard and guidance for historic environment desk-based assessment. Published December 2014. Updated October 2020. Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf

- ClfA Standard and guidance for commissioning work on, or providing consultancy advice on, archaeology and the historic environment⁴⁶.

5.4.1.3 There are three principal impact types that can affect cultural heritage assets: physical impact, setting change, and cumulative impact. Direct changes to assets during the construction phase will relate to the physical removal or damage (in part or whole) to a heritage asset.

5.4.1.4 The assessment will distinguish between the term 'impact' and 'effect'. An impact is defined as a physical change to a heritage asset or its setting, whereas an effect refers to the significance of this impact. The first stage of the assessment will involve establishing the importance of the heritage asset and assessing the sensitivity of the asset to change (impact). An assessment of the impact magnitude will then be made and a judgement regarding the level and significance of effect will be arrived at.

5.4.1.5 Assessment of the potential impacts upon setting will be informed by the ZTV, and, where necessary, visualisations (a combination of wireframes or photomontages). The setting assessment will be undertaken with reference to HES' Managing Change Guidance on setting³⁹. Where significant effects are considered likely, a detailed assessment of adverse impacts upon the integrity of setting will be undertaken. Significant adverse effects on integrity of setting are judged here to relate to whether a change would adversely affect the asset's key attributes or elements of setting which contribute to an asset's significance.

5.4.2 Study Area

5.4.2.1 In order to assess the potential for significant effects on cultural heritage assets resulting from the Proposed Development, the following Study Areas will be adopted:

- Core Study Area (the Site) - includes all land within the Site application boundary, which will be subject to assessment for potential direct and setting effects; This Study Area will be subject to a detailed walkover survey, and cultural heritage assets which

⁴⁶ ClfA (2014). Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment. The Chartered Institute for Archaeologists. Published December 2014. Updated October 2020. Available at: https://www.archaeologists.net/sites/default/files/ClfAS&GCommissioning_2.pdf

may be directly impacted by the Proposed Development will be identified. Setting impacts will also be considered;

- 1 km Study Area - identification of all known heritage assets and known previous archaeological interventions in order to help predict whether any similar hitherto unknown archaeological remains are likely to survive within the Site and thus be impacted by the Proposed Development, and for the assessment of potential impacts upon settings;
- 5 km Study Area - assessment of potential effects on the settings of all designated heritage assets including Scheduled Monuments, Listed Buildings, Inventory Gardens and Designed Landscapes, Inventory Battlefields and Conservation Areas. The assessment will also include non-designated heritage assets deemed to be of National Significance, such as heritage assets categorised as C's (almost certainly of national importance) and V's (probably of national importance) on the WoSAS NSR;
- 10 km Study Area - assessment of potential impacts on the settings of all nationally important heritage assets including Scheduled Monuments, Category A Listed Buildings, Inventory Gardens and Designed Landscapes, Inventory Battlefields and non-designated assets deemed to be of National Significance including assets categorised as 'C's and 'V's on WoSAS's NSR.

5.4.2.2 There are no World Heritage Sites, Inventory Garden and Designed Landscapes or Inventory Battlefields with 10 km of the Site.

5.4.2.3 Consideration has been given to the potential for setting effects upon nationally important assets beyond 10 km which have a high potential level of intervisibility with the Proposed Development and a high sensitivity to change to their settings. This has been informed using the Scoping Layout ZTV (**Figures 5.2**) and it is judged that the potential for significant effect beyond 10 km is highly unlikely and as such consideration of assets beyond 10 km is scoped out. Detailed reasoning for this is set out below.

5.4.2.4 Consideration has also been given to assets outwith the ZTV where turbines may be seen alongside assets or backdropped in key views. Where there is no intervisibility between the asset and the Proposed Development, or where there would be no view of the asset with the turbines from key locations, the assets will be scoped out of further assessment. The reasoning behind this approach is discussed below.

5.4.3 Baseline Characterisation

5.4.3.1 The archaeological and historical baseline will be further developed with reference to the following desk-based information sources:

- NRHE including designated and non-designated heritage assets, as held by HES;
- HER data for the area as supplied by WoSAS;
- Canmore and Pastmap (hosted by HES) for NRHE data;
- NLS for online old Ordnance Survey (1st & 2nd edition, small- and large-scale) and pre-Ordnance Survey historical maps;
- British Geological Society (BGS) for bedrock and superficial deposit data and historic boreholes information;
- Historic Land-Use Assessment Data for Scotland (HLA map, HES) for historic landscape characterisation and modern landscape information;
- National Collection of Aerial Photography (NCAP) (HES) for accessible historic aerial photographs;
- Available client supplied data about the Site;
- Scottish Remote Sensing Portal for Phases 3 and 4 LiDAR data and imagery (note LiDAR data is only available via the Scottish Remote Sensing Portal for the lower half of the Site); and
- Any other relevant published works, such as previous archaeological reports and assessments.

5.4.3.2 Following the completion of desk-based research, an archaeological walkover survey of the Site will be undertaken. The walkover survey will aim to identify previously unknown remains and establish the survival, extent, significance, and relationship of known heritage assets within the Site and the Study Areas. Weather conditions, ground cover, and any other conditions affecting the visibility during the survey will also be recorded. All heritage assets encountered will be photographed and recorded using the ArcGIS Field Maps app on a mobile device.

5.4.3.3 The walkover survey will also help to identify areas within the Site that may require further archaeological works and/ or mitigation in advance of any future development.

5.4.3.4 Setting assessment visits to designated assets with the potential to be impacted by the Proposed Development will be undertaken. These visits will be informed by the ZTV which will initially identify designated heritage assets which require further detailed assessment. A review of designated heritage assets outwith the ZTV, will also be undertaken prior to site visits to identify any designated heritage assets with key

views which would include the Proposed Development, and where appropriate these assets will also be subject to detailed setting assessment. Designated heritage assets outwith these criteria will be scoped out as they are unlikely to be significantly affected.

5.4.4 Assessment Methodology

- 5.4.4.1 The assessment will distinguish between the terms 'impact' and 'effect'. An impact is defined as a physical change to a heritage asset or its setting, whereas an effect refers to the significance of this impact.
- 5.4.4.2 Assessment of direct physical effects resulting from the construction phase will relate to whether the construction of the Proposed Development would remove, in part or whole, elements of the asset. The level of direct effect will be a result of the importance of the assets and the magnitude of impact predicted.
- 5.4.4.3 The setting assessment will be undertaken with reference to HES' Managing Change Guidance on setting⁴⁷ and will aim to establish the current setting of the identified heritage assets, how that setting contributes to the understanding, appreciation and experience of those assets and how the Proposed Development could impact upon this.
- 5.4.4.4 The EIA assessment will comply with the requirements for assessment methodology described in the SNH and HES Environmental Impact Assessment Handbook⁴⁸.
- 5.4.4.5 Cumulative effects will also be considered. The assessment of cumulative effects on heritage assets will be based upon consideration of the effects of the Proposed Development on the settings of heritage assets, in addition to the likely effects of other operational/under construction, consented and proposed (at the application stage) wind farm schemes. Cumulative effects will be considered for heritage assets for which the magnitude of impact from the Proposed Development alone is considered to be 'Low' or higher. For assets where the Proposed Development would have at worst negligible effect

⁴⁷ Historic Environment Scotland, 'Managing change in the Historic Environment: Setting' 2016, Revised 2020. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549>

⁴⁸ SNH and HES, 'Environmental Impact Assessment Handbook' 2018. Available at: <https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf>

on the asset it is considered that cumulative effects would not reach the significant threshold and thus, they would be scoped out of cumulative assessment. The cumulative assessment will take into account the relative scale (i.e. size and number of turbines) of the identified developments, their distance from the affected assets, and the potential degree of visibility of the various developments from the assets. Cumulative wirelines from those assets most likely to experience significant cumulative impacts on their settings will be provided, if appropriate. The schemes to be included in the cumulative impact assessment will be those agreed with the relevant consultees via consultation and will be undertaken according to the guidance in NatureScot's Assessing the Cumulative Impact of Onshore Wind Energy Developments⁴⁹ and HES's Environmental Impact Assessment Handbook⁵⁰.

- 5.4.4.6 Policy 7h NPF4 indicates that development proposals affecting Scheduled Monuments will only be supported where 'significant adverse impacts on the integrity of setting of a scheduled monument are avoided' or where 'exceptional circumstances have been demonstrated to justify the impact on a scheduled monument and its setting and impacts on the monument or its setting have been minimised'⁵¹. Significant adverse impacts on integrity of setting are judged here to relate to whether a change would adversely affect the asset's key attributes or elements of setting which contribute to an asset's significance. It is considered that a significant impact upon the integrity of the setting of an asset will only occur where the degree of change that will be represented by the Proposed Development would adversely alter those factors of the monument's setting that contribute to cultural significance such that the understanding, appreciation and experience of an asset is not adequately retained.

⁴⁹ NatureScot (2025). Guidance – Assessing the cumulative landscape and visual impact of onshore wind energy developments. Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments>

⁵⁰ SNH and HES, 'Environmental Impact Assessment Handbook' 2018. Available at: <https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf>

⁵¹ Scottish Government, 2023. National Planning Framework 4. Policy 7h Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

- 5.4.4.7 In terms of effects upon the setting of heritage assets, it is considered that only those effects identified as 'significant' in EIA terms will have the potential to significantly adversely impact upon integrity of setting. Where no significant effect are found it is considered that there would be no significant impact upon the integrity of an asset's setting. Where significant effects are found, a detailed assessment of adverse impacts upon integrity of setting will be made. Whilst non-significant effects are unlikely to significantly impact integrity of 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 to the asset's setting will significantly impact its integrity. The assessment of adverse impact upon the integrity of an asset's setting, where required, is a qualitative one.

5.5 Likely Significant Effects

5.5.1 Potential Impacts Scoped In Construction

- 5.5.1.1 Nine non-designated heritage assets have been identified within the Site. The extent and survival of these non-designated heritage assets is currently unknown and will require to be defined through a detailed walkover survey and further analysis of HER data from WoSAS. The results of this analysis will be used to inform the Proposed Development design and direct impacts will be avoided where possible. Where it is not possible to avoid direct impact, the design will seek to minimise impacts and the cultural heritage assessment will outline appropriate mitigation measures to offset any impacts, via preservation by record, as required.
- 5.5.1.2 There is the potential for hitherto unknown archaeological and palaeoenvironment deposits and remains to survive within the Site, in particular in areas outwith the opencast working and the footprint of the existing windfarm. As such the Proposed Development may have the potential to directly impact hitherto unknown archaeological remains. Desk-based assessment and walkover survey will aid in a better understanding of the potential for such impacts and mitigation recommendations will be made in order to avoid/ minimise, through design, or offset impacts accordingly. Consideration will also be given to enhancement measures which compensate for impacts upon the setting of assets if appropriate. Any such measures would seek to enhance the understanding, appreciation and experience of the asset and maximise public benefit.

Operation

- 5.5.1.3 The Proposed Development has the potential to impact upon the settings of heritage assets with which it is intervisible and / or where it can be seen in key views towards assets across the landscape. There is also a potential for cumulative impacts on the settings of heritage assets. The assessment will consider the identified heritage assets in the outlined Study Areas which could be subject to potential impacts upon setting. The EIAR will be supported by a detailed ZTV which will be used to identify assets intervisible with the Proposed Development. A ZTV based upon the current layout is included in **Figure 5.2**.
- 5.5.1.4 A preliminary review of all designated heritage assets within 10 km of the Site and heritage assets beyond 10 km which have been identified as having a high potential level of intervisibility with the Proposed Development and a high sensitivity to change to their settings, has identified that there is a potential for setting effects. Although the level of effect, at worst, is not anticipated to be significant in EIA terms. All assets identified as having a potential for setting effects above neutral, including those outwith the ZTV but where the Proposed Development will be visible in key views, will be subject to further proportionate settings assessments, informed by ZTV analysis and site visits to confirm that the level of effect is not significant in EIA terms. A summary justification for assets scoped out of further assessment is provided below.
- 5.5.1.5 It is envisaged that visualisations (either wireframe or photomontages as agreed through consultation with HES) will be produced for some assets to aid in assessment of settings impacts. These assets include those considered to be most likely to be subject to significant effects, and those which would be representative of views across the Study Area and would therefore inform the assessment of other nearby assets. The assessment will also be supported by photographic plates as appropriate. At this stage of the assessment and based on a review of the available ZTV and mapping data, it is proposed that visualisations may be required for the following assets (**Figure 5.4**).
- SM2931 Glenbuck Ironworks, 470 m NW of Glenbuck Home Farm (AOC Asset 11): **Photomontage** towards the Proposed Development from 275074 629402 (centred) and from 274899 629263 to the southwest of the Scheduled area to include views towards the Ironworks and the Proposed Development.
 - SM2848 Dungavel Hill, cairn (AOC Asset 5): **Photomontage** towards the Proposed Development from cairn at 267517

635404. The ZTV indicates no visibility beyond the asset to approximately 13 km.

- SM4234 Auchensaugh Hill, cairn (AOC Asset 6): **Photomontage** towards the Proposed Development from cairn 285336 627196 (centred). The ZTV indicates sporadic visibility beyond the asset.
- SM4631 Cairn Table, two cairns (AOC Asset 7): **Photomontage** towards the Proposed Development from cairn 272451 624233 (centred). The ZTV indicates sporadic visibility beyond the asset.
- SM4275 Cairn Kinny (AOC Asset 8): **Photomontage** towards the Proposed Development from cairn 278462 621427 (centred). The ZTV indicates sporadic visibility beyond the asset.

5.5.1.6 Consultation with HES was initiated on the proposed visualisations as listed above in August 2024²⁸ and a response received on the 5th of September 2025. HES advised that the list of proposed visualisations submitted were considered a reasonable starting point.

5.5.2 Issues Scoped Out

5.5.2.1 Based on the baseline conditions, current theoretical visibility and an initial assessment and site visit, it is proposed that the following are scoped out of the assessment:

- Physical direct impacts to heritage assets outside the Site boundary.
- Impacts on the settings of non-designated cultural heritage assets and features, with the exception of those recorded as 'C' or 'V' on WoSAS's Non-statutory Register (considered to be of national importance), as these are generally considered less sensitive to change in their settings and are judged to be unlikely to be subject to significant setting effects.
- Designated heritage assets, outwith the ZTV which, following an initial assessment are not considered to have the potential for the Proposed Development to be seen in key views towards them across the landscape.
- Impacts on the settings of designated heritage assets where the setting of the asset makes a marginal contribution to its cultural significance or where the Proposed Development would be located beyond those factors of setting, identified as making a contribution to the cultural significance of the asset, thereby making setting effects above neutral unlikely.

5.5.2.2 AOC have reviewed the nationally important designated heritage assets within the ZTV to a distance of 20 km. A large proportion of these

assets are prehistoric monuments including cairns, settlements, stone circle, enclosures and forts located to the east of the Site and along the banks of the River Clyde with a large concentration to the southeast around Abington. A single fort (SM656) is located to the south along the banks of the Euchar Water. Prehistoric ritual and funerary monuments that are spread across the 20 km Study Area appear to relate to the fertile lands and the historic locations of settlements as the major waterways, in particular the River Ayr, the River Clyde and the Avon Water. Whilst the Proposed Development may be visible in views from some of these assets, it would not impact the relationship of these assets to the adjacent waterways, landform, the fertile land or to other possible contemporaneous assets. Thus, the Proposed Development is not anticipated to have a significant effect on their settings, and they are proposed to be scoped out of further assessment.

