Chalmerston Wind Farm

EIA Scoping Report

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Basis of Report

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Acronyms and Abbreviations

Abbreviation	Definition
AILs	Abnormal Indivisible Loads
APDO	Approved Procedure Design Organisation
ART	Ayrshire Rivers Trust
ATC	Automatic Traffic Count
ATS	Air Traffic Service
AWI	Ancient Woodland Inventory
BDMP	Bird Disturbance Management Plan
BEMP	Biodiversity Enhancement Management Plan
BESS	Battery Energy Storage System
BGS	British Geological Survey
BoCC	Birds of Conservation Concern
CAA	Civil Aviation Authority
CAS	Controlled Airspace
CAP	Civil Aviation Publication (CAP)
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CMRA	Coal Mining Risk Assessment
CO_2	Carbon Dioxide
CP	Compensatory Planting
CRAA	Collision Risk Analysis Area
CRM	Collision Risk Model
CRTN	Calculation of Road Traffic Noise
CTMP	Construction Traffic Management Plan
CTR	Control Zone
dB	Decibels
DECC	Department of Energy and Climate Change
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DTM	Digital Terrain Model
DWPA	Drinking Water Protected Area
EAC	East Ayrshire Council
EALDP	East Ayrshire Local Development Plan
EALWCS	East Ayrshire Landscape Wind Capacity Study
EASR	Environmental Authorisation (Scotland) Regulations
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works

Abbreviation	Definition
ECU	Energy Consents Unit
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EnvCoW	Environmental Clerk of Works
ES	Environmental Statement
EU	European Union
FCS	Forestry Commission Scotland
FDP	Forest Design Plans
FES	Forest Enterprise Scotland
FLS	Forestry and Land Scotland
FSA	Forestry Study Area
GCN	Great crested newt
GCRS	Geological Conservation Review Sites
GDL	Garden and Designed Landscapes
GLVIA3	Guidelines for Landscape and Visual Assessment, Version 3
GPA	Glasgow Prestwick Airport
GPG	Good Practice Guide
GPP	Guidance for Pollution Prevention
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HEPS	Historic Environment Policy for Scotland
HER	Historic Environment Records
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicles
HRA	Habitats Regulations Assessment
HSI	Habitat Suitability Index
IEFs	Important Ecological Features
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedure
INNS	Invasive non-native species
IOA	Institute of Acoustics
IOFs	Important Ornithological Features
km	kilometres
LBAP	Local Biodiversity Action Plan
LCT	Landscape Character Type
LDP	Local Development Plan
LGV	Light Goods Vehicle
LLA	Local Landscape Area
LMP	Land Management Plans
LNCS	Local Nature Conservation Sites

Abbreviation	Definition
LoS	Line of Sight
LTFP	Long Term Forest Plan
LVIA	Landscape and Visual Assessment
MAVRIC	Mapping Application for Visualising Road Injury Casualties
MB	Mixed Broadleaves
MB MC	Mixed Broadleaves Mixed Conifer
MB OG	Mixed Broadleaves Open Ground
MC	Mixed Conifer
MOD	Ministry of Defence
MW	Megawatts
NAVAIDS	Navigational Aids
NBN	National Biodiversity Network
NCAP	National Collection of Aerial Photography
NCN	National Cycle Network
NERL	National Air Traffic Services En-Route Plc
NFE	National Forest Estate
NHZ	Natural Heritage Zone
NKF	North Kyle Forest Estate
NPF4	National Planning Framework 4
NRTF	National Road Traffic Forecasts
NS	NatureScot
NSA	National Scenic Area
NTS	Non-Technical Summary
NVC	National Vegetation Classification
OG	Open Ground
OL	Other Land
OGL	Open Government Licence
OLS	Obstacle Limitation Surfaces
OWPS	Onshore Wind Policy Statement
PA	Planning Authority
PAC	Pre-Application Consultation
PAN	Planning Advice Notice
PARC	Priority Area for Red Squirrel Conservation
PLHRA	Peat Landslide Hazard and Risk Assessment
PMP	Peat Management Plan
PRA	Preliminary Roost Assessment
PRF	Potential Roost Features
PSR	Primary Surveillance Radar
PWS	Private Water Supplies

Abbreviation	Definition
RMS	Radar Mitigation Scheme
RSR	Route Survey Report
RVAA	Residential Visual Amenity Assessment
SAC	Special Area of Conservation
SALWCS	South Ayrshire Landscape Wind Capacity Study
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
SF	Scottish Forestry
SLC	South Lanarkshire Council
SNH	Scottish Natural Heritage
SPA	Special Protected Areas
SPP	Species Protection Plan
SPP	Scottish Planning Policy
SRSG	Scottish Raptor Study Group
SS	Sitka Spruce
SS LP	Sitka Spruce Lodgepole Pine
SSR	Secondary Surveillance Radar
SSRS	Saving Scotland's Red Squirrels
SSSI	Site of Special Scientific Interest
UKBAP	UK Biodiversity Action Plan
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UP	Unplanted
VHF	Very High Frequency
VP	Vantage Point
WFD	Waste Framework Directive
WLA	Wild Land Areas
WoSAS	West of Scotland Archaeology Service
WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility

1.0 Introduction

1.1 Background & Context

Brockwell Energy Limited ('The Applicant') intends to apply to the Scottish Ministers via the Scottish Government's Energy Consents Unit (ECU) for permission to construct and operate Chalmerston Wind Farm (hereafter referred to as the 'Proposed Development') at a site (the 'Site') 2.5km north of Dalmellington in East Ayrshire, Scotland. The approximate centre of the Site is located at British National Grid reference NS 47188 09004.

The Proposed Development would comprise up to 17 turbines with a total generating capacity exceeding 50 megawatts (MW) and would include a Battery Energy Storage System (BESS).

1.2 The Applicant

The Applicant is Brockwell Energy Limited (BEL), a renewable energy development company based in Scotland, with headquarters in Edinburgh. BEL's main business areas are development of onshore wind, solar and battery energy storage systems. BEL is the developer of the North Kyle Energy Project in East Ayrshire, and the proposed Breezy Hill Energy Project, recently submitted to the Scottish Government's Energy Consents Unit. BEL has also developed two energy-from-waste facilities, one at Earl's Gate Energy Centre, Grangemouth and the other at Westfield, Fife. Since 2018, the Applicant has successfully delivered over £900m of projects in Scotland.

1.3 The Purpose of the EIA Scoping Report

The purpose of this EIA Scoping Report is to request an EIA Scoping Opinion from the Scottish Ministers under Regulation 12(1) of the EIA Regulations[1]. This Opinion will delineate the scope and level of detail required in the Environmental Impact Assessment Report (EIAR) to support the planning application. The EIA Scoping Opinion will be adopted following consultation with the consultation bodies and other interested public bodies. The Applicant recognises the value of the scoping approach, and the purpose of this report is to ensure that information is provided in accordance with Regulation 12(2) of the EIA Regulations.

This EIA Scoping Report:

- describes the location of the Proposed Development;
- describes the nature and purpose of the Proposed Development;
- establishes the format of the EIAR;
- provides baseline information, insofar as is available at this stage; and
- describes potential significant effects and the proposed assessment methodologies for various technical assessments to be covered in the EIAR.

Each technical section concludes with queries for consultees regarding the information presented in this EIA Scoping Report. Feedback is requested on relevant questions, as not all may apply to every consultee. The list is not exhaustive, and consultees are encouraged to provide input on any issues they find pertinent to the Proposed Development. In cases where consultees choose not to respond, the Applicant will assume satisfaction with the proposed approach.

[1] The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

1.4 Structure of the EIA Scoping Report

The remainder of this EIA Scoping Report is comprised as follows:

- **Section 2**: Approach to EIA, summary of consultation strategy and planned structure of the EIAR.
- **Section 3**: Description of the Proposed Development including the Site location and context as well as details of the design iterations undertaken to date.
- **Sections 4 to 16**: A consideration of each environmental topic. Topics will either be 'scoped-in' (i.e. assessed within an EIAR chapter), or 'scoped-out'. A summary is provided of the environmental surveys and studies undertaken to date and proposed, assessment methodologies, potential significant effects of the Proposed Development and potential mitigation and enhancement measures.
- **Section 17**: A summary of the topics to be scoped-in and scoped-out of the EIA.

Figures are attached in **Appendix A**.

2.0 Environmental Impact Assessment

2.1 Approach to EIA

The EIA Regulations require that before consent is granted for certain types of development, an EIA must be undertaken. The EIA Regulations set out the types of development which must always be subject to an EIA (Schedule 1 development) and other developments which may require EIA if there is the potential for significant environmental effects as a result of the development (Schedule 2 development).

The Proposed Development falls within Schedule 2 of the EIA Regulations and has the potential to have some significant environmental effects. Therefore, it is the opinion of the Applicant that the Proposed Development qualifies as "EIA Development" and therefore the Applicant will voluntarily submit an EIAR as part of a Section 36 application and has not requested an EIA Screening Opinion.

EIA is a process which includes the requirement for the preparation of an EIAR by the Applicant. The EIA will be undertaken in line with the EIA Regulations and current good practice guidance. The results of the EIA will be presented within an EIAR as per Schedule 4 of the EIA Regulations.

In line with the recently issued Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms (Scottish Renewables, September 2025), the EIAR will not contain *"generic EIA methodology and topic specific assessment methods or approach where this is 'standard' and in accordance with good practice guidance except by brief cross reference and / or links".* Instead, the focus of any discussion of approach or methodology will be on agreeing any project-specific details or deviations from guidance. Furthermore, the guidelines state that the "*EIA Report can rely on agreements on method made through the Scoping process and make brief cross reference to key terms of reference without repeating the content of such guidance*".

2.2 Consultation

Stakeholder engagement is a key part of the EIA process and will be undertaken throughout the EIA process to agree assessment methodologies as well as address concerns consultees may have. Relevant stakeholders to be consulted will be agreed with the ECU and will vary depending on the technical topic.

Public consultation will also be undertaken by the Applicant following the guidance provided by the ECU and the expectation to hold public consultation events. The Applicant will hold at least two public consultation events following the submission of this EIA Scoping Report and prior to the Proposed Development design freeze. The dates and locations of the events are to be confirmed.