- 5.5.2.3 There are a number of defensive monuments located beyond the 10 km Study Area which are located either within towns or along the banks of major waterways to facilitate defence and communication along the waterways. Whilst the Proposed Development is likely to be visible as a modern addition to the wider landscape and, in part, be visible in views from and between these assets, the Proposed Development would not impact intervisibility and thus not result in a significant effect upon the settings of these assets. As such these assets are proposed to be scoped out of further assessment.
- 5.5.2.4 Detailed assessment of impacts on cultural heritage assets arising from the decommissioning phase of the Proposed Development are proposed to be scoped out of the assessment as impacts are likely to be far less than those experienced during construction and operation. It is anticipated that direct impacts during the decommissioning phase would be limited and would only occur if new ground works are required beyond the areas disturbed during the original construction works. As such no significant direct effects are expected to arise from the decommissioning phase of the Proposed Development. All operational effects upon the settings of designated assets would be reversed with the removal of the turbines and infrastructure following decommissioning.

5.5.3 Cumulative Effects

- 5.5.3.1 The assessment of cumulative effects on heritage assets will be based upon consideration of the effects of the Proposed Development on the settings of heritage assets, in addition to the likely effects of other

operational/ under construction, consented, and proposed (at the application stage) wind farm developments.

- 5.5.3.2 Cumulative effects will be considered for designated assets as identified in the Study Areas. The assessment will consider the relative scale (i.e. size and number of turbines) of the identified cumulative schemes, their distance from the affected assets, and the potential degree of visibility of the various developments from the assets. Cumulative visualisation from those assets most likely to experience significant cumulative impacts on their settings will be provided, as appropriate.
- 5.5.3.3 The cumulative schemes to be included in the assessment will be agreed through consultation and the assessment will be undertaken according to the guidance in NatureScot's Assessing the Cumulative Impact of Onshore Wind Energy Developments⁵² and HES's EIA Handbook⁵³.

5.6 Questions to Consultees

- Q5.1: Is the proposed assessment methodology, including proposed Study Areas, accepted?
- Q5.2: Are the receptors and impacts scoped out of the assessment accepted?
- Q5.3: Are there any specific receptors located beyond the proposed 10 km Study Areas that Consultees would like to see scoped into the assessment?
- Q5.4: Initial viewpoints for visualisations have been identified. Are there any additional assets beyond those proposed for which consultees would like to see visualisations?

⁵² NatureScot 'Guidance – Assessing the cumulative landscape and visual impact of onshore wind energy developments' 2021. Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments>

⁵³ SNH and HES, 'Environmental Impact Assessment Handbook' 2018. Available at: <https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf>

6. ECOLOGY

6.1 Overview

- 6.1.1.1 This Chapter has been prepared by Tetra Tech and discusses the scope and methodological approach for the assessment of likely significant effects upon Important Ecological Features (IEFs) that are anticipated to arise from the Proposed Development.
- 6.1.1.2 This Chapter is supported by the following figures:
 - Figure 6.1: Ecological Designated Sites; and
 - Figure 6.2: UKHab Mapping Results.

6.2 Consultation

- 6.2.1.1 No direct consultation has been undertaken to date with relevant consultees prior to the submission of this Scoping Report.
- 6.2.1.2 Should further clarification be necessary following the completion of the field survey and desk study, additional consultation with relevant consultees will be carried out to confirm the assessment's scope, particularly if it differs from that outlined in this Scoping Report.

6.3 Baseline Conditions

- 6.3.1.1 The Site overlaps in part with the existing wind farm and the two share an access track. The turbines for the Proposed Development are situated to the northwest of the existing wind farm. The ecological baseline below incorporates findings from the assessment detailed in the existing wind farm Environmental Statement (ES), where appropriate.
- 6.3.1.2 An initial desk-based assessment⁵⁴ was undertaken to identify statutory and non-statutory designated sites with ecological interests within 10 km of the Site.
- 6.3.1.3 The Site is not located within a statutory designated site for nature conservation. There are two Special Areas of Conservation (SACs) and six Sites of Special Scientific Interest (SSSIs) that are located within 10

⁵⁴ NatureScot Site Link database and map – available at: <https://sitelink.nature.scot/home>

km of the Site as detailed in **Table 6.1** and illustrated on **Figure 6.1**. These sites are primarily designated for their upland habitats, however Blood Moss and Slot Burn SSSI is also designated for its arthropoda (invertebrate) community. The Muirkirk Uplands and North Lowther Uplands SSSIs are also designated for ornithology interests, as detailed in **Chapter 7**.

Table 6.1: Statutory Designated Sites with Non-Avian Ecology and habitat Features within 10 km of the Site

Site	Site Type	Distance to Site / Nearest Turbines	Qualifying / Designating Features*
Muirkirk Uplands	SSSI	0.7 km east / 1.6 km east	- Blanket bog - Upland assemblage
Miller's Wood	SSSI	2.6 km northwest / 5.9 km northwest	Upland birch woodland
North Lowther Uplands	SSSI	3.9 km northwest / 7.8 km northwest	Upland assemblage
Coalburn Moss	SAC, SSSI	5.6 km southwest / 5.9 km southwest	SAC: - Active raised bog - Degraded raised bog SSSI: - Raised bog.
Blood Moss and Slot Burn	SSSI	5.6 km east / 6.3 km east	- Arthropoda - Blanket bog
Red Moss	SAC, SSSI	7.3 km northwest / 10.6 km northwest	SAC: - Active raised bog SSSI: - Raised bog

*only non-avian biological designating features are reported in **Table 6.1**

6.3.1.4 Habitats recorded within the existing wind farm site are predominantly composed of upland habitats such as wet and dry modified bog, wet and dry heath, flush and grasslands. Habitats within the Site, specifically where turbines are proposed and a portion of the access track, were mapped using UK Habitat Classification (UKHab)⁵⁵ and National Vegetation Classification (NVC)⁵⁶ methods and the following habitats were recorded (see **Figure 6.2**):

⁵⁵ UKHab Ltd. (2023). UK Habitat Classification Version 2.0.

⁵⁶ Rodwell, J.S. (2006) National Vegetation Classification User's Handbook. Joint Nature Conservation Committee, Peterborough.

- Blanket bog (UKHab f1a5): Most of the turbine area is classified as blanket bog. This habitat is also present in some of the land adjacent to the existing access track for the existing wind farm.
- Lowland dry acid grassland (UKHab g1a): Areas of acid grassland are present within the turbine area, adjacent to it, and along the existing access track.
- Other upland acid grassland (UKHab g1b6): Several areas of other upland acid grassland are recorded within the Site, situated amongst blanket bog and lowland dry acid grassland.
- Bracken (UKHab g1c): Several small areas of this habitat are present within the Site.
- Other lowland acid grassland (UKHab g1d): One area of other lowland acid grassland is mapped immediately south of the turbine area of the Site, near the quarry.
- Lowland meadows (UKHab g3a): Several areas are mapped as lowland meadows outside of the Site in the vicinity of pastures.
- Holcus-Juncus neutral grassland (UKHab g3c8): Two areas of Holcus-Juncus neutral grassland are present, one in the pastures near the lowland meadows and the other alongside the access track.
- Dry heaths, upland (H4030) (UKHab h1b5): One small area of upland dry heath is present in the southwest of the turbine area of the Site. Upland dry heath is listed on Annex 1 of Council Directive 92/43/EEC (the 'Habitats Directive').
- Other developed land (UKHab u1b6): One area outside of the Site is associated with livestock pens.
- Sparsely vegetated urban land (UKHab u1f): One area to the south of the Site, adjacent to an area of open water at the quarry.

6.3.1.5 The Carbon and Peatland map⁵⁷ shows that most of the Site is made up of Class 3 or Class 5 peat soils (see **Figure 9.1**).

6.3.1.6 Field signs for multiple protected species including otter *Lutra lutra*, water vole *Arvicola amphibius* and badger *Meles meles* were observed during the surveys for the existing wind farm, many associated with Monks Water, which forms part of the boundary for the Proposed

⁵⁷ NatureScot (2024). Carbon and Peatland 2016 map. Available at: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/soils/carbon-and-peatland-2016-map> (Accessed May 2026).

Development to the south. Field surveys for the Proposed Development undertaken in autumn 2024 recorded field signs for otter on Monk's Water within the Site and a cluster of trees with the potential to support roosting bats, located outside of the Site.

- 6.3.1.7 Fish population surveys undertaken to support the existing wind farm found that brown/ sea trout *Salmo trutta*, a fish species of conservation interest, were present at watercourses within the Site (e.g., Monk's Water, Galawhistle Burn) and downstream of it (Podowrin Burn, Douglas Water). Brook lamprey *Lampetra planeri*, was also recorded in the Douglas Water, downstream of the Site, during surveys to support the existing wind farm. Fish population surveys within the Site undertaken in 2025 recorded brown trout in Galawhistle Burn and Monk's Water.

6.4 Assessment Scope and Methodology

6.4.1 Legislation, Policy and Guidance

- 6.4.1.1 The following key pieces of legislation and policy will be taken into consideration for the EIA.

- Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and Wild Flora and Fauna (the 'Habitats Directive')⁵⁸.
- The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations')⁵⁹
- The Wildlife and Countryside Act 1981 (as amended) (WCA)⁶⁰.
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended)⁶¹ (WANE Act).
- Nature Conservation (Scotland) Act 2004 (as amended) (NCA)⁶².
- The Protection of Badgers Act 1992 (as amended)⁶³.

⁵⁸ Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and Wild Flora and Fauna. Available at: <https://eur-lex.europa.eu/eli/dir/1992/43/oj/eng>

⁵⁹ The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/ukxi/2017/1012/contents>

⁶⁰ The Wildlife and Countryside Act 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents>.

⁶¹ The Wildlife and Natural Environment (Scotland) Act 2011 (as amended). Available at: <https://www.legislation.gov.uk/asp/2011/6/contents>.

⁶² Nature Conservation (Scotland) Act 2004 (as amended). Available at: <https://www.legislation.gov.uk/asp/2004/6/contents>.

⁶³ The Protection of Badgers Act 1992 (as amended). <https://www.legislation.gov.uk/ukpga/1992/51/contents>.

- Salmon and Freshwater Fisheries Act 2003⁶⁴.
- National Planning Framework 4⁶⁵.
- Scottish Biodiversity Delivery Plan 2024-2030⁶⁶.
- Scottish Biodiversity Strategy to 2045⁶⁷.
- South Lanarkshire Local Development Plan 2⁶⁸.
- South Lanarkshire Biodiversity Strategy 2024 – 2030⁶⁹.
- East Ayrshire Local Development Plan 2⁷⁰.

6.4.1.2 The following guidance documents will be used when undertaking the ecological impact assessment.

- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment⁷¹.
- NatureScot pre-application guidance for onshore wind farms⁷².
- Advising on Peatland, Carbon-rich Soils and Priority Peatland Habitats in Development Management⁷³.
- Good Practice during Wind Farm Construction⁷⁴.
- Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme⁷⁵.
- Scottish Biodiversity List (SBL)⁷⁶.
- UK Biodiversity Action Plan (UKBAP)⁷⁷.

⁶⁴ Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. Available at: <https://www.legislation.gov.uk/asp/2003/15/contents>

⁶⁵ Scottish Government (2023). National Planning Framework 4.

⁶⁶ Scottish Government (2024a). Scottish Biodiversity Delivery Plan 2024-2030.

⁶⁷ Scottish Government (2024b). Scottish Biodiversity Strategy to 2045.

⁶⁸ South Lanarkshire Council (2021). Local Development Plan 2.

⁶⁹ South Lanarkshire Council (2024). South Lanarkshire Biodiversity Strategy 2024-2030.

⁷⁰ East Ayrshire Council (2024). Local Development Plan 2.

⁷¹ CIEEM (2018). Guidelines for Ecological Impact Assessment. Available at: <https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/> (Accessed May 2026).

⁷² NatureScot (2025). NatureScot pre-application guidance for onshore wind farms. Available at: <https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms> (Accessed May 2026).

⁷³ NatureScot (2026). Advising on peatland habitats and carbon-rich soils in development management. Available at: <https://www.nature.scot/doc/advising-peatland-habitats-and-carbon-rich-soils-development-management> (Accessed May 2026).

⁷⁴ NatureScot (2024). Good Practice During Wind Farm Construction. Available at: <https://www.nature.scot/doc/good-practice-during-wind-farm-construction> (Accessed May 2026).

⁷⁵ Scottish Government (2021). Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme. Available at: <https://www.gov.scot/publications/monitoring-watercourses-in-relation-to-onshore-wind-farm-developments-generic-monitoring-programme/> (Accessed May 2026).

⁷⁶ NatureScot (2026). Scottish Biodiversity List. Available at: <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list> (Accessed May 2026).

⁷⁷ UK Government (1994). Biodiversity: the UK Action Plan.

6.4.1.3 Field surveys followed standard methodology for onshore wind farms, such as:

- Planning and Development: Standing Advice and Guidance Documents⁷⁸;
- Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems⁷⁹; and
- Bats and onshore wind turbines - survey, assessment and mitigation⁸⁰.

6.4.1.4 IEFs that will be considered within the EIAR will include:

- statutory and non-statutory designated sites and their qualifying features;
- sensitive habitats, such as those listed on Annex 1 of the Habitats Directive, habitats listed on the SBL or included in a national or local biodiversity action plan;
- potential groundwater-dependent terrestrial ecosystems (GWDTEs);
- protected and notable species, such as those listed on Annex 2 of the Habitats Directive, those protected under national legislation (e.g., Wildlife and Countryside Act (1981), Protection of Badgers Act 1992), and those listed on relevant national and local biodiversity lists (e.g., bat species, otter, water vole, badger, pine marten *Martes martes*, great crested newts *Triturus cristatus*, fish and freshwater pearl mussel *Margaritifera margaritifera*).

6.4.2 Study Area

6.4.2.1 The following Study Areas will be used when collecting baseline information and assessing impacts in the EIAR in accordance with the relevant NatureScot guidance:

⁷⁸ NatureScot (2024). Planning and Development: Standing Advice and Guidance Documents. Available at: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents> (Accessed May 2026).

⁷⁹ SEPA (2024). Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems.

⁸⁰ NatureScot (2021). Bats and onshore wind turbines – survey, assessment and mitigation. Available at: <https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation> (Accessed May 2026).

- Designated sites: 10 km from the Site for SACs with ecological interests and SSSIs with bat interests; 2 km from the Site for local sites and Ancient Woodland Inventory (AWI) woodlands.
- Habitats: the Site and 300 m buffer.
- Roosting bats: minimum 200 m plus rotor radius buffer around potential turbine locations and 30 m from other work areas.
- Foraging / commuting bats: 100 m buffer around turbine locations and 30 m from other works areas.
- Other protected mammals: proposed turbines and infrastructure plus a minimum 300 m buffer for otter and 150 m buffer for other species (e.g., badger, pine marten, wildcat *Felix silvestris*, red squirrel *Sciurus vulgaris*, water vole *Arvicola amphibius*).
- Reptiles: 50 m buffer around proposed turbines and infrastructure.
- Fish: watercourses within 100 m of proposed turbines and infrastructure, possibly extending beyond this depending the potential impacts.
- Freshwater pearl mussel *Margaritifera margaritifera*: 100 m upstream to 500 m downstream for all watercourses directly impacted by the Proposed Development in suitable habitats.

6.4.2.2 The cumulative impact assessment will consider cumulative effects for IEFs based on relevant impact pathways, which will differ for each IEF. For example, cumulative effects on bats, which are highly mobile, could arise from cumulative developments at a greater distance from the Proposed Development compared to cumulative effects on habitats. The search area for the cumulative impact assessment will be fully detailed in the EIAR.

6.4.3 Baseline Characterisation

6.4.3.1 The following sources will be consulted during the desk-based assessment.

- NatureScot SiteLink⁸¹: to identify designated sites within 10 km of the Site.
- Aerial Imagery.

⁸¹ Available at: <https://sitelink.nature.scot/home> (Accessed May 2026).

- Local Biological Records Centre: to obtain records of protected and notable species within 2 km (all species) and 10 km (bats only) of the Site.
- Council and Energy Consents Unit (ECU) planning portals: to obtain relevant EIARs or technical (including monitoring) reports from other developments or proposed developments in the local area.
- ES for the existing wind farm.

6.4.3.2 The following field surveys are proposed to inform the Ecological Impact Assessment (EclA) for the Proposed Development:

- Habitat Mapping: Mapping of all habitats within the Site plus a buffer of 300 m to UKHab classification. NVC communities will also be mapped where appropriate, which will inform an assessment of the potential for GWDTEs to be present. During these surveys, assessments will be made of all habitats whereby a condition will be assigned (e.g., poor, good, excellent). These assessments will follow established guidelines for assigning condition for use in a biodiversity metric (e.g., Statutory Biodiversity Metric for England). Habitat mapping surveys have been completed for part of the Survey Area and are ongoing.
- Peatland Condition: A desk-based assessment whereby drainage and erosion features indicative of hydrological modification or surface instability (e.g., drains, hags, erosion gullies, areas of bare peat) within the Site will be mapped using aerial imagery and then ground-truthed during a field survey. The results of these surveys, combined with peat depth information, will provide details on the condition of peatland habitats across the Site.
- Protected Species Surveys: Walkover surveys were undertaken in November 2024 to identify field signs indicating use of the Site by protected and notable species such as such as otters, water vole, badger, red squirrel and reptiles, following standard methodology for each respective species in line with NatureScot guidance⁵¹. A ground-level tree assessment⁸² and high-level assessment of buildings was also undertaken to determine the suitability of the

⁸² Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London. ISBN-978-7395126-0-6.

Site to support roosting bats. Surveys were undertaken within the Site plus a buffer of up to 250 m.

- Bat Activity Surveys: Static bat detectors were deployed at six locations across the Site over three seasons (spring, summer and autumn) between May and September 2024, in line with NatureScot guidelines⁵³. Sound files will be analysed to the lowest taxonomic level (typically species) and a risk assessment will be undertaken to inform the EcIA.
- Fish and Aquatic Invertebrates: Fish population and aquatic invertebrate surveys were undertaken in 2025 at watercourses within the Site potentially impacted by the Proposed Development.

6.5 Likely Significant Effects

- 6.5.1.1 The assessment will consider any potential direct or indirect impacts associated with the construction and operation of the Proposed Development. Where appropriate, these impacts will also be considered in a cumulative assessment.

6.5.2 Potential Impacts Scoped In

- 6.5.2.1 Potential impacts scoped into the IEFs include:
- temporary and permanent loss of sensitive habitats;
 - temporary and permanent loss of supporting habitat for protected and notable species;
 - degradation of habitats through input of pollutants (both chemical and fine sediment);
 - change in habitat types;
 - introduction of invasive, non-native species;
 - habitat fragmentation and barrier effects;
 - change in flow types in watercourses;
 - loss of resting sites for protected species;
 - disturbance to protected species; and
 - injury and / or mortality to protected species (including collision risk to bats).

6.5.3 Issued Scoped Out

- 6.5.3.1 It is proposed that the effects of decommissioning of the Proposed Development are scoped out of the EIAR. Decommissioning impacts are considered to be similar to those for construction, and through

implementation of a decommissioning management plan, it is expected that the effects will be the same as construction for IEFs.

6.5.3.2 Based on initial desk-based assessments, the following IEFs are proposed to be scoped out of the EIAR.

- Beaver Castor fibre: The Site is located outside of the understood distribution of beavers in Scotland, and therefore this species is not expected to be present.
- Common, widespread and/ or low conservation value species and habitats: This includes species not included in any statutory or non-statutory lists of species of conservation concern (e.g., species not included in the Scottish Biodiversity List, not identified on the relevant local biodiversity action plans).
- Freshwater pearl mussel: The watercourses within the Site and immediately downstream (i.e., Monk's Burn and Podowrin Burn) are minor and several are considered intermittent without continuous flow. These watercourses do not provide suitable habitat for freshwater pearl mussels and therefore this species is not expected to be present within the Site or immediately downstream of it.
- Habitats outwith the Site and 300 m Study Area: Given their distance away from the Proposed Development, it is considered unlikely there would be direct or indirect impacts on such habitats, although a full assessment will be undertaken during the EIA and some habitats may be included (e.g., watercourses more than 300 m downstream of the Site with a direct fluvial connection).
- Designated sites: No designated sites were identified within the Site, with the nearest 0.7 km away (**Table 6.1**), designated for blanket bog and upland assemblage. With the exception of Blood Moss and Slot Burn SSSI (5.6 km away, designated in part for Arthropoda), all other designated sites within a 10 km buffer are designated for habitats. Considering the distance between the Site and these designated sites, direct or indirect impacts are considered unlikely. An updated search for designated sites will be undertaken for the EclA and any new sites or changes to the qualifying interests of these sites may be scoped into impact assessment.

6.5.3.3 Following completion of the field surveys and desk-based assessments, some or all of the above ecological features may be

scoped into the assessment, if it is determined that they could be a likely significant effect associated with the Proposed Development.

- 6.5.3.4 The potential for significant effects on peatland as a priority habitat and its capacity to support biodiversity will be assessed in the Ecology chapter of the EIAR. Impacts on peatland as a functional carbon store will be assessed in the Geology and Soils chapter of the EIAR and impacts GWDTEs will be assessed in the Hydrology chapter.

6.5.4 Cumulative Effects

- 6.5.4.1 A desk-based assessment will be undertaken to identify cumulative developments that could result in cumulative effects on identified IEFs, in line with CIEEM⁸³, and species-specific guidelines.
- 6.5.4.2 At this stage it is not possible to identify all potential cumulative impacts, but it is likely that the impacts considered in the cumulative assessment will be composed of all or part of the potential impacts scoped in.
- 6.5.4.3 A full list of cumulative developments to be considered in the cumulative assessment will be provided in the EIAR. Cumulative developments with an overlapping zone of influence as that of the Proposed Development will be considered.

6.6 Questions to Consultees

- Q6.1: Do you agree that the range of, and approach to, the ecology surveys that have been/ will be carried out is sufficient and appropriate?
- Q6.2: Do you agree that all sensitive ecology receptors have been identified?
- Q6.3: Is the scope of the proposed assessment, including proposed study areas and those ecological features to be scoped out of assessment, appropriate?
- Q6.4: Do you agree with the proposed approach to ecological impact assessment?
- Q6.5: Are there any other relevant consultees who should be contacted, or other sources of information that should be referenced with respect to the ecology assessment?

⁸³ CIEEM (2018). Guidelines for Ecological Impact Assessment. Available at: <https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/> (Accessed May 2026).

7. ORNITHOLOGY

7.1 Overview

7.1.1.1 This Chapter has been prepared by Tetra Tech and sets out the scope and methodological approach for the assessment of likely significant effects upon Important Ornithological Features (IOFs) that are anticipated to arise from the Proposed Development.

7.1.1.2 This Chapter is supported by the following figures:

- Figure 7.1: Ornithologically Designated Sites within 20 km;
- Figure 7.2: Ornithological Survey Areas; and
- Figure 7.3: Vantage Point Survey Locations.

7.2 Consultation

7.2.1.1 Consultation was undertaken with NatureScot in November 2023 regarding the scope of ornithology surveys. A response was received on 6th December 2023 to confirm that the proposed scope of surveys was in line with the version of their guidance that was current at the time⁸⁴. On the 9th January 2024, NatureScot noted that they were aware that the post-construction bird monitoring plan was approved for the existing wind farm. However the data from this alone would not be sufficient for the Proposed Development assessment as the survey areas do not fully correspond to the Site, the flight activity surveys are limited to the breeding season and some of the data collected will be over the 5 year old (which is the period that ornithology data are typically considered to be valid for informing impact assessments⁵⁷) by the time of submission. Furthermore, the applicability of using data collected from other developments will depend on the relevance of its spatial and temporal coverage.

7.3 Baseline Conditions

7.3.1.1 The ornithology baseline will be established through a combination of desk study and field surveys. The Ornithology Study Area, which

⁸⁴ NatureScot (2017). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Windfarms. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> (Accessed May 2024). Note that this guidance was updated in 2025.

includes the desk study search area and field survey areas, is defined in Section 7.4.2.

7.3.2 Desk Study

7.3.2.1 The initial desk study included a search for designated sites of ornithological importance within a 20 km radius of the Proposed Development and a review of ornithological data from nearby developments.

7.3.2.2 One Special Protection Area (SPA) and two SSSIs with notified ornithological features have been identified within the search area, as set out in Table 7.1.

Table 7.1: Statutory Designated Sites with Avian Ecology Features within 20 km of the Site

Site	Site Type	Distance to Site / Nearest Turbines	Qualifying / Designating Features*
Muirkirk and North Lowther Uplands	SPA	0.7 km east / 1.6 km east	• Golden plover <i>Pluvialis apicaria</i> (breeding) • Hen harrier <i>Circus cyaneus</i> (breeding & non-breeding) • Merlin <i>Falco columbarius</i> (breeding) • Peregrine <i>Falco peregrinus</i> (breeding) • Short-eared owl <i>Asio flammeus</i> (breeding)
Muirkirk Uplands	SSSI	0.7 km east / 1.6 km east	• Hen harrier (breeding & non-breeding) • Short-eared owl (breeding) • Breeding bird assemblage
North Lowther Uplands	SSSI	3.9 km northwest / 8.7 km northwest	• Hen harrier (breeding) • Breeding bird assemblage

*only notified ornithological features of the SSSIs are listed in **Table 7.1**

7.3.2.3 Baseline ornithology results are available for parts of the Site and surrounding areas due to ongoing monitoring at the existing wind farm and nearby developments. The existing wind farm ES⁸⁵ reported the presence of raptors, waders and black grouse *Lyurus tetrix* during the

⁸⁵ Infinis (2010). Galawhistle Wind Farm Environmental Statement. Chapter 7 Ornithology.

breeding season, and geese, swans, raptors and waders during the winter.

- 7.3.2.4 In a report compiling results from ornithology surveys in the vicinity of the Hagshaw Wind Farms Cluster⁸⁶ (an area that includes the Site and the existing wind farm), it was concluded that black grouse abundance has decreased in the area, but that curlew *Numenius arquata* have persisted in the area despite wind farm development. This report also concluded that peregrine have likely not been displaced from the Hagshaw Wind Farms Cluster area.

7.3.3 Field Surveys

- 7.3.3.1 An initial year of field surveys were undertaken for the Proposed Development between September 2023 and August 2024. Key survey results are summarised below.
- Flight activity surveys: target species recorded from two vantage point (VP) locations (VP2 and VP3; see **Section 7.4**) included two records of peregrine (one count each in March 2024), two records of hen harrier (one count each in October 2023 and January 2024), one record of short-eared owl (one count in April 2024), five records of pink-footed geese *Anser brachyrhynchus* (peak count of 120 in September 2023), one record of ringed plover *Charadrius hiaticula* (count of four in March 2024), two records mallard *Anas platyrhynchos* (peak count of two in May 2024) and one record of curlew (one count in June 2024).
 - Lekking black grouse surveys: one black grouse was observed lekking within the 2024 black grouse survey area (see **Section 7.4**) in April 2024.
 - Breeding raptor surveys: species recorded within the 2024 breeding raptor survey area (see **Section 7.4**) included buzzard *Buteo buteo*, kestrel *Falco tinnunculus*, red kite *Milvus milvus* and peregrine.
 - Moorland breeding bird surveys: species recorded within the 2024 moorland breeding bird survey area (see **Section 7.4**) included ringed plover, Mute swan *Cygnus olor*, common sandpiper *Actitis hypoleucos*, black-headed gull *Chroicocephalus ridibundus*, curlew,

⁸⁶ RPS (2020). An Assessment of Post-Construction Bird Monitoring at the Hagshaw Wind Farms Cluster - Phase

grey heron *Ardea cinerea*, greylag goose, oystercatcher *Haematopus ostralegus* and wigeon *Mareca penelope*.

7.3.3.2 Further field surveys are being conducted between October 2025 and September 2026⁸⁷. Key results to date are summarised below.

- Flight activity surveys: target species recorded up to March 2026 included 13 records of red kite recorded in every month (peak count of two in December 2025), one record of golden plover (count of nine in November 2025), three records of peregrine (peak count of two in February 2026), three records of pink-footed goose (peak count of 54 in January 2026), one record of snipe *Gallinago gallinago* (count of one in February 2026), two records of ringed plover (peak of two counts in February 2026 and March 2026) and two records of greylag goose *Anser anser* (peak count of two in March 2026).
- Breeding raptor surveys: the following raptor species were recorded within the breeding raptor survey area in April 2026: buzzard, peregrine, kestrel, goshawk *Accipiter gentilis*. Additionally, an osprey *Pandion haliaetus* was recorded just outside the survey buffer.
- Hen harrier winter roost survey: one hen harrier was recorded within the hen harrier winter roost survey area during the December 2026 survey visit only.

7.4 Assessment Scope and Methodology

7.4.1 Legislation, Policy and Guidance

7.4.1.1 The following key pieces of legislation and policy will be taken into consideration for the Ornithological Impact Assessment (OIA):

- CIEEM (2018)⁸⁸;
- Directive 2009/147/EC⁸⁹;
- Directive 92/43/EEC⁹⁰;

⁸⁷ At time of writing data for ornithological surveys analysed up to March 2026 for flight activity surveys and hen harrier roosts, and April 2026 for breeding raptors. There is no data yet of Moorland Breeding Bird Survey or Black Grouse surveys.

⁸⁸ CIEEM (2018). 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.

⁸⁹ Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive).

⁹⁰ Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (the Habitats Directive).

- Directive 2014/52/EU⁹¹.
- European Commission (2010)⁹²;
- European Union (EU) (2017)⁹³;
- Guidelines for Ecological Impact Assessment in the UK and Ireland, Version 1.3. (2024)⁹⁴;
- NatureScot (2016a)⁹⁵; 2016b⁹⁶; 2018⁹⁷; 2022⁹⁸; 2025a⁹⁹; 2025b¹⁰⁰; 2025c¹⁰¹; 2025d¹⁰²;
- Scottish Government (2013)¹⁰³;
- Stanbury *et al.* (2021)¹⁰⁴;
- The Conservation of Habitats and Species Regulations 2017;
- The Wildlife and Countryside Act 1981 (as amended); and
- The Nature Conservation (Scotland) Act 2004 (as amended).

7.4.1.2 The 2023-24 field surveys followed standard NatureScot methodology for onshore wind farms that was current at the time, while the current surveys are following the updated version of this guidance¹⁰⁵.

⁹¹ Environmental Impact Assessment Directive 2014/52/EU

⁹² European Commission (2010) Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'. European Commission, Brussels.

⁹³ European Union (EU) (2017). Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU).

⁹⁴ Guidelines for Ecological Impact Assessment in the UK and Ireland, Version 1.3. (2024). Chartered Institute of Ecology and Environmental Management.

⁹⁵ NatureScot (2016a). Environmental Statements and Annexes of Environmentally Sensitive Bird Information. Guidance for Developers, Consultants and Consultees. Version 2.