2.3 EIAR Format

The structure of the EIAR will follow the requirements of the EIA Regulations (Schedule 4) and relevant good practice guidance. The EIAR will comprise five volumes:

- Volume 1: Non-Technical Summary;
- Volume 2: Main Report;
- Volume 3a: Figures and Drawings;
- Volume 3b: Visualisations;
- Volume 4: Technical Appendices; and

- Volume 5: Confidential Information.

Volume 2 will be streamlined to follow the Scoping Opinion, and will include the following chapters:

- Introduction;
- Project Description;
- Design Evolution and Alternatives;
- Specialist Topic Chapters, including:
    - Landscape and Visual Impact including Residential Amenity;
    - Cultural Heritage;
    - Ecology;
    - Ornithology;
    - Geology, Hydrogeology, Hydrology and Peat, including Outline Peat Management Plan and Carbon Balance;
    - Noise; and
    - Access, Traffic and Transport.
- Summary of Significant Effects and Schedule of Environmental Commitments (including Summary of Mitigation Measures).[2]

In addition to the technical appendices relating to each technical topic, the following will be set out in Volume 4 of the EIAR (Technical Appendices):

- Aviation and Radar;
- Forestry;
- Shadow Flicker; and
- Telecommunications and Utilities.

The Section 36 Application will be accompanied by the following standalone documents:

- A Planning Statement assessing the Proposed Development against all relevant planning and energy policy;
- A Pre-Application Consultation (PAC) Report explaining the consultation carried out with the local communities about the Proposed Development; and
- A Socio-Economics, Recreation and Tourism Report.

Early consultation is key in the development process, and throughout the design and EIA process, the Applicant will ensure that local communities and stakeholders are given the opportunity to provide feedback.

[2] In line with the Guidelines on Streamlining EIA for Onshore Wind Farm (Scottish Renewables, September 2025), chapter-specific mitigation measures will be clearly presented at the end of each chapter and also collated into a single chapter for ease of reference by decision makers; where possible, this will be accompanied by map-based information, e.g. identifying areas where specific additional measures are required.

3.0 Proposed Development

3.1 Site and Surrounds

Located approximately 2.5 km north of Dalmellington, and 13 km southeast of Ayr, the Site falls within the East Ayrshire Council (EAC) administrative area, as shown on **Figure 3.1**. The Site centre can be found at British National Grid reference NS 47188 09004, on land formerly used for opencast and underground mining. The majority of the land is a poorly restored brownfield site and is one of the mining sites that formed part of EAC's priority area for restoration[3].

The Site is situated in a predominantly rural environment characterised by agricultural land, forestry and former mining sites. Approximately the eastern half of the Site includes the former Chalmerston Coal Mine. While the mining companies ceased mining operations on the Site in 2013, leaving the sites derelict, the EAC worked with the new landowners to undertake restoration work to *"Make safe, Make Good, Make New"*[4].In 2021, EAC reported that the Chalmerston Coal Mine had been restored, with restoration efforts having included reshaping of the land and planting of broadleaved forestry on the Site; however, there are still some areas of the Site which are unsafe to enter, and there is still some opportunity to improve and enhance the restoration of the site. The former Craigmark and Minnivey Collieries, miner's villages and mineral railways associated with the Dalmellington Ironworks lie adjacent to and overlap areas in the south west of the Site.

There are some designated cultural heritage assets within the Site boundary, largely those associated with the Dalmellington Ironworks. These include the Dalmellington Ironworks (SM4345) which predominantly lies adjacent to the south west of the Site, with a slither extending into the Site boundary. The Waterside Miner's Villages and Mineral Railways (SM7863) is also partly situated within the western portion of the Site. These monuments are all associated with the Waterside Conservation Area which lies adjacent to the south west of the Site. One separate designated asset, Laight Castle (SM7690), a castle tower remains, exists within the same area.

The following designated cultural heritage assets are located within 5 km of the Site boundary (shown on **Figure 5.1**):

- Craigengillan Garden and Designed Landscape (GDL00111) – 1.3km south;
- Bogton Loch airfield (SM13693) – 1.3km south, the remains of a WW1 airfield;
- Dalmellington Conservation Area – 1.6km south;
- Dalnean Hill (SM4390) – 1.8km south, a farmstead and field system remains; and
- Munteoch (SM5200) – 4km south west, a post-medieval settlement and field system remains.

The village of Burnton lies approximately 600 m to the south of the Site boundary, Waterside approximately 530m to the west, and a number of other residences and settlements within 5 km. These settlements are primarily located along the A713 which runs southeast to

[3] East Ayrshire Council, 2013. "Opencast Mining in East Ayrshire –Steps to Recovery, Council". https://www.east-ayrshire.gov.uk/CouncilAndGovernment/About-the-Council/MinutesAgendasAndReports/OpencastCoalUpdate.aspx

[4] 3 East Ayrshire Council, 2021. "Opencast Coal Mining in East Ayrshire –Completion of Restoration and Recovery

Activity".https://www.east-ayrshire.gov.uk/CouncilAndGovernment/About-the-Council/MinutesAgendasAndReports/OpencastCoalUpdate.aspx

northwest to the west of the Site and include Dalmellington (1.7 km south), Bellsbank (3 km south) and Patna (3.5 km west), with the village of Rankinston being located approximately 2.8 km to the northwest of the Site boundary.

The Site is in the northern reaches of the Galloway and Southern Ayrshire Biosphere, a UNESCO site which includes iconic wildlife and natural habitats which are recognised as being of international importance[5]. The Biosphere encompasses communities with distinct cultural identities, as well as historic landmarks and heritage sites.

There are three statutory designated sites with ecological (non-avian) qualifying interests within 5 km of the Site boundary (see **Figure 6.1**): Doon Valley Wetlands Site of Special Scientific Interest (SSSI) is located directly southwest of the Site; Ness Glen SSSI is 3.9 km south of the Site boundary; and Loch Doon SSSI is 4.97 km south of the Site boundary. In addition, the Muirkirk and North Lowther Uplands Special Protection Area (SPA) lies approximately 16.5 km to the north of the site.

There are four non-statutory Local Nature Conservation Sites (LNCS) within/overlapping with the Site (also shown on **Figure 6.1**): Benquhat Hill LNCS, Benbeoch / Pennyvennie Glen LNCS, Doon Valley Wetlands LNCS and Dunaskin Ironworks LNCS; and numerous other LCNSs and fragments of ancient woodland within 5 km of the Site.

3.2 Proposed Development Description

The Proposed Development will likely consist of up to 17 standalone, three bladed horizontal axis turbines and the required ancillary infrastructure e.g. access tracks. An indicative Site layout, including indicative turbine locations is provided in **Figure 3.2**. The indicative turbine locations are noted in **Table 3-1**.

Table 3-1: Indicative Proposed Turbine Locations and Dimensions[6]

Turbine Number	Easting	Northing	Height to Tip (m)	Indicative Hub Height (m)	Indicative Rotor Diameter (m)
T1	245620	610305	200	119	162
T2	246059	610385	149.9	82	136
T3	246115	609934	200	119	162
T4	245311	609178	200	119	162
T5	246036	609265	200	119	162
T6	246536	609818	149.9	82	136
T7	247001	609898	149.9	82	136
T8	247472	609967	149.9	82	136
T9	246774	609400	200	119	162
T10	247329	609449	200	119	162
T11	246999	608775	200	119	162
T12	247903	609398	200	119	162
T13	248224	609140	200	119	162

[5] Galloway and Southern Ayrshire Biosphere (2002). https://www.gsabiosphere.org.uk/ [Accessed 04/11/2025]

[6] Please note that these dimensions are indicative only at Scoping stage, the dimensions may change the iterative EIA design process.

Turbine Number	Easting	Northing	Height to Tip (m)	Indicative Hub Height (m)	Indicative Rotor Diameter (m)
T14	248353	608488	200	119	162
T15	248738	609145	200	119	162
T16	249157	608846	200	119	162
T17	249622	608903	200	119	162

Access to and egress from the Site would be along an existing former mining access track from the A713. The inclusion of a BESS facility onsite is also proposed in order to store excess generation and support flexibility within the grid. The Proposed Development would include a substation compound and buried cables between the turbines. Areas of ecological enhancement will be provided, the detail of which will be established following site surveys as part of the iterative design process.

3.3 Design Evolution

The indicative proposed layout as shown in **Figure 3.2** was generated using an environmentally-led approach which took account of environmental constraints, technical requirements and economic factors as they are currently understood.

3.3.1 Baseline Information

The potential environmental constraints of the Site and surrounds were identified using publicly available information, third-party data and site survey data.

Several baseline surveys have been undertaken on the Site to date including:

- Ecological habitat and protected species surveys, and ornithology surveys (although these only covered part of the Site, the available information has been used to inform the scoping design);
- Phase 1 peat surveys;
- Mining Risk Appraisals; and
- Cultural Heritage desktop and field surveys.

The results of these baseline surveys and appraisals were used to inform the Scoping design. It is acknowledged that some of the baseline data requires some gap-filling to cover parts of the Site which have not yet been surveyed, and additional field surveys will be undertaken during the EIA stage to further inform the baseline and evolution of the design.

3.3.2 Design Principles

The overarching principles guiding the design of the Proposed Development aim to maximise renewable energy generation while:

- minimising the land disturbance needed for constructing the wind farm infrastructure as much as possible;
- reducing potential impacts on sensitive receptors wherever possible;
- minimising the number of watercourse crossings;
- applying the waste management hierarchy, such as reusing materials on site rather than removing and disposing of them in landfill; and

- identifying potential opportunities for environmental enhancement, access improvement and community benefits.

These design principles have been employed by the Applicant in forming the Scoping layout presented in **Figure 3.2** and will continue to be used throughout the iterative design process.

3.3.3 Design Objectives

The overall design objectives are to maximise the renewable energy yield, while minimising potential adverse impacts on the receiving environment, while also identifying opportunities to enhance the natural environment and benefit local communities.

The design of the Proposed Development is being informed by a robust design iteration process, considering potential environmental, landscape and visual impacts and their effects, physical constraints, safe and efficient operation of the development, and health and safety considerations. The information used to inform the design iteration process includes baseline data (desk studies and field surveys), review of preliminary visualisations, impact assessments and consultation feedback.

The overarching aim is to design the Proposed Development layout in such a way as to represent the most appropriate design, considering acceptable limits for potential environmental impacts and physical constraints, while maximising the renewable energy generating capability of the Site and maintaining financial viability of the Proposed Development.