⁹⁶ NatureScot (2016b). Guidance – Assessing Connectivity with Special Protection Areas (SPAs). Version 3

⁹⁷ NatureScot (2018). Environmental Impact Assessment Handbook – Version 5: Guidance for Competent Authorities, Consultation Bodies, and Others Involved in the Environmental Impact Assessment Process in Scotland

⁹⁸ NatureScot (2022). Disturbance distances in selected Scottish bird species – NatureScot Guidance

⁹⁹ NatureScot (2025a). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms

¹⁰⁰ NatureScot (2025b). Guidance note – Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

¹⁰¹ NatureScot (2025c). Guidance – Assessing the Cumulative Impacts of Onshore Wind Farms on Birds

¹⁰² NatureScot (2025d). Identifying Natural Heritage Issues of National Interest in Development Proposals

¹⁰³ Scottish Government (2013). Policy Advice Note PAN 1/2013 – Environmental Impact Assessment

¹⁰⁴ Stanbury, A. J., Eaton, M. A., Aebischer, N. J., Balmer, D., Brown, A. F., Douse, A., Lindley, P., McCulloch, N., Noble, D. G. and Win, I. (2021). Birds of Conservation Concern 5. British Birds Volume 114

¹⁰⁵ NatureScot (2017). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Windfarms. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> (Accessed May 2024). Note that this guidance was updated in 2025.

- 7.4.1.3 The OIA will be undertaken in line with current CIEEM guidelines¹⁰⁶. Due to the proximity of the Site to the Muirkirk and North Lowther Uplands SPA, a Habitats Regulations Assessment (HRA) will also be undertaken for the Proposed Development.

7.4.2 Study Area

- 7.4.2.1 The following Study Areas (refer to **Figure 7.2**) are proposed to collect baseline information to inform the OIA.
- Designated sites: within 20 km of the Site.
 - Flight activity surveys: proposed turbine locations plus a surrounding 500 m buffer.
 - Lekking black grouse surveys: proposed turbine locations plus a surrounding 1.5 km buffer (suitable habitat only).
 - Breeding raptor surveys: proposed turbine locations plus a surrounding 2 km buffer (suitable habitat only).
 - Moorland breeding bird surveys: proposed turbine locations plus a surrounding 500 m buffer (suitable habitat only).
 - Hen harrier winter roost survey: proposed Site boundary plus a surrounding 2 km buffer (suitable habitat only).
- 7.4.2.2 Survey areas for Year 1 were created using the survey-specific buffers based on the Site boundary provided at the time of survey commencement. Although the extent of the Site boundary has decreased since the surveys commenced, the location of the vantage points VP2 and VP3 provide coverage of the proposed turbine locations. Survey areas for Year 2 were adjusted to the survey-specific buffers for the updated Site boundary (refer to **Figure 2.1**). Only VP 2 and VP3 were used for the Year 2 flight activity surveys (see **Figure 7.3**) as these provide sufficient coverage of the Site boundary and proposed turbine layout.
- 7.4.2.3 The completed and ongoing field survey results, combined with considerable existing desk study information for the Site and surrounding area, are considered suitable to inform a robust assessment of potential impacts of the Proposed Development on IOFs.

¹⁰⁶ CIEEM (2018). 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

7.4.3 Baseline Characterisation

7.4.3.1 The following sources have been or will be consulted during the desk study:

- NatureScot SiteLink¹⁰⁷: to identify designated sites within 20 km of the Site;
- Local Raptor Study Group¹⁰⁸: to obtain records of breeding or roosting raptors within the Site plus an appropriate buffer;
- Royal Society for the Protection of Birds (RSPB)¹⁰⁹: to obtain records of protected and sensitive bird species;
- British Trust for Ornithology (BTO)¹¹⁰: to obtain records of protected and sensitive bird species; and
- Council¹¹¹ and ECU¹¹² planning portals: to obtain relevant reports for nearby developments.
- The ES¹¹³ for the existing wind farm: to obtain records of protected and sensitive bird species in the survey area for that development.
- A review of Post-Construction Bird Monitoring at the Hagshaw Wind Farms Cluster - Phase 1¹¹⁴: to understand the trends in ornithology survey results for the existing wind farm and in the wider area surrounding the Site.

7.4.3.2 The results of the following field surveys will inform the OIA. The scope of these surveys was designed to be in line with NatureScot guidance for ornithology surveys on onshore wind farms¹¹⁵ and NatureScot has confirmed that the proposed scope aligns with their guidance (see Section 7.2).

¹⁰⁷ NatureScot SiteLink. Available at: SiteLink - Home (Accessed: 09/06/2026)

¹⁰⁸ Scottish Raptor Study Group (2026). Contact us. Available at: Scottish Raptor Study Group | | Contact (Accessed: 09/06/2026)

¹⁰⁹ RSPB (2026). Conservation Data at RSPB. Available at: Conservation Data at RSPB (Accessed: 09/06/2026)

¹¹⁰ BTO (2026). BTO data reports. Available at: BTO Data Reports | BTO (Accessed: 09/06/2026)

¹¹¹ PlanningPortal (2026). Welcome to Planning Portal. Available at: Planning Portal (Accessed: 09/06/2026)

¹¹² Scottish Government (2026). Energy Consents Unit Portal. Available at: Scottish Government - Energy Consents Unit (Accessed: 09/06/2026)

¹¹³ Infinis (2010). Galawhistle Wind Farm Environmental Statement. Chapter 7 Ornithology.

¹¹⁴ RPS (2020). An Assessment of Post-Construction Bird Monitoring at the Hagshaw Wind Farms Cluster - Phase

¹¹⁵ NatureScot (2017). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Windfarms. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> (Accessed May 2024). Note that this guidance was updated in 2025.

Year 1

- Flight activity surveys: a total of 36 hours of survey effort per VP per season for two vantage point locations during each season (i.e., breeding and non-breeding) from September 2023 to August 2024, with only data from VP2 and VP3 being used for the updated Site boundary and proposed turbine layout.
- Lekking black grouse surveys: a minimum of two survey visits between late March 2024 and mid-May 2024.
- Breeding raptor surveys: four survey visits undertaken monthly between April and July 2024.
- Moorland breeding bird surveys: four visits undertaken between April and July 2024.

Year 2

- Flight activity surveys: a total of 36 hours of survey effort per VP per season for two vantage point locations during each season (i.e., breeding and non-breeding) from October 2025 to September 2026.
- Lekking black grouse surveys: a minimum of two survey visits between April and May 2026.
- Breeding raptor surveys: five survey visits undertaken monthly between March and July 2026.
- Moorland breeding bird surveys: four visits undertaken between April and July 2026.
- Hen harrier wintering roost surveys: six survey visits undertaken monthly between October 2025 and March 2026.

7.5 Likely Significant Effects

7.5.1 Potential Impacts Scoped In

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

7.5.1.2 Potential impacts of the Proposed Development on IOFs include:

- Permanent habitat loss during construction;
- Disturbance/displacement during all phases; and
- Collision risk during operation.

7.5.1.3 Potential IOFs include:

- Greylag goose *Anser anser*
- Pink-footed goose *Anser brachyrhynchus*
- Wigeon *Mareca penelope*
- Mallard *Anas platyrhynchos*
- Black grouse *Lyrurus tetrix*
- Oystercatcher *Haematopus ostralegus*
- Golden plover *Pluvialis apricaria*
- Ringed plover *Charadrius hiaticula*
- Curlew *Numenius arquata*
- Snipe *Gallinago gallinago*
- Black-headed gull *Chroicocephalus ridibundus*
- Short-eared owl *Asio flammeus*
- Osprey *Pandion haliaetus*
- Hen harrier *Circus cyaneus*
- Red kite *Milvus milvus*
- Kestrel *Falco tinnunculus*
- Merlin *Falco columbarius*
- Peregrine *Falco peregrinus*.

7.5.1.4 The OIA will consider any potential direct or indirect impact to IOFs, including designated sites (such as SPAs) with potential connectivity to the Site. The likelihood of those impacts occurring will also be considered and mitigation measures will be proposed to avoid or reduce any potential significant effects.

7.5.1.5 In line with NatureScot guidelines for onshore wind farms¹¹⁶, collision risk modelling (CRM) will be undertaken using flight activity data collected at the Site.

7.5.2 Issued Scoped Out

7.5.2.1 Based on initial desk-based assessments and field surveys, the following ornithological features are scoped out as the potential for significant effects is negligible.

¹¹⁶ NatureScot (2023). Wind farm impacts on birds. Available at: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/renewable-energy/onshore-wind-energy/wind-farm-impacts-birds>.

- Common, widespread and green-listed species - species not included in any statutory or non-statutory lists of species of conservation concern (e.g., species not included in the Scottish Biodiversity List, RSPB Birds of Conservation Concern, Annex 1 or Schedule 1 species or those not identified on the relevant local biodiversity action plans).
- Passerines as they are not considered at risk of significant effects from windfarms according to NatureScot guidance¹¹⁷.
- The North Lowther Uplands SSSI designated for breeding hen harrier as their core foraging range is 2 km.

7.5.2.2 It is not possible to definitively scope out/in other target species from/to the assessment prior to undertaking CRM and a review of the ornithological baseline against the final design.

7.5.2.3 Although decommissioning of the Proposed Development could cause disturbance to breeding, foraging and/or roosting birds, the magnitude of effect would depend on the bird species assemblage present at the time and cannot be reliably predicted at this stage. Therefore, potential effects on IOFs during the decommissioning phase of the Proposed Development are not assessed. However, as decommissioning activities are generally of a similar nature to construction activities, it is considered that the potential effects of decommissioning would be comparable to those from construction, with the exception that habitat would likely be restored, and birds would be able to return to abandoned territories.

7.5.3 Cumulative Effects

7.5.3.1 A desk-based assessment will be undertaken to identify other plans or projects within 20 km of the Site that might result in cumulative effects on IOFs, in line with NatureScot guidance¹¹⁸ and species-specific guidelines.

¹¹⁷ NatureScot (2023). Wind farm impacts on birds. Available at: <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/renewable-energy/onshore-wind-energy/wind-farm-impacts-birds>.

¹¹⁸ NatureScot (2018). Assessing the Cumulative Impacts of Onshore Wind Farms on Birds. Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds> (Accessed May 2024).

- 7.5.3.2 At this stage it is not possible to identify all potential cumulative impacts, but it is likely that the impacts considered in the cumulative assessment will include some of the Potential Impacts Scoped In.
- 7.5.3.3 A full list of the developments to be considered in the cumulative assessment will be provided in the EIA and this will be agreed through consultation with NatureScot.

7.6 Questions to Consultees

- Q7.1: Do you agree that the data sources are sufficient to inform a robust assessment of potential effects of the Proposed Development on ornithology?
- Q7.3: Do you agree with the proposed approach to the OIA?
- Q7.4: Are you content with the issues scoped out?
- Q7.5: Do you agree with the approach to the cumulative assessment?

8. HYDROLOGY AND HYDROGEOLOGY

8.1 Overview

- 8.1.1.1 This Chapter has been prepared by Ramboll and sets out and discusses the scope and methodological approach for the assessment of likely significant effects upon the water environment that are anticipated to arise from the Proposed Development.
- 8.1.1.2 This Chapter is supported by the following figures:
- **Figure 8.1: Surface Water Features;** and
 - **Figure 8.2: Flood Risk.**

8.2 Consultation

- 8.2.1.1 Data on Private Water Supplies (PWS) within 2 km of the Site has been requested from SLC and EAC. No response has been received to date.
- 8.2.1.2 Further to the response to this Scoping Report, and as required, it is expected that the following further consultation will be undertaken:
- Scottish Water will be consulted to confirm presence/absence of Scottish Water assets on the site or within a 250 m of the Site.
 - Consultation with Scottish Water will be undertaken to confirm if there are PWS for potable water that are located within 2 km of the Site.
 - If potential GWDTEs are identified through ecological surveying and these are found not to be supported by groundwater supplies, consultation will be carried out with SEPA to scope out a GWDTEs assessment from the EIAR.
 - Consultation with land owners to confirm the extent of any engineering to the hydrology of the Site and associated catchment, in relation to drainage of historical mining works.

8.3 Baseline Conditions

8.3.1 Hydrology

- 8.3.1.1 The majority of the Site, including all proposed turbine locations, is within the catchment of the Galawhistle Burn and, in turn, Monks water. Monks Water flows from the southeastern boundary of the Site and discharges to Douglas Water approximately 300 m southeast of the Site. The access track to the Site is partially within the catchment of the Podowrin Burn which also discharges to Douglas Water. The south western land parcel (on which no turbines are proposed) is partially within the catchment of the Hareshaw Burn to the west of the Site.
- 8.3.1.2 Opencast works are present in the northwest of the Site and there is the potential that areas of the open cast works drain via adits or engineered flow paths, which may not be reflected in Ordnance Survey (OS) and terrain mapping. Further review of historical mapping and consultation with land owners would confirm or exclude the presence of such features.
- 8.3.1.3 The surface water features in relation to the Site are shown on **Figure 8.1**.

8.3.2 Flood Risk

- 8.3.2.1 SEPA Flood Risk maps¹¹⁹ show that only land in close proximity to Galawhistle Burn and Monks Water to be at risk of flooding from rivers, including areas at a high risk of flooding (1 in 10 (10%) annual probability).
- 8.3.2.2 SEPA mapping identifies some very limited areas of elevated surface water flood risk on the Site, the majority of which are within the flood risk areas identified above. Generally, the Site is at a very low risk of surface water flooding (less than a 1 in 1,000 (0.1%) annual probability).
- 8.3.2.3 Flood risk at the Site is shown on **Figure 8.2**.

¹¹⁹ Available at: <https://map.sepa.org.uk/floodmap/map.htm> [Accessed June 2024].

8.3.3 Water Resources

- 8.3.3.1 According to BGS 1:625 hydrogeological mapping¹²⁰, the majority of the Site is underlain by an aquifer of the Clackmannan Group which is classified by the BGS as a Moderately productive aquifer. The south of the Site is underlain by Silurian Rocks which are classified by the BGS as a Low productivity aquifer.
- 8.3.3.2 There is the potential that properties and commercial operations within or close to the Study Area may rely on Private Water Supplies (PWS). PWS registers are held by Local Planning Authorities and the presence of PWS within the Study Area shall be confirmed through a request for information to SLC and EAC.
- 8.3.3.3 The Site is not within a Scottish Water Drinking Water Protected Area (DWPA, Surface). The nearest DWPA is situated approximately 5 km to the northwest of the Site. Consultation will be carried out with Scottish Water to confirm the absence of assets under their management on the Site.

8.3.4 Ground Water Dependant Terrestrial Ecosystems (GWDTE)

- 8.3.4.1 There is the potential that areas of the Site may be classified as potentially groundwater dependent, based on NVC habitat surveying (refer to **Chapter 6**). The presence of potential NVC communities will be established through ecological surveying and where such habitats are identified, a hydrological assessment will be carried out to determine the actual likelihood of groundwater dependency and the sensitivity of such habitats.

8.4 Assessment Scope and Methodology

8.4.1 Legislation, Policy and Guidance

- 8.4.1.1 The following key pieces of legislation and policy will be taken into consideration for the EIA:

¹²⁰ Hydrogeological Maps of UK - Available at <https://www.bgs.ac.uk/datasets/hydrogeology-625k/> [Accessed June 2024]

- Water Environment and Water Services (WEWS) (Scotland) Act 2003¹²¹;
- Scottish Environmental Protection Agency (SEPA) Environmental Authorisations (Scotland) Regulations (EASR) 2018¹²²;
- The Water Environment (Miscellaneous) (Scotland) Regulations 2017¹²³;
- Scottish Government (2023) NPF4 Policy 22 Flood risk and water management;
- Flood Risk Management (Scotland) Act 2009¹²⁴;
- The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017¹²⁵;
- The Public and Private Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015¹²⁶;
- The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2013¹²⁷;
- Scottish Government (2012) River Crossings and Migratory Fish¹²⁸;
- SEPA Planning Guidance and Advice Notes: Flood risk and development management¹²⁹;
- SEPA Guidance on Assessing the Impacts of Developments on Groundwater Abstractions (August 2024)¹³⁰;

¹²¹ Scottish Government (2003). Water Environment and Water Services (Scotland) Act 2003. Available at: <http://www.legislation.gov.uk/asp/2003/3/contents>

¹²² SEPA - Environmental Authorisations (Scotland) Regulations (EASR). Available at: <https://beta.sepa.scot/regulation/authorisations-and-compliance/easr-authorisations/>

¹²³ Scottish Government (2017) The Water Environment (Miscellaneous) (Scotland) Regulations 2017. Available at: <http://www.legislation.gov.uk/ssi/2017/389/contents/made>

¹²⁴ Scottish Government (2009) Flood Risk Management (Scotland) Act 2009. Available at: <http://www.legislation.gov.uk/asp/2009/6/contents>

¹²⁵ Scottish Government (2017) the Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017

¹²⁶ Scottish Government (2015) the Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015. Available at: <https://www.legislation.gov.uk/ssi/2015/346/contents>

¹²⁷ Scottish Government (2013) The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2013 [Online] Available at: <http://www.legislation.gov.uk/ssi/2013/29/introduction/made>

¹²⁸ Scottish Government – Available at <http://www.scotland.gov.uk/Topics/marine/science/Publications/publicationslatest/rivercrossings>

¹²⁹ SEPA Planning guidance and advice notes Available online: <https://www.sepa.org.uk/environment/land/planning/guidance-and-advice-notes/>

¹³⁰ SEPA (2024) Guidance on Assessing the Impacts of Developments on Groundwater Abstractions. Available online: <https://www.sepa.org.uk/media/mfzpnjwb/guidance-on-assessing-the-impacts-of-developments-on-groundwater-abstractions.docx>

- SEPA Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems (August 2024)¹³¹;
- SEPA Guidance for Pollution Prevention (GPP) 1: Understanding your environmental responsibilities - good environmental practices (June 2021)¹³²;
- SEPA GPP 5: Works and maintenance in or near water (February 2018)¹³²;
- SEPA GPP 6: Working on construction and demolition sites¹³²;
- SEPA GPP 21: Pollution incident response planning¹³²;
- SEPA GPP 22: Incident response – Dealing with spills¹³²;
- CIRIA Control of water pollution from constructions sites. Guidance for consultants and contractors C532 (2001)¹³³;
- CIRIA The SuDS Manual (C753)¹³⁴;
- WAT-G-030 EASR Guidance: Engineering: Meeting Good Practice (August 2025)¹³⁵; and
- WAT-G-034 EASR Guidance: Construction works and silt / pollution mitigation (August 2025)¹³⁶.

8.5 Study Area

- 8.5.1.1 The Study Area, in respect of potential impacts on water resources, will include the Site extent plus a 2 km buffer for desktop assessment. Additionally, the assessment will consider potential hydrological downstream connectivity to areas extending beyond this buffer, as required.

¹³¹ SEPA 2024, Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems. Available online: <https://www.sepa.org.uk/media/a1yh0blq/guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx>

¹³² NetRegs Guidance for Pollution Prevention (GPP) documents. Available online: <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/> <https://www.netregs.org.uk/media/1898/guidance-for-pollution-prevention-1-2022-update.pdf>

¹³³ CIRIA, 2001. Control of water pollution from constructions sites. Guidance for consultants and contractors C532. Available online: <https://www.ciria.org/>

¹³⁴ CIRIA 2015, the SuDS Manual Available online: <https://www.ciria.org/>

¹³⁵ SEPA, 2025. EASR Guidance: Engineering: Meeting Good Practice. Available online: https://beta.sepa.scot/media/npyb3xct/wat-g-030_engineering_meeting_good_practice.docx

¹³⁶ SEPA, 2025. WAT-G-034 EASR Guidance: Construction works and silt / pollution mitigation. Available online: https://beta.sepa.scot/media/40yhm5lc/wat-g-034_construction_works_and_silt_pollution_mitigation.docx

8.5.2 Baseline Characterisation

- 8.5.2.1 Publicly available SEPA data¹³⁷ will be reviewed to confirm the sensitivity of receiving waters to within a 5 km buffer.
- 8.5.2.2 Consultation with Scottish Water, SLC and EAC will be undertaken to confirm if there are public or private water supplies for potable water that are located within 2 km of the Site. The presence/ absence of water supplies will be confirmed through site inspection and consultation with land owners.
- 8.5.2.3 A Site walkover was carried out by Ramboll in 2025 with regards to hydrological receptors and Ramboll is not aware of any significant changes to baseline hydrological conditions since this time. Surveying of a limited area of the Site (associated with the access route) has not been carried out. It is therefore proposed that a targeted updated Site walkover would incorporate areas not already surveyed and that findings of 2025 surveying would remain valid. The Site walkover will incorporate:
- identification of smaller watercourses and hydrological features not identified through the desktop assessment, where there is the potential for interaction with proposed infrastructure; and
 - surveying of existing and potential watercourse crossing locations in line with SEPA Guidance for licencing of engineering activity. This survey will provide information on proposed crossing locations, Environmental Authorisations (Scotland) Regulations (EASR) requirements¹³⁸, channel characteristics and likely crossing types.
- 8.5.2.4 Ecological surveying will determine the presence of any potentially GWDTEs and both a desk based hydrological assessment and observations made during the Site walkover would determine the extent to which groundwater is likely to support such vegetation communities.

¹³⁷ Available at: <https://www.sepa.org.uk/data-visualisation/water-environment-hub> [Accessed March 2026]

¹³⁸ Available at <https://beta.sepa.scot/regulation/authorisations-and-compliance/easr-authorisations/water-activities/> [accessed March 2026]

8.6 Likely Significant Effects

8.6.1 Potential Impacts Scoped In

- 8.6.1.1 The assessment will focus on the potential impacts during the construction and operational phases of the Proposed Development on watercourses and waterbodies in the Study Area. Additionally, once the sensitivity of habitats in the surrounding area is determined through ecological surveying and the presence of GWDTEs and habitats dependent on the quality and quantity of surface water supply is determined, hydrological assessment will confirm the sensitivity of such habitats to hydrological and hydrogeological alteration.
- 8.6.1.2 It is anticipated that standard best practice measures would be implemented through a CEMP that would be prepared by the appointed contractor and it is also anticipated that the design of the wind farm extension would minimise the potential for impacts to the water environment (i.e. embedded mitigation). It is therefore anticipated that a number of the points below would be managed by such measures. Where the potential for residual impacts is identified the assessment would address additional design or management measures that would be implemented.
- 8.6.1.3 Based on baseline conditions, it is anticipated that the following potentially significant effects could occur as a result of the Proposed Development.
- Direct alteration of in-channel or overland flow regimes through excavations, disruption to artificial drains, exposure of bare earth or rock, alteration to field drains and the construction of watercourse crossings.
 - Increase in erosion and transport of sediment to watercourses as a result of constructing watercourse crossings, vegetation and soil stripping, excavations and dewatering activities, with potential effects including indirect effects on aquatic ecology, fluvial morphology and PWS.
 - In the event that PWS are found to be in hydrological or hydrogeological connection to the Proposed Development, there is the potential that the quality or quantity of water supply could be affected as a result of alterations in groundwater supplies (were any PWS within 250 m of the Proposed Development) or the upstream interaction of the Proposed Development with surface water supplies. Detailed assessment would be carried out where PWS are within potential hydrogeological connectivity to

the Proposed Development (within 250 m) or where PWS are in downstream connectivity from construction activities.

- Permanent or temporary alteration or disruption to shallow groundwater flow, in particular through the construction of tracks, drainage measures and turbine foundations.
- Excavation of soil and bedrock during the construction phase could cause localised disruption and interruption to groundwater flow. Interruption of groundwater flow would potentially reduce the supply of groundwater to a GWDTE thereby causing an alteration/ change in the quality or quantity of and/ or the physical or biological characteristics of the GWDTE. Contamination of groundwater may also cause physical or chemical contamination to the GWDTE.

8.6.2 Issues Scoped Out

- 8.6.2.1 Based on a review of SEPA Flood Maps¹¹⁹, it is noted that flood risk is highly unlikely to increase as a result of the Proposed Development, either through development taking place on areas considered to be at risk of flooding or through an increase in flood risk downstream. It is therefore expected that the assessment of flood risk will form part of the EIA chapter, without the need for separate reporting, including conceptual description of Sustainable Drainage System (SuDS) measures to be employed at the Site to ensure runoff rates from the Site are not increased. Drainage design would be carried out by the appointed contractor at detailed design stage and therefore a separate Flood Risk Assessment will not be prepared as part of the EIA submission.
- 8.6.2.2 There is the potential to impact on receiving soils, groundwater and watercourse quality through the release of contaminated water and stored chemicals used on-site during construction works, with potential effects including those on water quality and indirect effects on aquatic ecology. However, the potential for such impacts would be managed through the implementation of a CEMP at the Site and regulation under EASR legislation. In the unlikely event that chemical storage or stockpiling of materials is to be carried out in close proximity to sensitive hydrological receptors, assessment will be provided in the EIAR.
- 8.6.2.3 A detailed assessment of potential flow rates at proposed watercourse crossing locations would be carried out by the contractor at the detailed design stage, such that all of the watercourse crossings identified for the Proposed Development would be designed in

compliance with the requirements of The Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended. The design of watercourse crossings would also take account of the future 'with climate change' baseline and (to avoid altering the flow regime) would be sized for a 1:200 year plus climate change flood event. As such, detailed flow rate calculations will not be carried out as part of the EIAR.

- 8.6.2.4 In the event that PWS are out with the 250 m Study Area, and provided no PWS are in downstream connectivity to the Proposed Development, there will be no requirement for a separate detailed risk assessment for PWS abstractions (in line with SEPA Guidance on Assessing the Impacts of Developments on Groundwater Abstractions (August 2024)¹³⁰). If PWS are identified by the Local Authority or during the site walkover, that could be affected by the Proposed Development, a Technical Appendix would be prepared to assess the severity of the potential risk and set out mitigation were such measures required.
- 8.6.2.5 According to the BGS digital map and Hydrogeological and Groundwater Vulnerability Maps of Scotland (1:625,000), the Site overlies a Moderately productive and a Low productivity aquifer. If it is identified that potentially groundwater dependent vegetation communities (as identified by ecological surveying and classification of NVC communities) are not supported by groundwater supplies, in consultation with SEPA, it would be sought to scope out this assessment from the EIAR.

8.6.3 Cumulative Effects

- 8.6.3.1 The Site is predominantly located within a compact catchment and therefore there is limited upstream connectivity at the Site. While construction of other cumulative schemes could cumulatively impact water quality on Douglas Water, any such schemes would fall under the same regulatory and planning requirements as the Site, limiting the potential for cumulative impacts to the water environment.
- 8.6.3.2 It is proposed that windfarm developments within 2 km of the Site or those in hydrological connection to Douglas Water will be considered in assessing the potential for cumulative effects.

8.7 Questions to Consultees

- Q8.1: Is the scope of the proposed assessment, including proposed study areas and buffers, appropriate?

- Q8.2: Do consultees agree that detailed Flood Risk Assessment can be scoped out?
- Q8.3: Do consultees agree that calculation of flow rates at watercourse crossings can be scoped out at this stage, as calculations would be provided by the appointed contractor at detailed design stage?
- Q8.4: Do consultees agree that impact on receiving soils, groundwater and watercourse quality through the release of contaminated water and stored chemicals can be scoped out, on the basis that submission of a CEMP and Pollution Prevention Plan (PPP) would be conditioned?

9. GEOLOGY AND SOILS

9.1 Overview

9.1.1.1 This Chapter has been prepared by Ramboll and discusses the scope and methodological approach for the assessment of likely significant effects upon geology and soils, including peat resources that are anticipated to arise in connection with the Proposed Development.

9.1.1.2 This Chapter is supported by the following figures:

- Figure 9.1: SNH Carbon and Peatland Map (2016) Extract;
- Figure 9.2: Stage 1 Peat Depth Survey; and
- Figure 9.3: Geological Sites.

9.2 Consultation

9.2.1.1 No direct consultation has been undertaken with the relevant consultees prior to the submission of this Scoping Report.

9.2.1.2 As part of the EIA, consultation will be undertaken with relevant stakeholders including SEPA, The Coal Authority, and NatureScot to inform the scope of the assessment as necessary.

9.3 Baseline Conditions

9.3.1.1 According to the BGS 'Geology Viewer' website¹³⁹ (1:625,000), the superficial deposits underlying the Site predominantly comprise Till (Diamicton), with areas of peat and alluvium deposits. The mapping also shows areas with no superficial deposits mapped.

9.3.1.2 The underlying bedrock across the Site is complex, with the following geological units mapped.

- Sandstones belonging to the Swanshaw Sandstone and Plewland Sandstone Formation;
- South Of Scotland Granitic Suite-Microdioritic-rock;
- Lawmuir Formation-Sedimentary rock cycles, Strathclyde Group type;
- South Of Scotland Granitic Suite-Feldspar-porphyry;

¹³⁹ Available at: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> [Accessed April 2026]

- Lower Limestone Formation-Sedimentary rock cycles, Clackmannan Group type, Hurlet Limestone-Limestone, Blackbyre Limestone-Limestone; and
- Ponesk Burn Formation-Wacke.

- 9.3.1.3 A review of the SNH Carbon Rich Soil and Deep Peat and Peatlands Habitat Map (2016)¹⁴⁰, an extract of which is shown on **Figure 9.1**, confirms that the Site is predominantly overlain by 'Class 3' soils with smaller areas of 'Class 5' soils. 'Class 3' soils are defined as where the *'dominant vegetation cover is not a priority peatland but is associated with wet and acidic types. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat'*. 'Class 5' soils are defined as areas *'of peat soil but no peatland habitat recorded'*.
- 9.3.1.4 The remainder of the Site is mapped as mineral soil, where no peat is present.
- 9.3.1.5 A Phase 1 peat depth survey was undertaken at the Site in September 2024 in accordance with peatland survey guidance¹⁴¹. This comprised a peat depth probe measurement taken at 100 m intervals across the Site, with a total of 455 probing locations taken. The results of the survey found that 22% of the Site was found to have peat greater than 0.5 m in depth present, with the deepest peat recorded as 3 m located in the northwest part of the Site. The remainder of the Site was found to have peat or organo-mineral soils less than 0.5 m in depth, or absent of peat. The average peat depth was 1.4 m although it should be noted that this includes the data points outside the Site boundary. The locations of the peat probes and an interpolated peat depth across the Site is shown on **Figure 9.2**.
- 9.3.1.6 The ecological and nature conservation value of peat and peatland habitats is considered as part of the biodiversity assessment (refer to **Chapter 6**).
- 9.3.1.7 Shiel Burn SSSI is located approx. 500 m west of Site on the northern flank of Shiel Hill and has been designated for its faunal fossil formations, comprising exposures along a 325 m stretch of stream that flows in the Monks Water. There are some Geological

¹⁴⁰ Available at: <https://map.environment.gov.scot/sewebmap/> [Accessed April 2026]

¹⁴¹ Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland, on-line version only.

Conservation Review (GCR) Sites located adjacent, including Shiel Burn and Ree Burn. The location of these sites are shown on **Figure 9.3**.

- 9.3.1.8 The former mine workings at nearby Spireslack, located to the west of the Site, include a 1 km long and 130 m high worked coal face, which is considered to be of potential local and national value.
- 9.3.1.9 A review of aerial imagery and OS mapping indicates that there are opencast working quarries present immediately adjacent to the south of the Site and there is potential for current and historic contaminated land uses, including those associated with quarrying and coal extraction. A review of historical mapping indicates that a number of features associated with contaminated land uses are present, including limestone quarries, lime works and coal pits. The area to the south of the Site has previously been used as an ironworks.
- 9.3.1.10 According to the BGS Coal Authority interactive mapping¹⁴² the majority of the Site is located within a Coal Mining Reporting Area with areas also located within a development high risk area, and therefore a Coal Mining Report will be required from the Coal Authority. The mapping shows that parts of the Site contain mine entries and shallow coal mining, both past and current.