Key design considerations and drivers for change throughout the environmentally-led design iteration process will be set out in the EIAR. At this stage, it is anticipated that the design will mainly be influenced by the following factors (listed in no particular order of importance), although this may change as the design evolves:

- residential amenity of residential properties in relatively close proximity to the Site;
- presence of peat deeper than 0.5 m in parts of the Site;
- hydrology;
- ecology;
- ornithology;
- geology and high-risk mining areas;
- avoidance of heritage assets;
- telecommunications; and
- aviation.

Other major considerations driving the design and layout of the Proposed Development include sustainability principles such as:

- reusing existing infrastructure wherever possible;
- where possible, recycling and using stone on site from previous mining activities;
- minimising infrastructure footprint and potential impacts on sensitive environmental receptors; and
- identifying potential opportunities to enhance biodiversity as well as public access and recreation.

It is expected that further iterations of the design will occur as part of the EIA process. The evolution of the design will be discussed in the EIAR, as will the various alternatives that have been considered during the design process.

3.3.4 Scoping Layout

The initial (Scoping) layout of the Proposed Development is shown on **Figure 3.2**. Available survey information, such as peat depths, ecological and ornithological baseline data, were used to inform the Scoping design, along with initial landscape and visual design review. A pre-scoping workshop was held which was attended by all EIA team leads as well as design engineers and the Applicant. Using the available information and preliminary design review feedback, the Scoping Layout (presented in **Figure 3.2**) was designed.

There are several components of the design which are under review, with various alternatives being investigated. These include, but are not limited to, the following:

- Location, number and dimensions of construction compounds;
- Location, footprint and capacity of a BESS;
- Location of substation;
- Potential alternative access route(s);
- Potential number, location and size of borrow pits;
- Potential heritage enhancements and public recreational access.

Initial comment on the Scoping design from EAC and consultees is welcomed.

3.4 Lifecycle Phases

3.4.1 Construction

Construction phase impacts would relate primarily to activities which would alter the existing environment, such as excavation, importing of materials and erection of infrastructure. The main concerns from an EIA perspective during construction are the potential effects on sensitive receptors which include designated conservation areas, nearby residents, sensitive habitats and protected species, birds, peat and downstream hydrology receptors. The temporal as well as spatial effects on these receptors will be considered in depth in the EIAR.

3.4.2 Operation

Once the construction phase is completed, the Proposed Development would be operational for a period of approximately 40 years. The potential effects on sensitive receptors during this phase of the lifecycle of the Proposed development will also be considered in the EIAR.

3.4.3 Decommissioning

Activities during decommissioning would be similar to construction except in reverse. In line with the Scottish Renewables guidance on streamlining wind farm EIAs, it is proposed to **not** include any specific assessment of the effects of decommissioning. This is because:

- The effects would be similar to or less than the effects of the construction phase; and
- The effects would occur many years in the future and therefore the baseline conditions at the time of decommissioning cannot be accurately known at the time of assessment.

3.5 Cumulative Developments

The EIA Regulations state that cumulative effects should be considered as a part of the EIA. It will therefore be important to consider the cumulative effects of the Proposed Development with other developments in the area, including those that are currently operational (part of the existing baseline), under construction, consented and those that are the subject of a live planning application or a live application under the Electricity Act 1989. The cumulative

assessment will also consider the cumulative effects of different elements of the Proposed Development on environmental media and sensitive receptors.

The methodology to be adopted for assessing the cumulative effects of wind energy developments will be in accordance with the NatureScot (NS, 2021) Guidance 'Assessing Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments'. The scope of the cumulative assessment for each technical topic is set out in the respective sections of this Scoping Report and will be agreed as required through further consultation with regulators including EAC and NatureScot.

It should be noted that the record of relevant developments to be included in the cumulative impact assessment will be updated throughout the EIA process, up to an agreed point prior to submission of the application. We welcome any further information from stakeholders on additional proposed wind farm developments that should be considered.

3.6 Grid Connection

The Proposed Development will require a grid connection, although details of the final grid connection are not available at present. It is for a decision maker to determine whether the grid connection and proposed wind farm constitute a single project for the purposes of EIA. However given some information is known about the potential grid connection route, and in the interest of providing as much information as possible, as early in the process as possible, to inform decision-making, it is proposed that the grid connection point and potential route corridor would be examined, and a high-level assessment of the potential significant effects of the grid connection would be undertaken, the report of which would be attached as a technical appendix to the EIAR. The scope of the EIA will examine this grid connection in line with the Rochdale envelope principles.

It is anticipated that the proposed assessment of an indicative grid connection corridor would provide information in line with Regulation 4(2) of the EIA Regulations which states that the assessment "*must identify, describe and assess **in an appropriate manner, in light of the circumstances relating to the proposed development**, the direct and indirect significant effects of the proposed development"* (emphasis added).

3.7 Questions for Consultees

Q3.1 Do consultees have any initial comments or concerns regarding the Scoping layout?

Q3.2 Do consultees agree that the effects of decommissioning can be scoped-out of the EIA?

Q3.3 Is the general approach to assessment of cumulative effects acceptable?

Q3.4 Do consultees agree to the proposed approach to assessing the likely significant effects of an indicative grid connection route / area?

4.0 Landscape and Visual

4.1 Introduction

Scotland's Landscape Alliance published the updated version of Scotland's Landscape Charter in July 2025[7]. The updated charter reflects the increasing dependence and high value that continues to be placed on landscape in Scotland. It demonstrates a commitment to sensitively managing the landscape change needed in line with the principles of the European Landscape Convention (ELC) to continue to shape our future landscape ambitions through collaborative action.

It recognises the beauty and diversity of Scotland's landscapes and the critical contribution landscapes make to our lives and the action required to maximise the many benefits they bring. It also recognises that they have a key role to play in meeting the challenges of climate change as we strive to reduce our harmful emissions, generate clean energy, retain stored carbon and focus on creating strong, resilient communities.

Scotland's Landscape Charter sets out that Scotland is a signatory through the UK Government of the ELC, a key principle of which is that all landscapes matter and should be managed appropriately. It is also acknowledged that landscapes provide the surroundings for people's daily lives and often contribute positively to the quality of life and economic performance of an area.

Therefore, a Landscape and Visual Impact Assessment (LVIA) will be undertaken as part of the Environmental Impact Assessment (EIA), and an LVIA Chapter will be included in the EIAR. The LVIA will be guided by the Guidelines for Landscape and Visual Assessment Third Edition (GLVIA3)[8] and will be undertaken by Chartered Landscape Architects experienced in the assessment of large-scale, onshore wind energy projects and who are familiar with the landscape in the vicinity of the Site.

It is proposed that the LVIA will consider the potential effects of the proposed development upon:

- Individual landscape features and elements;
- Landscape character; and
- Visual amenity and the people who view the landscape.

This Chapter discusses the likely significant effects of the Proposed Development on the landscape and visual resource of the Site and the surrounding area. These are defined respectively within paragraph 3.21 of GLVIA3 as "*the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape*", and "*the people who will be affected by changes in views or visual amenity at different places*".

4.1.1 Study Area

To assist with defining the study area, a blade tip height and a hub height digital Zone of Theoretical Visibility (ZTV) were produced as the starting point to illustrate the geographical area over which the Proposed Development would be theoretically visible. These were based on a 'bare-earth' scenario, which does not account for the screening effect of areas of existing

[7] Scotland Landscape Alliance. Scotland's Landscape Charter. July 2025. Available at: https://www.scotlandslandscapealliance.org/wp-content/uploads/2025/06/Scotlands-Landscape-Charter-June-2025.pdf

[8] Landscape Institute and the Institute for Environmental Management and Assessment (2013). The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3). Routledge.

vegetation or built features in the landscape. The ZTV was modelled based on the current maximum proposed turbine blade tip height of 200 m for T1, T3, T4, T5 and T9, to T17. Turbines T2, T6, T7 and T8 are proposed to have a maximum blade tip height of 149.9 m. The blade tip ZTV is presented on **Figure 4.1**. A hub height ZTV based on the indicative hub heights of 122.5 m or 82 m is also provided at **Figure 4.2**.

With reference to NatureScot Visualisation Guidance[9], based on the preliminary blade tip height of 200 m/149.9 m, an initial study area of up to 45 km (from the outer-most turbines) was considered. However, referring to **Figure 4.1**, due to the relatively limited extent and intermittent nature of the theoretical visibility, it is proposed that the LVIA will consider an initial 35 km radius LVIA study area for the purpose of identifying potential landscape and visual receptors.

It is then proposed that a detailed LVIA study area of 20 km is adopted. This is considered to represent a proportionate extent of the initial 35 km LVIA study area and the limit within which any potentially significant landscape and visual effects would occur.

The cumulative effect of the Proposed Development in association with other wind energy developments will also be considered. Consideration was initially given to a 60 km radius from the Site, accounting for NatureScot guidance[10]. A plan was then prepared illustrating all cumulative sites within a 35 km radius (**Figure 4.5**). However, following a review of the location of cumulative wind farms and the limited extent of theoretical visibility, it is proposed to adopt a 20 km detailed cumulative landscape and visual study area. This is considered to represent a proportionate extent of the study area and the limit within which any potentially significant cumulative effects might occur.

4.2 Baseline Conditions & Scope of Assessment

Initial desk-based studies have been undertaken to identify the potential landscape and visual receptors to be considered within the LVIA and to identify proposed LVIA viewpoint locations to inform the assessment.

4.2.1 The Site

The Proposed Development is partially located on ground that was historically used for opencast coal mining. While the Site is indicated in EAC's 2021 report titled*, "Opencast Coal Mining in East Ayrshire –Completion of Restoration and Recovery Activity"* to be fully restored, there are still some mining-associated features such as spoil heaps, lagoons and other associated infrastructure present and common within the Site. Other areas within the Site include grassy moorland and some commercial forestry blocks. The hills have a smooth, simple landform, with smaller-scale slopes radiating south down towards the A713 and B741. As a result of this landform, the River Doon valley, which is located to the south of the Site, is more enclosed, with predominantly short-range views towards surrounding skylines. The valley floor also shows a distinct change in land use, with smaller scale agricultural fields replacing the more open, upland landscape character.

The topography of the Proposed Development ranges in elevation from approximately 435 m Above Ordnance Datum (AOD) at its northwest corner, corresponding with Benquhat Hill.