9.4 Assessment Scope and Methodology

- 9.4.1.1 The assessment of the significance of soils and geology impacts will be undertaken by determining the sensitivity of the specific attribute and the magnitude of the impact upon the attribute. Impacts will be assessed for all phases of the Proposed Development with mitigation measures and residual impacts identified.
- 9.4.1.2 Distinct and separate reports shall be provided as Technical Appendices to the EIAR (as appropriate) covering:
 - Peat survey results;
 - Peat landslide hazard and risk assessment;
 - Outline Peat Management Plan¹⁴³; and

¹⁴² Interactive Map Viewer | Coal Authority (bgs.ac.uk) (Accessed June 2024)

¹⁴³ Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland, on-line version only. Available at: govscot:document (www.gov.scot) [Accessed June 2024]

- Carbon Balance Report (based on the Scottish Government Carbon Calculator)¹⁴⁴.

9.4.2 Legislation, Policy and Guidance

9.4.2.1 The following key pieces of legislation and policy will be taken into consideration for the EIA:

- The Scottish Government (2023) National Planning Framework 4¹⁴⁵;
- GPP 1¹⁴⁶: Understanding your environmental responsibilities - good environmental practices;
- GPP 2: Above ground oil storage tanks;
- GPP 6¹⁴⁷: Working at construction and demolition sites;
- GPP 21: Pollution incident response planning;
- GPP 22: Dealing with spills;
- The Scottish Government (2017), Peat Landslide Hazard and Risk Assessments - Best Practice Guide for Proposed Electricity Generation Developments¹⁴⁸;
- Scottish Government, SNH, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland¹⁴⁹;
- SNH (2016) Carbon and Peatland Map¹⁵⁰;
- The Scottish Government (2009), The Scottish Soil Framework¹⁵¹;

¹⁴⁴ Carbon calculator for wind farms on Scottish peatlands: factsheet - gov.scot (www.gov.scot)

¹⁴⁵ The Scottish Government. (2023). National planning framework 4. The Scottish Government. Available online: <https://www.gov.scot/publications/national-planning-framework-4/>

¹⁴⁶ NetRegs. Guidance for Pollution Prevention (GPPs): full list. [online] Available at: <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>

¹⁴⁷ Guidance provided in recent GPPs will be followed and take precedent over information provided in PPG 6, which was withdrawn on 14 December 2015, where there is overlap in the provision of advice. For example, guidance on the storage of handling of oils/fuels in GPP 2 will take precedent over guidance provided in Section 5 (Oil use, storage and refuelling) of PPG 6.

¹⁴⁸ The Scottish Government (2017), Peat Landslide Hazard and Risk Assessments - Best Practice Guide for Proposed Electricity Generation Developments Available at: <https://www.gov.scot/publications/peat-landslide-hazard-risk-assessments-best-practice-guide-proposed-electricity/>

¹⁴⁹ Scottish Government, Scottish Natural Heritage, SEPA. (2017). Peatland Survey. Guidance on Developments on Peatland, online version only. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2018/12/peatland-survey-guidance/documents/peatland-survey-guidance-2017/peatland-survey-guidance-2017/govscot:document/Guidance+on+developments+on+peatland+-+peatland+survey+-+2017.pdf>

¹⁵⁰ Scottish Natural Heritage. (2016). Carbon and Peatland 2016 Map. Available at: http://map.environment.gov.scot/soil_maps/

¹⁵¹ Available at: <https://www.gov.scot/publications/scottish-soil-framework/>

- The Construction Industry Research and Information Association (CIRIA) (2023), Environmental Good Practice on Site (C811)¹⁵²;
- Scottish Renewables and SEPA (2012). Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste¹⁵³; and
- SEPA (2011). Restoration Techniques Using Peat Spoil from Construction Works¹⁵⁴.

9.4.3 Study Area

- 9.4.3.1 The Study Area, in respect of potential impacts on peat and carbon rich soils, considers land within the Site on the basis that there is potential for direct effects from the construction of the Proposed Development from the extraction of peat and carbon rich soils.
- 9.4.3.2 Whilst there is potential for connectivity with adjacent peatlands and soils, there is no defined standard buffer distance in the assessment of indirect effects. On this basis, it is considered that the approach outlined in the Peatland Code¹⁵⁵ and NatureScot's 'Advising on Peatland Habitat and Carbon-Rich Soils in Development Management' guidance¹⁵⁶, whereby indirect effects are largely localised, is appropriate. However, this will be reviewed and updated if necessary, during the assessment.

9.4.4 Baseline Characterisation

- 9.4.4.1 Peatland condition information will be collected in forthcoming surveys (as described in **Chapter 6**) which will then be used to inform and refine the layout and design of the Proposed Development to minimise disturbance to high quality peat and peatland/habitat restoration proposals.
- 9.4.4.2 A Stage 2 survey, comprising a higher resolution peat probing survey will be undertaken once the design of the Proposed Development has been advanced, to include other proposed infrastructure such as along

¹⁵² CIRIA (2023) Environmental Good Practice on Site Guide (C811).

¹⁵³ Scottish Renewables and SEPA (2012). Development on Peatlands. Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste. Available at: [Guidance+on+the+assessment+of+peat+volumes%2C+reuse+of+excavated+peat%2C+and+the+minimisation+of+waste.pdf](https://www.sepa.org.uk/publications/guidance-on-the-assessment-of-peat-volumes-reuse-of-excavated-peat-and-the-minimisation-of-waste.pdf)

¹⁵⁴ SEPA (2011). Restoration Techniques Using Peat Spoil from Construction Works.

¹⁵⁵ Available at: <https://www.iucn-uk-peatlandprogramme.org/peatland-code>

¹⁵⁶ NatureScot (2023, updated 2026). Advising on peatland habitats and carbon-rich soils in development management.

proposed tracks (at 50 m intervals) and at 10 m crosshairs at turbine locations. This further peat probing will ensure that all infrastructure locations have sufficient peat depth information to support relevant studies on peat instability, peat excavation and reuse, and carbon calculations.

- 9.4.4.3 A desk-top review of available information will also be undertaken to inform the baseline, including existing peat survey data for the existing wind farm (if available). This will include information such as a review of the potential effects of the current and historic land uses, review of historical and Ordnance Survey mapping, and mining information and these will be considered as part of the design of the Proposed Development to minimise potential impacts to sensitive receptors.
- 9.4.4.4 A Coal Mining Report will be obtained from the Coal Authority and review of existing outline Coal Mining Risk Assessment undertaken. This will be used to inform the design of the Proposed Development and updated if required.

9.5 Likely Significant Effects

9.5.1 Potential Impacts Scoped In

- 9.5.1.1 Based on baseline conditions described above, it is anticipated that the following potentially significant effects could occur as a result of the Proposed Development and will be assessed within the EIAR.
 - Alterations to in-channel or overland flow regimes which could result in changes to the hydrology and hydrogeology and subsequently affect the condition of peat at the Site;
 - Loss/ disturbance to peat and carbon rich soils;
 - Erosion of peat and carbon rich soils following disturbance, and may also be exacerbated as a consequence of localised drying of the peat and resultant oxidation;
 - Potential effects arising from coal mining activities and impacts on mineral safeguarding; and
 - Potential for effects from current and historic contaminated land uses.

9.5.2 Issued Scoped Out

- 9.5.2.1 Operation and decommissioning of the Proposed Development is unlikely to give rise to any significant effects on geological and peat resources and accordingly will be scoped out of the assessment.

- 9.5.2.2 An assessment of the Proposed Development's potential effects on peatland habitats and capacity to support biodiversity will be assessed as part of the biodiversity assessment (see **Chapter 6**).

9.5.3 Cumulative Effects

- 9.5.3.1 It is considered unlikely that other schemes would give rise to significant effects in-combination with the Proposed Development as they are either not hydraulically connected or would have suitable mitigation/ drainage strategies in place to protect receiving waters. Other cumulative development is either already operational or further from the Site such that significant cumulative effects on geological assets, peat and carbon rich soils are considered unlikely.

9.6 Questions to Consultees

- Q9.1: Do you agree that operational, decommissioning and cumulative effects can be scoped out of the assessment?
- Q9.2: Do you agree that a Coal Mining Risk Assessment will be required as part of the assessment?

10. NOISE AND VIBRATION

10.1 Overview

- 10.1.1.1 This Chapter has been prepared by TNEI and discusses the scope and methodological approach for the assessment of likely significant effects upon Noise Sensitive Receptors (NSR) that are anticipated to arise in connection with the Proposed Development.

10.2 Consultation

- 10.2.1.1 No direct consultation has been undertaken with the relevant consultees prior to the submission of this Scoping Report.
- 10.2.1.2 Consultation with SLC and EAC's Environmental Health Department will be undertaken prior to commencement of the noise assessment to agree the assessment methodology, background sound monitoring locations (if required) and the approach to the cumulative assessment.

10.3 Baseline Conditions

- 10.3.1.1 The Site is located within a rural location. There are a number of scattered residential properties around the Site with the closest properties being to the southeast (approximately 2 km from the nearest turbine), in addition to the south and west of the proposed turbines (based on the Scoping Layout) (refer to **Figure 2.2**).
- 10.3.1.2 There are a number of operational, consented and proposed wind farm developments surrounding the Site, as described in **Chapter 2** of this Scoping Report.

10.4 Assessment Scope and Methodology

10.4.1 Study Area

- 10.4.1.1 The assessment will consider operational noise effects on NSRs (i.e., residential properties) in the vicinity of the Proposed Development, as well as receptors located in proximity to cumulative wind farm developments, as required.

10.4.1.2 Assessment and Rating of Wind Turbine Noise (ARWTN)¹⁵⁷ states that simplified noise criterion of 35 dB L_{A90} can be applied in the absence of background sound measurements. Therefore, the Study Area for operational noise effects will encompass dwellings where predicted cumulative levels exceed or approach this 35 dB threshold, provided the specific contribution of the Proposed Development is not negligible relative to that of the other schemes considered.

10.4.1.3 Based on the experience of the project team, only operational, consented and proposed (in planning) cumulative sites within 10 km from the Proposed Development will require consideration, as other schemes located further away are likely to be associated with negligible cumulative effects (although it may be possible to scope out some developments within that area if predicted noise levels at the nearest NSRs are low).

10.4.2 Legislation, Policy and Guidance

10.4.2.1 The following key pieces of legislation and policy will be taken into consideration for the EIA:

- The Scottish Government's online Onshore Wind: Policy Statement 2022¹⁵⁸;
- The Scottish Government's Planning Advice Note (PAN1/2011)¹⁵⁹;
- Assessment and Rating of Wind Turbine Noise¹⁶⁰;
- Code of practice for noise and vibration control on construction and open sites – Noise (BS5228-1: 2009+A1:2014)¹⁶¹; and

¹⁵⁷ The Department for Energy Security and Net Zero. The Assessment and Rating of Wind Turbine Noise [Online]. Available at: <https://assets.publishing.service.gov.uk/media/6a32b670e590e5e061c9a16b/wind-turbine-noise-guidance.pdf> (Accessed 23 June 2026)

¹⁵⁸ Scottish Government (2022). Onshore Wind: Policy Statement 2022 [Online]. Available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-2022/> (Accessed: April 2026).

¹⁵⁹ Scottish Government. (2011) Planning Advice Note 1/2011: Planning and Noise [Online]. Available at: Planning Advice Note 1/2011: planning and noise - gov.scot (www.gov.scot) (Accessed: April 2026)

¹⁶⁰ The Department for Energy Security and Net Zero. The Assessment and Rating of Wind Turbine Noise [Online]. Available at: <https://assets.publishing.service.gov.uk/media/6a32b670e590e5e061c9a16b/wind-turbine-noise-guidance.pdf> (Accessed 23 June 2026)

¹⁶¹ BSI (2014). BS 5228-1:2009 - Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise (Amended 2014).

- The Institute of Acoustics (IOA) Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IOA GPG)¹⁶².

10.4.3 Construction Noise

- 10.4.3.1 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 - Noise'.
- 10.4.3.2 The assessment will consider the temporary noise effects of construction on the nearest identified NSRs. Specifically, the assessment will consider noise arising from the use of borrow pits, concrete batching, construction compounds and laydown areas, vehicle movements within the site, and activities occurring at the base of the turbines.

10.4.4 Operational Noise

- 10.4.4.1 The Scottish Government's online Onshore Wind: Policy Statement 2022 (published on 21 December 2022) states (in Section 3.7) that:

'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.

And that:

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.'

- 10.4.4.2 On 19th June 2026, the UK Government Department for Energy Security and Net Zero (DESNZ) published new guidance 'Assessment and Rating of Wind Turbine Noise' replacing ETSU-R-97.

¹⁶² IOA (2013). A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IOA GPG) [Online]. Available at: <https://www.ioa.org.uk/> (Accessed: 24 April 2026).

- 10.4.4.3 At the time of writing, the Scottish Government has not responded to the updated guidance or amended the Onshore Wind Policy Statement, however paragraph 1.12 in ARWTN states that:

'Reference to ETSU-R-97 in UK planning policy or guidance should be interpreted to mean a reference to this technical guidance, which replaces ETSU-R-97.'

- 10.4.4.4 ARWTN endorses the good practice guidance produced by the Institute of Acoustics, and on the 22nd June 2026, the IOA released a statement confirming that:

'practitioners should continue to use the IOA Good Practice Guide published in 2013, alongside the six 2014 Supplementary Guidance Notes[...] until updates are issued later this year.'

- 10.4.4.5 As such, operational wind turbine noise will be assessed in line with ARWTN and the IOA GPG until further guidance is made available.

- 10.4.4.6 ARWTN details a methodology for establishing noise limits for proposed wind farm developments and these limits should not be exceeded. ARWTN states that noise limits should be set relative to existing background sound levels at the nearest receptors and that these limits should reflect the variation in both turbine source noise and background sound with wind speed. Separate noise limits apply for daytime and for night-time periods. 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.

- 10.4.4.7 ARWTN recommends that wind farm noise for the daytime periods should be limited to 5 dB(A)¹⁶³ above the prevailing background or a lower limiting value (LLV) within the range 35 - 40 dB LA90,10min, whichever is the higher. The precise choice of criterion level within the range 35 – 40 dB(A) depends on a number of factors, including the generating capacity of the wind farm and the likely consequence that the choice of LLV would have on energy generation, the number of dwellings in the neighbourhood and the duration and level of exposure

¹⁶³ A logarithmic scale is used in noise level measurements because of this wide range. The scale used is the decibel (dB) scale which extends from 0 to 140 decibels (dB) corresponding to the intensity of the sound level. The correction factor is called 'A Weighting' and the resulting measurements are written as dB(A). The dB(A) is internationally accepted and has been found to correspond well with people's subjective reaction to noise.

to any noise. These factors will be taken into account with justification for deriving suitable noise limits included in the noise assessment.

10.4.4.8 An exception to the setting of both the daytime and night-time LLV occurs where a property occupier has a financial involvement with the Proposed Development. In that case the LLV can be increased to 45 dB LA90,10min or the prevailing background noise LA90 plus 5 dB, whichever is the greater for both the quiet daytime and night-time periods.

10.4.4.9 A background noise survey may not be required for situations where predicted wind turbine noise levels at the nearest noise sensitive properties is limited to an LA90,10min of 35dB(A) up to wind speeds of 10 m/s at 10 m. Specifically, ARWTN states that:

'a simplified total noise assessment criterion (TNAC) of 35 dB (up to a wind speed of 10 m/s) can be set without relating the assessment criteria to a margin above background sound levels. This applies during both day and night. This would not require the measurement of background sound levels. This criterion is particularly suitable for single or smaller scale turbines or cases where a large setback distance exists between turbines and neighbouring properties.'