[9] NatureScot (February 2017). Visual Representation of Wind farms – Version 2.2. Available at: https://www.nature.scot/doc/visual-representation-wind-farms-guidance

[10] NatureScot (March 2021). Assessing the Cumulative Impact of Onshore Wind Energy Developments. Available at: https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments

From this higher ground, the Site plateaus towards the southeast before falling away more steeply to the south and east to approximately 200 m AOD.

4.2.2 Landscape Character

The majority of the proposed turbines in the Scoping Layout are located within Landscape Character Type (LCT) 17a Foothills with Forest & Opencast Mining, with one turbine located in LCT 10 Upland River Valley as defined in the East Ayrshire Landscape Wind Capacity Study (2024) (EALWCS)[11]. The EALWCS notes LCT 17a as having high-medium sensitivity to turbines taller than 130 m and very limited scope for accommodating turbines taller than 130 m.

Landscape character types within 20 km of the Proposed Development overlaid with the blade tip ZTV are illustrated on **Figure 4.3**.

4.2.3 Landscape Designations

Landscape designations within 20 km of the Proposed Development overlaid with the blade tip ZTV are illustrated on **Figure 4.4.** The Proposed Development is not located within an international or national landscape designation. Turbines T4, T5, T9, T11 and T14 are located in the Doon Valley Local Landscape Area (LLA). Other LLAs within the 20 km detailed LVIA study area comprise:

- Water of Girvan Valley LLA – located approximately 6.6 km to the southwest;
- The Stincher Valley LLA - located approximately 14.8 km to the southwest;
- High Carrick Hills LLA - located approximately 7.7 km to the south southwest;
- Galloway Hills Regional Scenic Area (RSA) - located approximately 8.1 km to the southeast;
- Uplands and Moorlands LLA - located approximately 10.5 km to the east;
- River Ayr Valley LLA - located approximately 7.7 km to the northwest;
- Brown Carrick Hills & Coast LLA - located approximately 14.5 km to the west; and
- Culzean LLA - located approximately 17.6 km to the west.

The nearest Garden and Designed Landscape (GDL) is Craigengillan GDL located to the south of the Proposed Development, at approximately 350 m to the south of the site access from the A713. Other GDLs within the 20 km detailed LVIA study area comprise:

- Blairquhan GDL – located approximately 8.1 km to the southwest;
- Dumfries House GDL – located approximately 11.2 km to the northeast;
- Skeldon House GDL – located approximately 8.2 km to the northwest;
- Kilkerran GDL – located approximately 13.6 km to the southwest;
- Rozelle (La Rochelle) GDL – located approximately 14.3 km to the northwest;
- Culzean Castle GDL – located approximately 19 km to the west; and
- Auchincruive GDL – located approximately 13.7 km to the northwest.

[11] East Ayrshire Council Local Development Plan 2, Easy Ayrshire Landscape Wind Capacity Study 2024. Available at: https://www.east-ayrshire.gov.uk/Resources/PDF/L/Landscape-wind-capacity-study.pdf

The Galloway Forest Park overlaps the southern part of the detailed 20 km LVIA Study Area and is approximately 2.2 km to the south of the proposed site access from the A713 at its closest point.

The Galloway Dark Sky Park Buffer Zone is located approximately 0.1 km to the south of the proposed site access from the A713, with its Core Zone situated around 14.2 km to the south-west of the nearest proposed turbine.

4.2.4 Wild Land

Wild Land Areas (WLA) are not statutory designations. However, WLAs (NatureScot, 2014) are recognised as nationally important, with NPF4 noting proposals for development in wild land will only be supported where the proposal supports meeting renewable energy targets or is for small-scale development linked to rural business or croft or supports a fragile community in a rural area. NPF4 identifies the requirement for a wild land impact assessment to accompany any development proposals in areas identified as WLA. NPF4 also states that effects of development outside WLA will not be a significant consideration.

The Proposed Development is not located within a WLA. The nearest WLA is Merrick (WLA 01) located approximately 15.2 km to the southwest of the Proposed Development.

4.2.5 Visual Receptors

The main visual receptors within the surrounding landscape include:

- Residents in individual properties and settlements;
- People using the network of transport routes; and
- Recreational receptors including walkers, cyclists and horse riders on long-distance recreational routes and core paths, as well as visitors to outdoor tourist destinations where the visitor experience incorporates a focus on the surrounding landscape or dark skies.

The nearest settlements to the Proposed Development are:

- Waterside, located approximately 1.2 km to the southwest of the nearest turbine;
- Burnton, located approximately 1.6 km to the south of the nearest turbine;
- Dalmellington, approximately 2.1 km to the south of the nearest turbine; and
- Patna, approximately 3 km to the west of the nearest turbine.

Beyond these settlements, numerous small villages, clusters of residential properties, and isolated dwellings are dispersed throughout the generally lower-lying, farmed valley landscapes to the north, east, and south of the Proposed Development.

Settlements and residential properties within the Study Area are connected by a network of minor roads, which link to the principal transport routes comprising the A713 and B741 to the south and the A70, the A76, the B730 and the B7046 to the north.

In terms of recreational access, the nearest promoted long-distance walking route is the River Ayr Way, located approximately 11 km to the north of the Proposed Development. The Ayrshire Coastal Path lies approximately 16 km to the west, while the Southern Upland Way is situated over 18 km to the east.

Core Path D10: Patna and Waterside Circular passes through the western edge of the Site, forming a circular loop through the upland areas of the Proposed Development before returning towards the village of Waterside. Core Path D4 is located to the northwest of the Site, with its closest point approximately 1 km from the Proposed Development.

To the south of the A713 are several core paths comprising Core Path D13: Auchenroy Hill and Dalcairnie Falls, Core Path D18: Carmlarg, Core Path D14: Dalmellington to Loch Doon, Via Ness Glen and Core Path D12:Dalmellington to Bogton Plantation.

There are also a number of recorded rights of way that cross through the western edge of the Site and to the north of the A713. To the south of the A713, there are also several Scottish Hill Tracks and the Loch Doon Heritage Paths.

The nearest National Cycle Network route is located 15 km from the Proposed Development.

4.3 Approach to Assessment

The LVIA will be undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment Third Edition, and with reference to the following documents:

- Landscape Institute (2024). Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA3) [12];
- NatureScot (2024). General pre-application advice and scoping advice for onshore wind farms[13];
- NatureScot (2017). Siting and Designing of Windfarms in the Landscape: Version 3a[14];
- NatureScot (2017). Visual Representation of Wind Farms. Version 2.2[15];
- NatureScot (2021). Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments[16];
- NatureScot (2024). Guidance on Aviation Lighting Impact Assessment[17];
- Landscape Institute (2019). Technical Guidance Note 2/19 Residential Visual Amenity Assessment[18]; and
- Landscape Institute (2019). Visual representation of development proposals. Technical Guidance Note 06/19[19].

The methodology and assessment criteria proposed for the LVIA will be developed in accordance with the principles established in this best practice document. It should be acknowledged that GLVIA3 establishes guidelines, not a specific methodology. The preface to GLVIA3 states:

[12] Landscape Institute and the Institute for Environmental Management and Assessment (2013). The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3). Routledge.

[13] NatureScot (November 2024). General pre-application advice and scoping advice for onshore wind farms. Available at: https://www.nature.scot/doc/general-pre-application-and-scoping-advice-onshore-wind-farms

[14] 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

[15] NatureScot (February 2017). Visual Representation of Wind farms – Version 2.2. Available at: https://www.nature.scot/doc/visual-representation-wind-farms-guidance

[16] NatureScot (March 2021). Assessing the Cumulative Impact of Onshore Wind Energy Developments. Available at:https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments

[17] NatureScot (November 2024). Guidance on Aviation Lighting Impact Assessment. Available at: https://www.nature.scot/doc/guidance-aviation-lighting-impact-assessment

[18] Landscape Institute (March 2019). Technical Guidance Note 2/19 Residential Visual Amenity Assessment (RVAA). Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf

[19] Landscape Institute (2019). Technical Guidance Note 06/19 Visual Representation of Development Proposals. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

"This edition concentrates on principles and processes. It does not provide a detailed or formulaic 'recipe' that can be followed in every situation – it remains the responsibility of the professional to ensure that the approach and methodology adopted are appropriate to the task in hand."

4.3.1 Types of Effects Considered

LVIA will consider the effects of the Proposed Development during its construction, during its operational lifetime and during the decommissioning phase. Effects during the construction and decommissioning phases are considered to be temporary and would have a short duration and would be largely similar in nature. Effects associated with the operational phase are considered to be long-term, reversible effects.

4.3.2 Proposed Assessment Scope

It is proposed that the main objectives of the LVIA will be as follows:

- To identify, evaluate and describe the current landscape character of the Site and its surroundings, and also any notable individual or groups of landscape features within the Site;
- To determine the sensitivity of the landscape to the type of development proposed;
- To identify potential visual receptors (i.e. people that would be able to see the Proposed Development) and evaluate their sensitivity to the type of changes proposed;
- To identify and describe any impacts of the Proposed Development in so far as they affect the landscape and/or views of it and evaluate the magnitude of change due to these impacts;
- To identify and describe any mitigation measures (including mitigation which is inherent in the design and layout of the Proposed Development) that have been adopted to avoid, reduce and compensate for landscape and visual effects;
- To identify and assess the landscape and visual effects;
- To identify and assess any cumulative landscape and visual effects;
- To evaluate the level of residual landscape and visual effects; and
- To make a professional judgement about which effects, if any, are significant.

4.3.3 Baseline Assessment

A baseline assessment will be carried out to record the existing landscape and visual baseline. The baseline assessment will identify the existing landscape features on the Site, and in the immediate vicinity and how these elements combine to give the area a sense of landscape character.

The baseline assessment will identify different visual receptors within the detailed 20 km LVIA Study Area comprising residential properties, settlements, footpath users, users of heritage paths and Scottish Hill Tracks, recognised tourist routes, cycle routes, centres for tourism and road users who have the potential to experience visual effects resulting from the Proposed Development.

4.3.4 Landscape Assessment Methodology – Daytime

The sensitivity of landscape features and landscape character to the type of development proposed will be determined with reference to published landscape character assessments.

Plans and construction details of the Proposed Development, supported by wirelines and photomontage visualisations, will be used to determine the effects of the Proposed Development on landscape features and character.

The LVIA will firstly assess how the Proposed Development may directly result in effects on the existing landscape features or elements identified in the baseline character assessment.

The LVIA will then consider effects on landscape character with reference to landscape character areas/types identified in published landscape character documents.

4.3.5 Visual Assessment Methodology – Daytime

A detailed consideration of the potential for effects to the visual amenity of receptors in the landscape surrounding the Site will be set out in the LVIA. The visual assessment will be informed by a selection of representative assessment viewpoints, which are listed below in **Table 4-1**, each of which will be illustrated with photomontage visualisations prepared in line with NatureScot best practice guidance.

The viewpoints will be used as the starting point for considering the effects on visual receptors considered within the assessment. The visual assessment will not rely solely on the viewpoint assessments to determine the significance of effects on different visual receptor groups throughout the study area. It should be recognised that the viewpoints illustrated in the LVIA simply represent a series of snapshots from a proportionate selection of the locations within the study area from where the Proposed Development will be visible.

Following the viewpoint assessment, the LVIA will consider the effects on visual amenity throughout the detailed 20 km LVIA Study Area with reference to different visual receptor groups comprising settlements, footpath users, recognised tourist routes and centres for tourism.

4.3.6 Night-time Aviation Warning Lighting Assessment Methodology

Air Navigation Order Article 222[20] requires turbines exceeding a tip height of 150 m to display visible aviation lighting to indicate their presence. Dispensations for reduced lighting schemes can be agreed with the Civil Aviation Authority (CAA), according to the guidance provided in CAP-764[21], and it is anticipated that a reduced lighting scheme would be agreed with the CAA in due course (this is discussed further in **Section 4.12.4**).

It is also possible to operate the medium intensity, red visible aviation lights in a reduced intensity mode when meteorological visibility exceeds 5 km from the lit turbines. Furthermore, it is also possible to attenuate the amount of light experienced by receptors at elevations above and below the lights in order to reduce the level of effects experienced.

A detailed consideration of the potential effects to landscape character and visual amenity resulting from the visible aviation warning lighting will be presented in a separate technical appendix to the LVIA chapter.

As set out NatureScot Aviation Lighting Impact Assessment Guidance the components of value and susceptibility that contribute to sensitivity differ at night-time. For example, where an area has been recognised for its dark sky qualities, such as Dark Sky Parks, value will be greater.

[20] Civil Aviation Authority. Lighting and Marking of Obstacles. Available at: https://www.caa.co.uk/commercial-industry/airspace/event-and-obstacle-notification/lighting-and-marking-of-obstacles/

[21] Civil Aviation Authority. CAP 764: Policy and Guidelines on Wind Turbines. Available at: https://www.caa.co.uk/our-work/publications/documents/content/cap-764/

The susceptibility of receptors at night varies depending upon the activities people are engaged in. For example, road users would have lower susceptibility due to the headlights of their vehicles or other road users. People in lit towns and villages and in residential properties may have lower susceptibility due to the presence of existing light sources such as street lighting and lights in and around properties. People hill walking at night may also be considered to have lower susceptibility as they would generally be using torches to light their route. Whereas people engaged in activities such as star gazing would have higher susceptibility.

The assessment will be informed by night-time photomontage visualisations from a limited number of the LVIA viewpoints (discussed in **Section 4.3.8**) and will be supported by ZTVs to illustrate the theoretical visibility of the lit turbines and a turbine lighting intensity ZTV.

4.3.7 Assessment Criteria

In accordance with the GLVIA3, the sensitivity of a landscape receptor (an individual landscape feature or landscape character) or visual receptor (people within an area who may be affected by changes in views and visual amenity) is assessed by combining separate judgements concerning the receptor's value and susceptibility to the change proposed to arrive at an overall judgement of the sensitivity of the receptor. Sensitivity will be described as **very high**, **high**, **medium**, **low** or **very low**.

The sensitivity of the receptor is combined with the magnitude of change resulting from the Proposed Development, which is also described on this same scale from **very high** to **very low**, to derive a judgement of the overall level of effect.

The level of landscape or visual effects will be described as **major**, **moderate major**, **moderate**, **minor moderate**, **minor** or **negligible**. No effect may also be recorded where the effect is so negligible it is not even noteworthy.

Professional judgement will then determine whether the effect is considered to be significant or not. Those effects described as **major**, **moderate major** and in some cases, **moderate** will be regarded as significant.

The LVIA will further determine whether effects are beneficial, neutral, or adverse.

Full details of the methodology will be provided within a technical appendix to the LVIA chapter of the EIAR.

4.3.8 Proposed LVIA Viewpoints

It is proposed that the 15 viewpoint locations set out below are included as viewpoints in the LVIA. The locations are illustrated on **Figures 4.1** and **Figure 4.2.**

The proposed viewpoint locations are located at a range of distances and directions from the Proposed Development, are at varying elevations and cover a variety of different landscape character types and visual receptor groups. Some of the viewpoints are intended to be representative of the visual experience in a general location, whereas other viewpoints illustrate the view from a specific or important vantage point. In selecting the proposed LVIA viewpoints, locations used in other wind development (either operational, consented or at planning/pre-planning stage) have also been considered.

For each of the below viewpoints, daytime visualisations will be prepared in line with NatureScot visualisation guidance.

Table 4-1: Proposed LVIA Viewpoints

VIEWPOINT	OS Grid Reference	Basis for Selection
Viewpoint 1 – Waterside	243571, 608672	Residential

VIEWPOINT	OS Grid Reference	Basis for Selection
Viewpoint 2 – Ayr Road, Dalmellington	247233, 606248	Road
Viewpoint 3 – Dalcairney Road, Ballsbank	247806, 604937	Residential
Viewpoint 4 – Auchenroy Hill	244550, 605580	Recreational
Viewpoint 5 – Whitehill Avenue, Patna	241393, 610451	Residential
Viewpoint 6 – Drongan, Mill of Shield Road	244412, 618336	Residential
Viewpoint 7 – B7046 Skares Road	251928, 617435	Road
Viewpoint 8 – Loch Doon	248616, 598334	Road / Recreational
Viewpoint 9 – A70 between Drongan and Ochiltree	248200, 620373	Road
Viewpoint 10 – Greenbraes Drive, New Cumnock	262166, 612612	Residential
Viewpoint 11 – B7083 at Holmhead	256025, 620722	Residential / Road
Viewpoint 12 – Avisyard Hill	260904, 618125	Recreational
Viewpoint 13 – Maybole	230418, 609959	Residential / Road
Viewpoint 14 – Cornish Hill	240535, 594262	Recreational
Viewpoint 15 – B705, Outskirts of Mauchline	250403, 627454	Residential / Road

The associated infrastructure comprising access tracks, crane pads, hardstandings and substation will be modelled into the photomontage visualisations from viewpoints located within 5 km of the Proposed Development where such elements would be visible.

4.3.9 Residential Visual Amenity Assessment

There are a number of residential properties located within the vicinity of the Proposed Development, and the LVIA will also consider the visual effects likely to be experienced by receptors in individual properties located within 2 km of the Proposed Development. The visual amenity of these properties will be assessed as part of a Residential Visual Amenity Assessment (RVAA) to determine whether any properties would experience a significant visual effect from their dwelling, curtilage or principal access. A professional judgement will then be provided to determine whether residents would experience such an overbearing effect on visual amenity that the property would become an unattractive place in which to live. The findings of the RVAA will be presented in a technical appendix to the LVIA Chapter within the EIAR.

4.3.10 Aviation Lighting / Night-time Assessment

The assessment of landscape character and visual amenity effects of the visible aviation warning lighting will be informed by a ZTV of the lit turbines to 20 km, a turbine lighting intensity ZTV to 20 km and dark sky visualisations from a selection of the LVIA viewpoints, illustrating the proposed aviation warning lighting.

In accordance with NatureScot Visualisation Guidance, the viewpoints selected represent locations from where people are most likely to experience the Proposed Development at night.

It is proposed that the following night-time visualisations will be produced:

- Viewpoint 2 – Ayr Road, Dalmellington;
- Viewpoint 5 – Whitehill Avenue, Patna; and

- Viewpoint 8 – Loch Doon.

The viewpoints will be used to inform consideration of the potential visual effects on key visual receptors in nearby residential properties, settlements and users of the road network.

The assessment of the visual effects of the aviation lighting will be guided by NatureScot's Guidance on Aviation Lighting Impact Assessment[22] and will be presented in a separate technical appendix to the LVIA chapter of the EIAR.

4.3.11 Cumulative Effects

The LVIA will consider the potential for any cumulative effects to arise. The requirement for consideration of cumulative effects under the EIA Regulations is set out in Schedule 4, part 5, as follows:

"A description of the likely significant effects of the development on the environment resulting from, inter alia: (e) the cumulation of effects with other existing and/or approved development, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources."

This represents a change to the wording of the previous Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2010 which stated: "*A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development*".

Therefore, there is no longer any requirement under the current EIA Regulations to consider the potential for cumulative impacts in relation to other developments which are yet to be awarded consent. It is acknowledged however that current best practice guidance[23] for cumulative impact assessment still refers to a consideration of proposals which are 'awaiting determination within the planning process with design information in the public domain' and states that "The decision as to which proposals in the planning/consenting system should be included in an assessment is the responsibility of the determining authority."

As such, consideration will be given in the LVIA to cumulative effects caused by the Proposed Development in conjunction with other sites which are either operational, under construction, consented, or the subject of a full planning application. NatureScot best practice guidance identifies two principal types of cumulative visual impact:

- Combined visibility – where the observer is able to see two or more developments from one viewpoint; and
- Sequential visibility – where two or more sites are not visible at one location but would be seen as the observer moves along a linear route, for example, a road or public right of way.

The guidelines state that 'combined visibility' may either be 'in combination' (where two or more sites are visible from a fixed viewpoint in the same arc of view) or 'in succession' (where two or more sites are visible from a fixed viewpoint, but the observer is required to turn to see the different sites). Each of the above types of cumulative effect will be considered in the LVIA.

The assessment will also consider the potential cumulative effects of wind turbine aviation lighting, with reference to other wind farms that are either operational, under construction,

[22] NatureScot (November 2024). Guidance on Aviation Lighting Impact Assessment. Available at: https://www.nature.scot/doc/guidance-aviation-lighting-impact-assessment

[23] 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

consented, or the subject of a full planning application (that also have visible aviation warning lighting).