10.4.4.10 The operational noise assessment for the Proposed Development will be undertaken in three stages:

- Stage 1: Determine the 'Total Noise Assessment Criterion' which are applicable to the operation of all schemes in the area;
- Stage 2: Undertake a cumulative assessment (where required) to determine whether predictions from all cumulative schemes meet the 'Total Noise Assessment Criterion'; and
- Stage 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.

10.4.4.11 Given the proximity of other operational and consented schemes in the area and the fact that background noise monitoring has already been undertaken at a number of the closest properties, a review will be undertaken of the previously collected datasets to determine whether additional noise monitoring will be required.

10.4.4.12 Given the existing noise limits allocated to others schemes in the area, it is proposed that the 'Total Noise Assessment Criterion' for the assessment will be based on a 40 dB noise limit during the daytime period and a 43 dB noise limit during the night time period.

- 10.4.4.13 The guidance contained in the IOA GPG will be used to establish suitable Site Specific Noise Limits which fully take account of the proportion of the Total Noise Assessment Criterion which has been allocated too, and can realistically be used by, existing operational and consented wind farms in the area.
- 10.4.4.14 The noise assessment will include predictions of likely wind turbine noise levels across a range of wind speeds to demonstrate compliance with the Total Noise Assessment Criterion and Site Specific Noise Limits. A cumulative noise assessment will also be undertaken in order to consider the consented, operational and proposed wind farms (in planning) within the vicinity of the Proposed Development.

10.5 Likely Significant Effects

10.5.1 Potential Impacts Scoped In

- 10.5.1.1 Where noise levels resulting from the construction or operation of the Proposed Development are likely to be above the relevant limit levels, there is the potential for significant effects to occur.
- 10.5.1.2 It should be noted that careful site design which considers the potential for noise impacts to occur will be implemented throughout all stages of the design of the Proposed Development.

10.5.2 Issues Scoped Out

Vibration

- 10.5.2.1 As detailed in paragraph 1.20 of ARWTN, ground-borne vibration does *'not require assessment at the planning stage because [the] effects on humans can be considered negligible'*. ARWTN covers this in more detail in paragraph 1.22.

Decommissioning Noise

- 10.5.2.2 The potential noise impacts from the decommissioning phase will be no greater than those predicted during the construction phase (as decommissioning is effectively a reversal of the construction process). On that basis, it is not proposed to undertake an assessment of decommissioning noise and that this is proposed to be scoped out of the EIAR.

Low-Frequency Noise and Infrasound

- 10.5.2.3 As detailed in paragraph 1.20 of ARWTN, low frequency noise and infrasound *'do not require assessment at the planning stage because their effects on humans can be considered negligible'*. ARWTN covers

this in more detail in paragraph 1.21 and 1.23. As such, low frequency noise and infrasound are scoped out of the EIAR.

Amplitude Modulation

- 10.5.2.4 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.
- 10.5.2.5 The WSP/ BEIS report 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.'*
- 10.5.2.6 With regards to amplitude modulation, ARWTN states in paragraph 2.8 that:
- 'It is generally not possible to predict the occurrence of such noise characteristics at the planning stage. The occurrence of elevated levels of AM is a complex phenomenon that is likely to be related to a combination of turbine and site characteristics; the current consensus is that AM cannot be predicted [...and it is] therefore best controlled through enforcement of planning conditions.'*
- 10.5.2.7 At time of writing there is no agreed methodology which can be used to predict the occurrence of AM or an agreed methodology which can be used to determine whether the effects of AM, should it occur, are likely to be significant. On that basis it is considered therefore that assessment of amplitude modulation should be scoped out.

10.5.3 Cumulative Effects

- 10.5.3.1 Cumulative operational noise from the Proposed Development in combination with neighbouring wind farms will be assessed against the ARWTN criteria unless it is considered that these effects are likely to be negligible.

10.6 Questions to Consultees

- Q10.1: Can the consultees confirm that they agree with the proposed assessment methodologies, specifically the use of ARWTN and the IOA GPG to assess operational wind turbine noise, and BS5228 to assess construction noise for the wind farm?

- Q10.2: Can consultees agree that assessment of decommissioning, vibration, low frequency noise, infrasound and amplitude modulation be scoped out of the EIA?

11. TRAFFIC, TRANSPORT AND ACCESS

11.1 Overview

11.1.1.1 This Chapter has been prepared by Systra and discusses the scope and methodological approach for the assessment of likely significant effects associated with increased road traffic from the Proposed Development, including identification of possible measures to minimise disruption to the local and strategic road network.

11.2 Consultation

11.2.1.1 No direct consultation has been undertaken with the relevant consultees prior to the submission of this Scoping Report.

11.2.1.2 As part of the EIA consultation with the following stakeholders will be undertaken:

- SLC and EAC Roads and Transport Officers;
- Transport Scotland; and
- Various consultees responsible for reviewing the possible effects of abnormal loads on road structures, including Network Rail and the trunk road agents.

11.3 Baseline Conditions

11.3.1.1 The Proposed Development is located in a semi-rural area straddling the South Lanarkshire and East Ayrshire Council boundaries. The Site lies to the east of Muirkirk and to the west of Glespin. Road access to the Site is relatively good with the A70 road lying south of the Site. The A70 extends east to join the M74 motorway at Uddington and westwards to join the A76 trunk road at Cumnock.

11.3.1.2 Access to the Site for general construction traffic will be from the A70 and then via the existing access junction and access track for the existing wind farm. The access junction lies at the southeast end of the Site. Full details of the access junction will be provided at application stage.

11.3.1.3 Abnormal Indivisible Loads (AIL) are likely to be transported from King George V (KGV) Docks in Glasgow which has been used to serve a number of other windfarm developments in the area. The AIL route to

Site is yet to be determined, however routes being considered include using the A77 and A76 before approaching the Site from the west via the A70 along with a route via the M8, M74 and A70 from the east. An ALL assessment will accompany the EIAR with confirmation of the proposed route to Site.

- 11.3.1.4 The Traffic, Transport and Access Chapter of the EIAR will provide a detailed description of each road link within the Study Area

11.4 Assessment Scope and Methodology

11.4.1 Legislation, Policy and Guidance

- 11.4.1.1 The following policy and guidance documents will be used to inform the assessment:

- NPF 4;
- Transport Assessment Guidance¹⁶⁴;
- Environmental Assessment of Traffic and Movement (“the ISEP Guidelines”)¹⁶⁵;
- Design Manual for Roads and Bridges¹⁶⁶; and
- Planning Advice Notice (PAN) 75 – Planning for Transport¹⁶⁷.

11.4.2 Methodology

- 11.4.2.1 The effect of the increase in construction vehicle traffic movements will be quantified through comparison of existing traffic flows and vehicle composition (baseline data) with the flows predicted as a result of the construction of the Proposed Development.
- 11.4.2.2 Details of the anticipated number and type of deliveries to Site would be identified along with an indicative monthly schedule for deliveries. This information would be used to identify the potential number of daily, weekly and total delivery numbers for the Proposed Development.

¹⁶⁴ Transport Scotland (2012). Transport Assessment Guidance. Available at: https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management_dpmtag_ref__17_-_transport_assessment_guidance_final_-_june_2012.pdf (Accessed June 2024)

¹⁶⁵ ISEP (2023). Environmental Assessment of Traffic and Movement.

¹⁶⁶ DfT (n.d.). Design Manual for Roads and Bridges.

¹⁶⁷ Scottish Government (2005). Planning Advice Note: PAN 75 – Planning for Transport. Available at: <https://www.gov.scot/publications/planning-advice-note-pan-75-planning-transport/> (Accessed June 2024).

- 11.4.2.3 An estimate of construction employee trips would also be undertaken to gain an understanding of total trips on and off the Site. The distribution and assignment of all construction trips would then be estimated based on the trip origins and the available route options. From this information, it will be possible to assess the percentage impact of generated development trips on the existing road network.
- 11.4.2.4 The ISEP guidelines set out a list of environmental effects which should be assessed for significance in relation to the transport resource (if the identified thresholds are exceeded, i.e. 'Rule 1' or 'Rule 2' described below), as follows:
- Severance of communities;
 - Road vehicle driver and passenger delay;
 - Non-motorised user delay / Non-motorised amenity;
 - Fear and intimidation on and by road users;
 - Road user and pedestrian safety; and
 - Hazardous/large loads.
- 11.4.2.5 The assessment will explore whether effects are likely to be significant based upon the threshold assessment 'rules' contained within the ISEP Guidelines:
- Rule 1 - Include highway links where flows are predicted to increase by more than 30% or where the number of HGVs is predicted to increase by more than 30%; and
 - Rule 2 - Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.
- 11.4.2.6 These rules will be used as a screening exercise to determine whether a detailed assessment of effects on the routes within the Study Area is necessary.
- 11.4.2.7 Where the percentage impacts exceed the thresholds in the ISEP Guidelines for detailed assessment, a full assessment of environmental effects would be undertaken.
- 11.4.2.8 The construction phase assessment will be based on the peak construction period. This will review the maximum impact and presents a robust assessment of the effects of construction traffic on the local and trunk road networks. Consideration of the potential effect on other road users will also be undertaken where road links are affected by construction traffic.
- 11.4.2.9 A matrix approach would be used (considering the magnitude of effect and receptor sensitivity) to identify the significance of the effect. Where

effects are identified as being significant, mitigation will be proposed, and an assessment of the residual effects undertaken.

11.4.3 Study Area

- 11.4.3.1 The Study Area will be defined by construction traffic routes to the Site.
- 11.4.3.2 Access to the Site for general construction traffic will be from the A70 and then via the existing access junction and access track for the existing wind farm.
- 11.4.3.3 The route to the Site for AIL traffic is yet to be determined, however routes being considered include using the A77 and A76 before approaching the Site from the west via the A70 as well as a route via the M8, M74 and A70 from the east.
- 11.4.3.4 Based on the above, the Study Area for the assessment will consider receptors along the A70 road corridor both east and west of the Site as well as receptors along the M74, A76 trunk road and the B743 local road. It is considered that these roads will all be used to access the Site.
- 11.4.3.5 All road links within the Study Area will be considered, along with active travel routes and core path routes directly affected by construction traffic movements.

11.4.4 Baseline Characterisation

- 11.4.4.1 The scope of survey works relating to traffic and transport is likely to include the desk-based collation of publicly available traffic count data for the A76 and M74 trunk roads. Count data will be sourced from the Transport Scotland database. Should data not be available then new Automatic Traffic Count (ATC) surveys would be commissioned. The location of the count points will be agreed with Transport Scotland in advance of any surveys.
- 11.4.4.2 For the local road network, new 7-day ATC surveys will be undertaken for the A70 in the vicinity of the Site access junction and for the B743 north of Muirkirk.
- 11.4.4.3 Future traffic flows will be factored from traffic data using Low Growth factors estimated from National Road Traffic Forecasts (NRTF). It is proposed to apply an NRTF “Low Growth” factor.
- 11.4.4.4 Accident data will also be obtained for the last five years along the trunk road links within the Study Area directly from Transport Scotland. Accident data for the other links will be sourced from the Crashmap database.

- 11.4.4.5 Detailed swept path analysis will be undertaken for the main constraint points on the route from the port of entry (likely to be KVG Docks, Glasgow) through to the Site access junction to demonstrate that the turbine components can be delivered to Site and to identify any temporary mitigation which may be necessary.
- 11.4.4.6 A review of active travel routes and facilities will also be undertaken, as will the relevant Core Path Plan and Sustrans' National Cycle Route Map¹⁶⁸.

11.5 Likely Significant Effects

11.5.1 Potential Impacts Scoped In

- 11.5.1.1 Potential impacts of the Proposed Development are associated with increased traffic flows, or changes to the traffic composition, as a result of traffic movements generated during the construction phase.
- 11.5.1.2 Potential impacts may arise when the turbines are being delivered and erected, as this will require the transportation of abnormal loads (blades, towers and nacelles). The greatest volume of construction traffic will likely be experienced over the first few months of the construction period as aggregates and materials are delivered for access tracks and site establishment.

11.5.2 Issued Scoped Out

- 11.5.2.1 Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular monthly or weekly visits would be made to the wind farm for maintenance checks. The vehicles used for these visits are likely to be 4x4 vehicles and there may also be the occasional need for an HGV to access the Site for specific maintenance and/ or repairs. It is considered that the effects of operational traffic would be negligible and therefore no detailed assessment of the operational phase of the development is proposed.
- 11.5.2.2 The traffic generation levels associated with the decommissioning phase will be less than those associated with the construction phase as some elements such as access roads would be left in place on the Site. As such, the construction phase is considered the worst-case

¹⁶⁸ Available at: <https://explore.osmaps.com/?lat=51.641136&lon=-2.923634&zoom=8.4445&style=Standard&type=2d&overlays=os-ncn-layer> [Accessed August 2024]

assessment and an assessment of the decommissioning phase would therefore not be undertaken. It is anticipated that a suitably worded planning condition would be included in the consent which ensures that the impacts of the decommissioning phase would be reviewed prior to decommissioning works proceeding.

11.5.3 Cumulative Effects

11.5.3.1 The potential for cumulative effects will be considered with other wind farms (and other developments) which are proposed to use the same public roads as the Proposed Development during construction. Where the potential for cumulative effects is identified, an assessment of effects will be undertaken.

11.6 Questions to Consultees

- Q12.1: Do consultees agree that operational and decommissioning impacts can be scoped out of the EIA?
- Q12.2: Do consultees agree with the proposed Study Area?
- Q12.3: Are there any comments on the routes being considered for the abnormal loads?
- Q12.4: Is there any further guidance on any developments to be considered in terms of the Cumulative assessment of Traffic and Transport effects?

12. AVIATION

12.1 Overview

- 12.1.1.1 This Chapter has been prepared by Aviatica and sets out the proposed approach to the assessment of potential effects on aviation and radar from the Proposed Development.

12.2 Consultation

- 12.2.1.1 No direct consultation has been undertaken with the relevant consultees prior to the submission of this Scoping Report.
- 12.2.1.2 As part of the EIA, consultation will be undertaken with NATS En Route, Glasgow Airport, Prestwick Airport and the Ministry of Defence (MoD).
- 12.2.1.3 The proposed turbines will exceed 150 m in height and will therefore be subject to mandatory requirements for obstacle lighting under the Air Navigation Order (ANO). An aeronautical study will be conducted of the potential for an alternative lighting scheme in which not every turbine is fitted with lights. This will be submitted to the Civil Aviation Authority (CAA) for approval.

12.3 Baseline Conditions

- 12.3.1.1 The Site is located in uncontrolled airspace from ground level to 5,500 feet above sea level. Above that level is the Class D controlled airspace of the Scottish Terminal Control Area (TMA), within which air traffic services are provided by the NATS En Route (NERL) Prestwick Centre. Primary Surveillance Radars (PSRs) used to provide air traffic services to enroute traffic in the vicinity of the Site include those at Lowther Hill, 23 km southeast; Cumbernauld, 42 km north; Kincardine 60 km north; and Glasgow Airport, 45 km northwest.
- 12.3.1.2 Glasgow Airport is situated 45 km northwest of the Site. It is equipped with two PSRs, one of which is designed and installed for the specific purpose of mitigating the effects of wind turbines on PSR. Glasgow Airport has Instrument Flight Procedures (IFPs) for arrival to and departure from both runway directions at the airport. These are the subject of a current Airspace Change Proposal (ACP) to the CAA, which includes Performance Based Navigation (PBN – satellite based) procedures.