For the cumulative assessment to remain focused on other developments that have the greatest potential to give rise to significant cumulative effects, it is necessary at the outset to decide which developments need to be considered in detail, as to consider all developments within 35 km of the Proposed Development would detract attention from the key issues relating to the application. In this landscape and visual context, wind farms over a 20 km distance from the Site are highly unlikely to give rise to significant cumulative effects. It is also considered appropriate and proportionate to scope out all turbines under 50 m, and any turbines between 50 m and 80 m which are located over 10 km distance from the Proposed Development. Cumulative sites are illustrated on **Figure 4.5.**

Ongoing cumulative research will be undertaken and a scope of assessment and 'cumulative cut-off date' agreed prior to submission of the application to ensure the most up-to-date information available is included.

With reference to **Figure 4.5**, there are a number of other schemes in the vicinity of the Proposed Development that are at the scoping stage. A separate section will be included at the end of the cumulative effects section that deals within the potential cumulative landscape and visual effects of these scoping stage schemes.

4.4 Potential Sources of Impact

It is acknowledged from the outset that, in common with almost all commercial wind energy developments, some landscape and visual effects would occur as a result of the Proposed Development, including some significant effects.

Effects during the construction and decommissioning phase are considered to be temporary and would have a short duration. Effects associated with the operational phase of the Proposed Development are considered to be long-term, reversible effects.

4.4.1 Construction phase

Construction of the Proposed Development will include ground clearance and preparation, creating temporary compounds, laying access tracks, laying concrete pads for wind turbines, inverters and transformers, erecting wind turbines, excavating cable trenches, erecting security fencing.

These elements would require the loss of some landscape features within the Site. These temporary aspects of the Proposed Development would not be anticipated to bring about significant landscape or visual effects over and above any identified in relation to the operation of the Proposed Development.

4.4.2 Operational phase

It is recognised that the Proposed Development would give rise to some localised significant effects on landscape character and visual amenity. These effects would arise primarily as a result of the introduction of the wind turbines into the landscape.

The ground-level components of the Proposed Development would be sited to respond to local topography and landscape features which can assist the mitigation and limit the potential for significant effects. However, the relative low height of these elements would be anticipated to constrain effects in locations close to, or within the Site. It is not considered that these components of the Proposed Development would give rise to any significant effects, in their own right, on landscape character or visual amenity.

The Proposed Development would, overall, have direct effects upon local landscape character and visual amenity, and it is anticipated that effects would be significant in proximity to the

Proposed Development. The LVIA will consider further the nature of effects and relationship with the wider landscape and visual context in order to assess the extent across which any such effects might be significant. Viewpoints and visual receptors located within the Site and at closer proximity to the Proposed Development are inevitably going to be locations from where receptors are more likely to experience significant effects.

4.5 Consultation

No formal consultation in relation to landscape or visual matters associated with the Proposed Development has been undertaken to date. Key consultees will be East Ayrshire Council and NatureScot.

4.6 Matters Scoped In or Out

In order that the assessment remains proportionate and focuses on the key matters that have the potential to bring about significant effects, it is proposed that the following matters are scoped in/out of the assessment.

Table 4-2: Receptors/Elements to be Scoped In/Out of the LVIA

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
Landscape features within the Site	Scoped in	Due to the potential direct effects arising from the Proposed Development.
Landscape features beyond the Site	Scoped out	There is no potential for significant effects to occur to landscape features located beyond the Site.
Effects on receptors located outside of the ZTV	Scoped out	The Proposed Development would not result in any effects where there is no predicted visibility.
Landscape character within the 20 km detailed LVIA study area and within the predicted zone of theoretical visibility.	Scoped in	It is anticipated that the potential for significant effects upon landscape character would occur within 20 km due to the relatively contained and intermittent zone of theoretical visibility as illustrated by **Figure 4.1, Figure 4.2** and **Figure 4.3.**
Effects on LCTs outside of the proposed detailed 20 km LVIA study area	Scoped out	There would be no potential for indirect significant effects due to the distance from the Proposed Development and the limited theoretical visibility beyond this distance as illustrated by **Figure 4.1** and **Figure 4.3**.
Visual amenity within the 20 km detailed LVIA study area and within the predicted zone of theoretical visibility.	Scoped in	It is anticipated that the potential for significant effects upon visual amenity would occur within 20 km due to the relatively contained and intermittent zone of theoretical visibility as illustrated by **Figure 4.1** and **Figure 4.2.**
Cumulative landscape and visual effects within the detailed 20 km cumulative study area	Scoped in	Due to the location of cumulative schemes relative to the Proposed Development illustrated on **Figure 4.5** and the relatively contained zone of theoretical visibility as illustrated by **Figure 4.1** and **Figure 4.2**. The area within which potentially significant

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		cumulative landscape and visual effects may occur is limited to within 20 km.
Effects on the Doon Valley LLA	Scoped in	Due to the proximity of the Proposed Development to the SLA there is potential for indirect significant effects on some of its key characteristics.
Effects on the Water of Girvan Valley, The Stincher Valley, High Carrick Hills, Uplands and Moorlands, River Ayr Valley and Brown Carrick Hills & Coast LLAs and the Galloway Hills RSA	Scoped out	Due to the distance from the Proposed Development and the intermittent theoretical visibility any effects on the key features and characteristics of these LLAs/RSA would be limited and would not be significant.
Effects on Craigengillian GDL	Scoped in	Due to the proximity of the Proposed Development to this GDL, there is potential for indirect significant effects on some of its key characteristics. The LVIA will focus on the potential effects on views experienced from the GDL. The heritage chapter will consider effects on the heritage significance of the asset.
Effects on all other Gardens and Designed Landscapes other than Craigengillan GDL	Scoped out	Due to the distance from the Proposed Development and the limited theoretical visibility, there is no potential for visitors to experience significant visual effects.
Effects on Dumfries and Galloway Dark Sky Park	Scoped in	Due to the proximity of the Proposed Development to the Dark Sky Park and the potential impact of aviation lighting, there is potential for indirect significant effects on some of its key characteristics.
The Merrick Wild Land Area (WLA 01)	Scoped out	Due to being located over 15 km from the Proposed Development, and the very limited hub height theoretical visibility. Any effects would not be significant.
Residential visual amenity of residential properties within 2 km of the proposed turbines	Scoped in	As set out in Landscape Institute Technical Guidance Note TGN 2/1918 the purpose of RVAA is not to determine whether or not a residential property will experience a significant visual effect. RVAA is a stage beyond LVIA and its purpose is to determine whether the Residential Visual Amenity Threshold is reached and the effect could be considered overbearing. The guidance suggests a preliminary RVAA study area of 1.5 to 2 km. Therefore, 2 km RVAA study area is considered to be a proportionate extent within which potentially overbearing effects on nearby residential properties may occur.
Effects on settlements beyond 10 km	Scoped out	Due to the distance from the Proposed Development and the limited theoretical visibility, there is no potential for receptors in

Environmental Receptor, Assessment or Effect	Scoped In/Out	Rationale
		these settlements to experience significant visual effects.
Effects on long-distance trails (Arran Coastal Way, Ayrshire Coastal Path, Clyde Walkway, River Ayr Way and Southern Upland Way)	Scoped out	Due to the distance from the Proposed Development and the limited theoretical visibility, there is no potential for users of these routes to experience significant visual effects.
Effects on core paths beyond 10 km	Scoped out	Due to the distance from the Proposed Development and the limited theoretical visibility, there is no potential for users of these core paths to experience significant visual effects.
Effects on road users of main transport routes within 10 km	Scoped in	Due to the proximity to the Proposed Development and the predicted visibility, road users of these routes have the potential to experience significant visual effects.
Effects on users of the National Cycle Network	Scoped out	Due to the distance from the Proposed Development and the very limited theoretical visibility, there is no potential for users to experience significant visual effects.

4.7 Questions for Consultees

Q4.1 Referring to **Figure 4.1** and **Figure 4.2**, do you agree with the extent of the proposed detailed LVIA study area?

Q4.2 Do you agree with the proposed daytime viewpoint locations listed in **Table 4-1**?

Q4.3 Do you agree with the proposed night-time visualisation locations?

Q4.4 Do you agree that the proposed scope of the assessment is appropriate?

Q4.5 Do you agree with the receptors/matters scoped into further assessment listed in **Table 4-2**?

Q4.6 Do you agree with the receptors/matters proposed to be scoped out of further assessment listed in **Table 4-2**?

Q4.7 With reference to **Figure 4.5**, are there any other wind farms you are aware of within the 20 km detailed cumulative study area to be included the cumulative assessment?

5.0 Cultural Heritage

5.1 Introduction

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

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

The cultural heritage impact assessment will:

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

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

This section is supported by the following:

- **Appendix B** – Cultural Heritage Appraisal;
- **Figure 5.1** – Cultural Heritage Designations;
- **Figure 5.2** – Designated Cultural Heritage Assets within the Site.

5.2 Environmental Baseline

A high-level review of the baseline conditions has been undertaken with reference to the available historic environment data and the most up to date and detailed design of the proposed development at this time. This may be subject to change according to subsequent design iterations.

5.2.1 Field Surveys

To date, a preliminary in-field setting assessment has been undertaken on the assets scoped in for assessment in the EIA in this chapter.

The in-field setting assessments were conducted in September 2025, for Craigengillan GDL (GDL00111) and Laight Castle (SM7690). An inspection of the Waterside miner's villages & mineral railways N of (SM7863) was also undertaken to ensure that it does not derive its cultural significance from its setting.

5.2.2 Established Baseline Conditions

5.2.2.1 Assets within the Site Boundary

There are three Scheduled Monuments within the Site, comprising Waterside, miners' villages and mineral railways N of (SM7863), Waterside, Dalmellington Ironworks (SM4345) and Laight Castle (SM7690). These assets are within the western extent of the Site. A protective buffer of 20 m will be implemented throughout the design to prevent any accidental direct or indirect impacts upon the assets.

There are a number of non-designated assets within the Site, comprising remains of the post-medieval industrial mining landscape, including collieries and infrastructure, quarries, post-medieval agricultural activities comprising sheepfolds and field banks, and potentially earlier remains comprising undated enclosures.