- 12.3.1.3 Prestwick Airport is located 37 km west of the Site. It is equipped with a PSR which is designed and installed for the specific purpose of mitigating the effects of wind turbines on PSR. Prestwick Airport has IFPs for arrival to and departure from three of the four runway directions at the airport.
- 12.3.1.4 The Site is located in military Low Flying Area 20 (T), the Borders Tactical Training Area (TTA), where fixed wing military aircraft may be authorised to fly at less than 250 feet above ground level (agl) during daylight hours. For military night low flying the Site is located in Allocated Region 2B (AR2B), for use primarily by fixed wing aircraft.

12.4 Assessment Scope and Methodology

12.4.1 Legislation, Policy and Guidance

- 12.4.1.1 The aviation assessment of the Proposed Development will be conducted in accordance with the guidance set out in CAP 764¹⁶⁹.

12.4.2 Study Area

- 12.4.2.1 The Study Areas are from the Site boundary and vary according to the aviation receptor as follows:
- Air defence and air traffic control PSRs: 100 km (to ensure 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): 10 km (the CAA advises that effects on SSR are unlikely at ranges greater than this).
 - Aeronautical radio navigation beacons: 10 km (reflects the safeguarding consultation radius adopted by NATS En Route, the principal operator of such equipment in the UK).
 - Aerodromes with IFPs: 60 km (to ensure that all possible effects on IFPs are considered).
 - All other licensed or certificated aerodromes: 20 km (to allow for potential impacts on obstacle limitation surfaces to be accounted for).

¹⁶⁹ Civil Aviation Authority (2025). CAA Policy and Guidelines on Wind Turbines: CAP 764. Available at: <https://www.caa.co.uk/publication/download/14561> (Accessed March 2026).

- Unlicensed aerodromes and landing sites: 10 km (to reflect advice contained in CAA guidance).
- Meteorological Office radars: 25 km (to encompass the Met Office wind farm consultation radius of 20 km).

12.4.3 Baseline Characterisation

- 12.4.3.1 The aviation baseline will be determined from review of the UK Aeronautical Information Publication (AIP); the UK Military AIP; published civil and military aeronautical charts; and Aviatica databases.

12.5 Likely Significant Effects

- 12.5.1.1 Wind turbines have the potential to reduce the performance of radars used for air traffic control, air defence and meteorological forecasting, and of aeronautical radio navigation and communications equipment. They may also pose an obstacle hazard to aircraft in the vicinity of aerodromes or engaged in low altitude flight.
- 12.5.1.2 Scottish Renewables guidance on streamlining environmental impact assessment¹⁷⁰ advises that:
- 12.5.1.3 “Where consideration of wider aviation related issues is required (e.g. in relation to potential implications for airports Instrument Flight Procedures, or MoD Low Flying Areas) this should be undertaken by a specialist aviation consultant, informed by consultation with relevant stakeholders. Technical reporting can be provided as a supporting appendix to the EIA Report as part of Volume 4: Technical Appendices, but impacts on aviation do not require to be assessed through the EIA process in an EIA Report chapter which follows the typical ‘streamlined’ structure and content recommendations.”
- 12.5.1.4 It is therefore proposed that the potential effects of the Proposed Development on aviation will be set out in a stand-alone Technical Assessment. It is proposed that the assessment will address potential impacts on the following aviation assets:
- NATS En Route Lowther Hill and Cumbernauld PSRs, as the Proposed Development is within the operational range of and has the potential to be detected by these radars. Impacts occur only

¹⁷⁰ Scottish Renewables, Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms, September 2025, Section 5.3.

during the operational phase since stationary objects do not appear on PSRs used for air traffic control.

- Glasgow Airport PSRs, as the Proposed Development is within the operational range of and has the potential to be detected by these radars. Impacts occur only during the operational phase since stationary objects do not appear on PSRs used for air traffic control.
- Glasgow and Prestwick Airport IFPs, as the Site is within the area where the effects of tall constructions on IFPs are required to be assessed. Impacts may occur in the construction, operation and decommissioning phases.
- Military low flying, as the Site is located in a specialist low flying area where flight at less than 250 feet agl is permitted.

12.5.1.5 The assessment will also consider the potential cumulative impacts of the Proposed Development with other existing and proposed wind farms (a) within 30 km radius of the Proposed Development that are within line of sight of potentially affected radars and (b) within 60km of Glasgow or Prestwick Airports.

12.6 Questions to Consultees

- Q13.1: Do consultees agree with the methods proposed to determine the aviation baseline?
- Q13.2: Do consultees agree with the aviation assets / issues proposed to be considered in the standalone technical assessment?

13. OTHER CONSIDERATIONS

13.1 Introduction

13.1.1.1 A number of other environmental issues will be considered in relation to the Proposed Development, including:

- Socio-economics;
- Telecommunication;
- Shadow Flicker;
- Climate Change;
- Air Quality;
- Population and Human Health; and
- Risk of Major Accidents and/or Disasters.

13.1.1.2 These topics, including reference to how they will be assessed or if they are proposed to be scoped out, are discussed in turn in the following text.

13.2 Socio-economics

13.2.1.1 The Proposed Development would generate temporary employment opportunities during the construction phase, with likely associated indirect and induced economic effects through additional spending on local services and resulting beneficial impacts on the local economy. Job creation during the operational phase would be related to the ongoing operations and maintenance of the wind farm.

13.2.1.2 The economic effects of the Proposed Development are expected to be beneficial but are unlikely to be significant in the long-term. This is supported by the numerous assessments of socio-economic effects undertaken as part of the EIA process for other wind farm developments in Scotland and elsewhere in the UK. Accordingly, it is proposed to scope out an assessment of socio-economic effects from the EIAR.

13.2.1.3 A standalone Economic Impact Statement will be submitted as part of the application in order to identify the relevant economic information related to the Proposed Development. The Economic Impact Statement will demonstrate compliance with the requirements of NPF4, specifically Policy 11C, by identifying and evidencing how the Proposed Development seeks to maximise net economic benefits. This will include information on the direct benefits of the Proposed Development, along with the indirect benefit enabled but not directly

controlled by the Applicant. Consideration will also be given to longer-term contributions to skills, supply chains and economic capacity support that may support future benefits.

13.2.1.4 The Economic Impact Statement will set out the following:

- Impacts on the regional and/or national economy due to expenditure during the construction phase;
- Impacts on the regional and/or national economy due to expenditure associated with the on-going operation and maintenance of the Proposed Development; and
- Consideration will also be given to the potential value of community funding that might be provided by the Applicant during the operational phase.

13.2.1.5 In respect of tourism and recreation, there are a number of assessments that assess the impacts of wind farms specifically on tourism. Research, such as that by BiGGAR Economics¹⁷¹, suggests that there is no evidence that the presence of wind farm developments have an adverse effect on the tourism sector in Scotland, and no direct relationship has been found between the development of onshore wind farms and tourism employment at national, regional and local scales. In any case, any effects that may occur would not be expected to be significant in the context of the EIA regulations.

13.2.1.6 The potential impacts on visual amenity for tourism and recreational locations in proximity to the Site will be assessed in the EIAR as part of the LVIA.

13.3 Telecommunications

13.3.1.1 Review of the Ofcom Spectrum Information Portal indicates that there are no fixed microwave telecommunications links passing over or within 1 km of the Site.

13.3.1.2 Consultations with the Joint Radio Company and Atkins have established that they have no fixed telecommunication links with the potential to be affected by the Proposed Development.

¹⁷¹ BiGGAR Economics (2021). Wind Farms and Tourism Trends in Scotland: Evidence from 44 Wind Farms. Available at: <https://biggareconomics.co.uk/wp-content/uploads/2021/11/BiGGAR-Economics-Wind-Farms-and-Tourism-2021.pdf> [Accessed January 2026]

- 13.3.1.3 Consultations with Arqiva have identified a television re-broadcast link passing through the Site. Existing turbines have blade tips a minimum of 100 m from the link and the Proposed Development will be designed to ensure that it will also clear the Arqiva link by at least 100m.
- 13.3.1.4 On this basis, telecommunications will not be considered further in the EIAR.

13.4 Shadow Flicker

- 13.4.1.1 Under certain combinations of geographical position, times of day and year, the sun may pass behind the turbine rotor and cast a shadow flicker over the windows of neighbouring buildings.
- 13.4.1.2 South Lanarkshire Council and East Ayrshire Council do not set bespoke separation distances for shadow flicker within local policy and instead apply Scottish Government guidance for onshore wind development. The Scottish Government's former Onshore Wind Turbines: Planning Advice (2014)¹⁷² guidance requires shadow flicker to be considered for regularly occupied buildings located within 10 times the rotor diameter of a turbine and within 130 degrees either side of north, relative to the final proposed turbine locations. This document was formally withdrawn on 8th December 2025; however, the principles set out in the former guidance continue to represent best practice in Scotland and remain consistent with the approach adopted by planning authorities and statutory Consultees when considering shadow flicker effects. Based on the preliminary turbine layout, no residential properties fall within this shadow flicker study area and, accordingly, shadow flicker effects are not anticipated.
- 13.4.1.3 The potential for shadow flicker effects from the Proposed Development will be addressed through the design process. The final turbine layout will aim for a 10-rotor diameter separation from as many residential properties as possible. If shadow flicker cannot be avoided through design, technical mitigation solutions would be implemented and a Shadow Flicker Mitigation Protocol would be proposed and agreed if required. It is anticipated that a suitably worded planning condition would be part of any consent that requires potential shadow flicker effects to be appropriately mitigated and avoided.

¹⁷² Available at: <https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/>

13.4.1.4 On this basis, shadow flicker will not be considered further in the EIAR.

13.5 Climate Change

13.5.1 Carbon Emissions

- 13.5.1.1 The Proposed Development itself would contribute positively to climate change mitigation through the production of renewable energy and a corresponding reduction in carbon emissions from other more carbon intensive generation sources.
- 13.5.1.2 However, it is acknowledged that the Proposed Development would still give rise to carbon emissions associated with its construction. Accordingly, a Carbon Balance assessment will be prepared and submitted as a Technical Appendix to the EIAR. The report will include a calculation of the expected carbon savings over the lifetime of the Proposed Development and will be presented using the latest version of the Scottish Government's Carbon Calculator Tool¹⁷³. This remains the suitable standardised tool for use in relation to net carbon saving calculations for wind farm developments across the UK.
- 13.5.1.3 The assessment will be undertaken in accordance with the Scottish Government's recommended methodology¹⁷⁴ and will present the carbon emissions associated with ground conditions, access preparations, foundation excavations, materials used on-site, the transportation of materials and components to Site, and any other carbon loss (e.g. through the degradation of peat/peaty soils).

13.5.2 Climate Resilience

- 13.5.2.1 The vulnerability of the Proposed Development to climate change will be considered as part of the detailed design process, which will consider the potential consequences of climate change (e.g. increased flood risk potential and more extreme weather conditions).
- 13.5.2.2 The Proposed Development's response to climate resilience risks will be provided in the introductory Chapters of the EIAR and description of the Proposed Development. Consideration will be given to appropriate

¹⁷⁴ Nayak et al., (2010) Scottish 'Calculating Carbon Savings from Wind Farms on Scottish Peatlands – A New Approach'. Available at: <https://www.gov.scot/publications/calculating-carbon-savings-wind-farms-scottish-peat-lands-new-approach/> [Accessed January 2026]

design mitigation measures to ensure the Proposed Development is resilient to a changing climate.

- 13.5.2.3 With adoption of a climate resilient design and the assessment of key environmental risks associated with climate change (e.g. flood risk) as an integral part of the 'scoped in' environmental topics, it is proposed to scope out an assessment of climate resilience from the EIAR.

13.6 Air Quality

- 13.6.1.1 The Proposed Development is not considered likely to give rise to significant effects on air quality. The main activities that could have potential impacts would be limited to construction works (dust from soil stripping and earthworks, from excavation, potentially including occasional blasting, and from vehicles running over unsurfaced ground) and exhaust emissions from fixed and mobile construction plant and construction vehicles. Construction works would be localised, short term, intermittent and controllable through the application of good construction practice. Fixed and mobile plant would be limited in size and number and would operate for short periods. Measures to manage air quality during construction, such as dust management, will be included in the outline CEMP to be appended to the EIAR.
- 13.6.1.2 The contributions of exhaust emissions (NO₂ and PM₁₀) from construction vehicles would likely be low, and orders of magnitude below current Air Quality Objectives. Therefore, it is proposed that EIA will not address air quality impacts. An Outline CEMP will be included alongside the EIAR which will include general pollution control measures for air quality.

13.7 Population and Human Health

- 13.7.1.1 The EIA will consider "human health" in terms of amenity through the assessment of potential likely significant effects associated with water supplies, air quality, noise, traffic, visual amenity and shadow flicker. Impacts on the amenity of householders, through issues such as noise and visual impacts, will be minimised. No other sources or pathways for effects on human health have been identified.
- 13.7.1.2 The potential for likely significant effects on "population" will be considered within the Economic Impact Statement which will accompany the Application (as described above).

- 13.7.1.3 Appropriate control measures to ensure that potential construction effects on air, noise and water quality are managed appropriately will be addressed through an Outline CEMP which will form a Technical Appendix to the EIAR. A similar decommissioning management plan would be prepared for the decommissioning phase in line with the relevant guidance requirements at that time.
- 13.7.1.4 As such, a separate human health impact assessment chapter and population impacts assessment chapter will not be presented in the EIAR.

13.8 Ice Throw

- 13.8.1.1 Standard mitigation for the risk of ice throw comprises off-site monitoring to enable the deactivation of turbines on sensing ice accumulation, as well as physical and visual warning for both site personnel and third parties.
- 13.8.1.2 In line with current guidance, a permanent warning sign at the Site entrance is proposed to alert the public to this issue. As such, no detailed assessment is proposed as part of the EIAR.

13.9 Risk of Major Accidents and/or Disasters

- 13.9.1.1 An assessment of major accidents and disasters considers the potential impacts of a development on the environment as a result of its vulnerability to, or introduction of, risks of major accidents and/or disasters.
- 13.9.1.2 In 2020, the IEMA published a Primer to better define the assessment methodology for major accidents and disasters in EIA¹⁷⁵. The Primer states that *“major accidents and / or disasters should be considered as part of an assessment where the development has the potential to cause the loss of life, permanent injury and / or temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration”*.
- 13.9.1.3 Potential major accident risks associated with the Proposed Development include:

¹⁷⁵ IEMA (2020). Major Accidents and Disasters in EIA: A Primer. Available at: [j27374_iema_major_accidents__disasters_final-1.pdf](#) [January 2026].

- road accidents, including AILs;
- risk of aircraft collisions with turbines and glint / glare risks to aircraft;
- fire risk; and
- flood risk.

- 13.9.1.4 The geotechnical design of the Proposed Development's permanent infrastructure and access tracks will take into account geotechnical risks from unstable slopes and peat. A peat slide risk assessment will be completed as part of the EIAR.
- 13.9.1.5 Flood risk will be limited for the majority of the Site and the Proposed Development will be designed to avoid areas at significant risk of fluvial and surface water flooding.
- 13.9.1.6 Due to the nature of the Proposed Development, the risk of a major accident or disaster is considered to be extremely low. A risk assessment process will be followed by the Principal Designer during the design stage as part of the Construction (Design and Management) Regulations 2015. This will ensure that all potential risks are identified at an early stage and appropriate mitigation is implemented.
- 13.9.1.7 During the operational stage of the Proposed Development, routine maintenance inspections would be completed in order to ensure compliant operation of the Proposed Development.
- 13.9.1.8 Accordingly, it is proposed to scope out an assessment of major accidents and/or disasters from the EIAR.



Thank you

nadara