A full commercial Historic Environment Records (HER) data search will be undertaken ahead of the baseline survey and used to inform an understanding of key constraints, and a targeted walkover survey will be conducted to identify any further potential unrecorded archaeological assets within proximity of the proposed construction activities.

5.2.2.2 Assets Outwith the Site Boundary

Within 10 km of the proposed turbine layout there are 57 designated heritage assets, comprising the following:

- 12 scheduled monuments,
- 7 Category A Listed Buildings;
- 32 Category B Listed Buildings;
- 3 Garden and Designed Landscapes; and
- 3 Conservation Areas.

There are no Inventoried Battlefields or World Heritage Sites within 10 km of the proposed turbine locations.

5.3 Potential Sources of Impact

5.3.1 Potential Sources of Impact within the Site Boundary

The three scheduled monuments within the Site boundary are within the west of the Site (**Figure 5.2**). Direct and indirect physical impacts upon Scheduled Monuments without prior consent is illegal under the Ancient Monuments and Archaeological Areas Act (1979), and non-compliant with the NPF4. These will be provided 20 m protective buffers and will be mitigated through design, with the exception of the track crossing between T5 and T4, which crosses over one of the railway components of SM7863. The proposed approach would be to apply a floating track over and within 10 m of the scheduled monument, to ensure there is no direct impacts upon the monument, subject to Scheduled Monument consent and agreement with Historic Environment Scotland (HES).

Of the non-designated cultural heritage assets within the Site, there are potential direct and indirect impacts upon the 19th – 20th century industrial mining landscape including colliery infrastructure and spoil. There also may be remnant aspects of the post-medieval agricultural

landscape, although these would likely be already heavily impacted by later industrialisation. The proposed infrastructure is currently also located proximate to undated remains, including enclosures (NRHE: 170001, 170132). These assets may be susceptible to direct or indirect impact as a result of the construction of the associated infrastructure (e.g. internal access tracks, substation) and any design changes will need to take into consideration the location of these assets to avoid any potential direct impacts on the heritage assets as far as possible.

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

Relevant mitigation measures will be embedded within the design of the Proposed Development as design progresses.

5.3.2 Potential Sources of Impact outwith the Site Boundary

With regards to the potential impacts on the setting of heritage assets, a Zone of Theoretical Visibility (ZTV) calculation (**Figure 5.1**) has been used to identify assets scoped in for further assessment. After analysis of the ZTV, a study area of 10 km has been set as the area where significant impacts to the asset's setting are most likely, with visibility of the proposed development significantly reducing outwith this study area.

Assets within this study area have been subject to an initial appraisal, set out in Appendix B. No designated heritage assets with long distance views as part of their setting were identified outwith 10 km of the Proposed Development.

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

All designated cultural heritage assets within 10 km of each Scoping Layout, along with the ZTV indicating their visibility of the proposed turbines, are depicted on **Figure 5.1**.

Following the appraisal of assets set out in **Appendix B**, two designated cultural heritage assets have been identified as requiring a detailed setting assessment within the EIAR, as there is the potential for the Proposed Development to have a significant effect upon them.

The assets scoped in for further assessment within the EIAR after the initial heritage appraisal are outlined in **Table 5-1**. Furthermore, the locations of visualisations, are proposed in **Table 5-1**. In the event that any viewpoints cannot be accessed and photos cannot be taken, wirelines will be produced. These visualisation locations are approximate, and final locations will depend on access and visibility of the final layout of the Proposed Development. Any changes in visualisation locations will be communicated to the appropriate consultees. The provided visualisations will include the developments considered for cumulative assessment.

Table 5-1: Assets Scoped In for Further Assessment due to Potential for Settings Impacts

Asset Reference	Asset Name	Type of Asset	Proposed Visualisation Location
SM7690	Laight Castle	Scheduled Monument	245067, 608869
GDL00111	Craigengillan Garden and Designed Landscape	Garden and Designed Landscape and its Listed Buildings	Craigengillan (GDL00111) - House (LB18793): 247350, 602817

Asset Reference	Asset Name	Type of Asset	Proposed Visualisation Location
			Craigengillan (GDL00111) – Berbeth: 246788, 603939 Craigengillan (GDL00111) - East approach: 248270, 602760 Craigengillan (GDL00111) - Near Wee Berbeth Loch, 247374, 603291

5.4 Method of Assessment and Reporting

5.4.1 Legislation, Policy and Guidance

5.4.1.1 Legislation

- The Ancient Monuments and Archaeological Areas Act 1979;
- The Planning (Listed Buildings and Conservations Areas (Scotland)) Act 1997;
- The Historic Environment (Amendment) (Scotland) Act 2014; and
- Scottish Statutory Instrument No. 101 The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

5.4.1.2 Planning Policy

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

- Onshore Wind Turbines: Planning Advice (2014);
- NPF4 (Scottish Government, 2023);
- Historic Environment Policy for Scotland (HEPS 2019); and
- East Ayrshire Development Plan Scheme 2026.

5.4.1.3 Guidance and Standards

Relevant guidance and technical standard documents comprise:

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

5.4.2 Proposed Sources

The sources to be consulted in the production of the EIA chapter include, but are not limited to, those outlined in **Table 5-2**.

Table 5-2: Proposed Sources

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

5.4.3 Study Area

For the setting assessment, a Study Area (**Figure 5.1**) of 10 km from the location of the proposed turbines has been defined. There is no guidance defining what the extent of an appropriate 'study area' should be for the archaeological and cultural heritage assessment of wind farms. The proposed Study Area, therefore, represents an exercise in professional judgement, using the Zone of Theoretical Visibility (ZTV) and the scale of the development, and will be refined to a point of agreement between stakeholders during consultation. Assets within this study area have been subject to an initial appraisal, set out in Technical Appendix 5.2, to determine the scope of the assessment. The study area is taken from the wind turbines, as the most visible and potentially impactful elements of the development.

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

5.4.4 Scope of the Assessment

5.4.4.1 Assets within the Site

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

5.4.4.2 Assets outwith the Site

All nationally significant designated assets within the aforementioned 10 km Study Area will be subject to an initial setting assessment in order to determine any potential impacts (**Appendix B**). A final scope of assets that have the potential for significant effects as a result

of the Proposed Development will be agreed with the relevant consultees and assessed in full within the EIR.

5.4.4.3 Consultation

Based on the results of the baseline study, constraint mapping, using GIS software, shows mapped heritage assets in relation to a ZTV (**Figure 5.1**). This filters out those assets that do not require further assessment. These figures are provided to identify and agree on the most potentially sensitive assets; which may then require computer-generated visualisations to be produced as part of their assessment. Consultees are invited to comment on the current scope of assets to be assessed in the EIA.

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

WoSAS is invited to comment in relation to non-designated heritage assets and designated heritage assets of regional significance, and any non-designated assets which they consider to be of higher significance.

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

5.4.4.4 Field Surveys

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

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

5.4.4.5 Zone of Theoretical Visibility

The setting impact assessment will be assisted by the ZTV as presented on **Figure 5.1**. The ZTV is based upon the maximum level of theoretical visibility, i.e. the maximum height of the turbine blade tips.

5.4.4.6 Assessment and Types of Impact

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

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

- Direct impacts (physical) occur where the physical fabric of the asset is removed or damaged, or where it is preserved or conserved, as a direct result of the Proposed Development. Such impacts are most likely to occur during the construction phase and are most likely to be permanent.

- Indirect (physical) impacts are those which would affect the heritage significance of an asset by causing change to its fabric indirectly, such as increased pollution or changes in water draining patterns which can indirectly affect the preservation of heritage materials.
- Direct setting impacts result from the Proposed Development causing change within the setting of a heritage asset that affects its cultural significance or the way in which it is understood, appreciated, and experienced. Such impacts are generally, but not exclusively, visual, occurring directly as a result of the appearance of the Proposed Development in the surroundings of the asset. Setting impacts may also relate to other senses or factors, such as noise, odour or emissions, or historical relationships that do not relate entirely to intervisibility, such as historic patterns of land-use and related historic features. Such impacts may occur at any stage of a Proposed Development's lifespan and may be permanent, reversible, or temporary.
- Cumulative impacts: can relate to the physical fabric or setting of assets. They may arise as a result of impact interactions, either of different impacts of the Proposed Development itself, or additive impacts resulting from incremental changes caused by the Proposed Development together with other projects already in the planning system or allocated in a Local Development Plan.

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

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

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

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

- Stage 1: identify the historic assets that might be affected by the Proposed Development;
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated and experienced; and
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.

5.4.4.7 Cultural Heritage Significance

The categories of cultural heritage significance to be referred to are presented in **Table 5-4**, which will act as an aid to consistency in the exercise of professional judgement and provide a degree of transparency for others in evaluating the conclusions drawn.

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

Table 5-4: Cultural Heritage Significance

Cultural Heritage Significance	Example
Very High	Sites of international importance, including World Heritage sites.
High	Site of National importance, including: Scheduled Monuments; Category A Listed Buildings; Gardens and Designed Landscapes included on the national inventory; Designated Battlefields Conservation areas containing nationally important buildings; and Non-designated assets of equivalent significance.
Medium	Sites of Regional/local importance, including: Category B and C Listed Buildings; Conservation Areas containing buildings that contribute significantly to its character; and Non-designated assets of equivalent significance.
Low	Assets of local importance Heritage assets compromised by poor preservation and/or poor survival of contextual associations or with little of the asset remaining to justify a higher importance.
Negligible	Assets that are of very little or no heritage interest. Heritage assets where the ability to interpret their archaeological context has been removed/eroded.
Unknown	Further information is required to assess the significance of these assets.

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

This approach recognises the importance of avoiding significant adverse effects on the integrity of the setting of an asset in the context of the contribution that setting makes to the understanding, appreciation, and experience of an asset. It recognises that setting may be key in characterising, understanding, and appreciating some, but not necessarily all, assets.

Indeed, assets of high or very high significance do not necessarily have high sensitivity to changes to their settings.

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

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

The determination of an asset's relative sensitivity to changes to its setting is first and foremost reliant upon the determination of its setting and how setting aligns with other key characteristics which contribute to cultural significance. While cultural significance is defined by the criteria set out in **Table 5-4**, the sensitivity of setting criteria for each asset will be defined using professional judgement and, where appropriate, by a site visit conducted by the assessor. The resulting sensitivity of setting will then be defined and referenced within the assessment for use in applying professional judgement to determine whether the resulting effects are in line with policy.

5.4.4.8 Magnitude of Change

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

Taking into account all embedded mitigation measures, which will be developed throughout the design process, the magnitude of change will be assessed using professional judgement, with reference to the criteria set out in **Table 5-5.**

Table 5-5: Magnitude of Change

Magnitude of Change	Explanatory Criteria
High Beneficial	The Proposed Development would considerably enhance the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Medium Beneficial	The Proposed Development would enhance, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Low Beneficial	The Proposed Development would enhance, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Neutral/None	The Proposed Development would not affect the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.

Magnitude of Change	Explanatory Criteria
Low Adverse	The Proposed Development would erode, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would rarely be considered to affect the integrity of the asset's setting.
Medium Adverse	The Proposed Development would erode, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact might be considered to affect the integrity of the asset's setting.
High Adverse	The Proposed Development would considerably erode the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would probably be considered to affect the integrity of the asset's setting.

5.4.4.9 Significance of Effect

Table 5-6 provides a matrix that relates the cultural significance of the asset to the magnitude of change on its cultural significance, to produce an overall anticipated level of effect (significance of effect). Effects may be beneficial or adverse, and may be short term, long term or permanent.

Table 5-6: Significance of Effect Matrix

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

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

With reference to the matrix presented in **Table 5-6**:

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

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

5.4.4.10 Integrity

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

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

5.4.4.11 Mitigation and Enhancement

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

Suitable measures for minimising impacts through ground disturbance might include:

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

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

- Alteration of the proposed turbine layout;
- Deletion or removal of turbines; and/or
- Reduction of proposed turbine heights.

In addition to mitigation of impacts, opportunities for the enhancement of access to the heritage assets within the Site and the areas where the industrial legacy of the site can be communicated to the general public will be explored throughout the EIA process.

5.4.4.12 Cumulative Effect

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

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

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

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

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

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

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

5.4.5 Residual Effects

Residual effects are those that remain even after the implementation of suitable mitigation measures. Residual effects will be identified, and the significance of those residual effects defined with reference to **Table 5-5**.

5.4.6 Matters Scoped Out

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

Category B Listed Buildings outwith 5km of the proposed turbines have been scoped out of any further assessment, with the exception of those wherein specific views are considered to contribute to their significance and/or to the ability to understand, appreciate and experience them.

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

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

5.5 Questions for Consultees

Q5.1: Do consultees agree with the methodology set out?

Q5.2: Do consultees agree with assets and matters scoped out?

Q5.3: Are there any assets, not listed in the appraisal, that key consideration should be given to?

Q5.4: Do consultees have any specifications on further visualisations and their locations?

6.0 Ecology

6.1 Introduction

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

This chapter is supported by the following figures:

- **Figure 6.1**: Ecological Designated Sites and Ancient Woodland within 5km;
- **Figure 6.2**: Carbon and Peatland Map 2016 within 1km; and
- **Figure 6.3.1-6.3.7**: National Vegetation Classification Survey Results.

6.2 Baseline Description

Baseline ecological conditions have been/will be established through a combination of the following desk-based sources and field surveys:

- a desk study to confirm the location and qualifying features of statutory designated sites[24], non-statutory designated sites[25,26] and ancient woodland[27] within potential zones of influence of the Proposed Development;
- information from the Carbon and Peatland Map 2016[28];
- information from the National Biodiversity Network (NBN) Atlas[29] on ecological records within 5 km and 10 km[30] of the Site within the last 15 years (since 2010);
- information from the Deer Distribution Survey by the British Deer Society[31];
- information from the Saving Scotland's Red Squirrels (SSRS) website[32] for records of red (*Sciurus vulgaris*) and grey (*Sciurus carolinensis*) squirrel sightings;

[24] NatureScot (2026). SiteLink. Available at: https://sitelink.nature.scot/home. [Accessed: March 2026].

[25] East Ayrshire Council (2024). Local Development Plan 2. Local Nature Conservation Sites. Draft Non-statutory Planning Guidance. Available at: https://www.east-ayrshire.gov.uk/Resources/PDF/P/planning-nspg-local-nature-conservation-sites.pdf. [Accessed: March 2026].

[26] Scottish Government (2026). Local Nature Conservation Sites – Scotland. Available at: https://www.data.gov.uk/dataset/c3460656-74ab-435a-8f77-9a528e24beb1/local-nature-conservation-sites-scotland. [Accessed: March 2026].

[27] Scottish Government (2026). Ancient Woodland Inventory (Scotland). Available at: https://www.spatialdata.gov.scot/geonetwork/srv/api/records/A091F945-F744-4C8F-95B3-A09E6EF6AE33.

[28] Scottish Government (2026). Scotland's Soils. Available at: https://map.environment.gov.scot/Soil_maps/?layer=10#. [Accessed: March 2026].

[29] National Biodiversity Network Atlas Scotland (2026. Available at: https://scotland.nbnatlas.org/. [Accessed: March 2026].

[30] 10 km buffer applies to bat species only.

[31] British Deer Society (2023). Deer Distribution Survey. Available at: https://bds.org.uk/science-research/deer-surveys/deer-distribution-survey/. [Accessed: March 2026].

[32] Scottish Squirrels (2026). Sightings of Red and Grey Squirrels across Scotland. Available at: https://scottishsquirrels.org.uk/squirrel-sightings/. [Accessed: March 2026].

- Environmental Statements (ES), EIARs or technical reports from other relevant developments or proposed developments in the local area;
- results of the ecological surveys undertaken for the Proposed Development between April and September 2025 and additional forthcoming ecological surveys; and
- results of the Phase 1 peat probing surveys undertaken for the Proposed Development in October 2024 and January 2026 (see **Chapter 8: Geology, Hydrogeology, Hydrology and Peat**). Peatland condition surveys will be undertaken in 2026.

6.2.1 Study Area

The ecology assessment will incorporate the following study areas:

- statutory designated sites and non-statutory designated sites: the Site as a whole and a 5 km study area from the Site boundary (see **Figure 6.1**);
- protected species: the Site plus any species-specific buffers as necessary and as defined in guidance;
- electrofishing surveys: watercourses within the Site boundary and downstream as deemed relevant;
- potential bat roost features: the Site and a 200 m plus turbine blade length buffer (as per NatureScot *et al*., 2021)[33];
- bat collisions: static bat data from fixed locations will be processed through the online Ecobat tool[34];
- habitats and potential Groundwater Dependent Terrestrial Ecosystems (GWDTE): the Site; and
- cumulative assessment (if required): the Site and a 5 km study area from the Site boundary.

6.2.2 Desk Study

6.2.2.1 Designated Sites

There are three statutory designated sites with ecological (non-avian) qualifying interests within 5 km of the Site boundary: Doon Valley Wetlands Site of Special Scientific Interest (SSSI) is located southwest of the Site; Ness Glen SSSI is south of the Site boundary; and Loch Doon SSSI is south of the Site boundary[24] (see **Figure 6.1** and **Table 6-1**).

There are four non-statutory Local Nature Conservation Sites (LNCS) within/overlapping with the Site: Benquhat Hill LNCS, Benbeoch / Pennyvennie Glen LNCS, Doon Valley Wetlands LNCS and Dunaskin Ironworks LNCS; and numerous within 5 km of the Site[25,26]. The details/interests available for these LNCS are presented in

Table 6-2 (see also **Figure 6.1**).

[33] NatureScot, Natural England, Natural Resources Wales, Renewable UK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT). (2021). Bats and Onshore Wind Turbines: Survey Assessment and Mitigation.

[34] Mammal Society (2024). Bat survey tools — Ecobat. Available at: https://mammal.org.uk/current-research/bat-survey-tools. [Accessed: March 2026].

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

Designated Site	Qualifying Features	Distance from Site Boundary (km)	Condition (and Date of Assessment)
Doon Valley Wetlands SSSI	Flood-plain fen	0.01	Condition not assessed
	Open water transition fen		Condition not assessed
	Raised bog		Condition not assessed
Ness Glen SSSI	Atlantic woodland bryophyte assemblage	3.91	Condition not assessed
	Upland mixed ash woodland		Unfavourable recovering due to management, Unfavourable declining; Management measures are in place that should, in time, improve the feature to Favourable condition (Unfavourable Recovering Due to Management) (13 August 2014)
Loch Doon SSSI	Arctic charr (*Salvelinus alpinus*)	4.97	Unfavourable declining (5 November 2019)

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

LNCS	Distance from Site Boundary (km)	Description / Type[35]
Benbeoch / Pennyvennie Glen	0	Biodiversity Primary habitat type: geodiverse / composite
Benquhat Hill	0	Biodiversity Primary habitat type: composite
Doon Valley Wetlands	0	Provisional wildlife site Primary habitat type: wetland
Dunaskin Ironworks	0	Wildlife site Primary habitat type: composite
Cumnock Burn / Pennyvenie Burn	0.20	Provisional wildlife site Primary habitat type: composite
Auchenroy / Glenmount Uplands	0.78	Provisional wildlife site Primary habitat type: composite
Craigengillan / Ness Glen Woodland	1.33	Provisional wildlife site Primary habitat type: woodland
Dalmellington Town Common	1.44	Provisional wildlife site Primary habitat type: grassland

[35] Note that little information is available on these LNCS. It is proposed that the Planning Authority be consulted with to determine the LNCS' qualifying or protected features and status.

LNCS	Distance from Site Boundary (km)	Description / Type[35]
Wallace Moor / Keirs Hill	1.48	Provisional wildlife site Primary habitat type: mire
Martyrs' Moss	1.94	Provisional wildlife site Primary habitat type: mire
Straiton Hills	2.42	Wildlife
Bow Burn	2.71	Provisional wildlife site Primary habitat type: woodland
Rankinston Scub, Water of Coyle	3.05	Provisional wildlife site Primary habitat type: scrub
Bryan's Height	3.12	Provisional wildlife site Primary habitat type: heathland
Ashentree Glen Wood	3.26	Provisional wildlife site Primary habitat type: woodland
River Doon Woodland	3.88	Provisional wildlife site
Kerse Loch	4.18	Provisional wildlife site Primary habitat type: wetland
Connel Burn / Benty Cowan	4.35	Provisional wildlife site Primary habitat type: composite
Craigs of Kyle	4.48	Wildlife
Loch Spallander and Cloncaird Moor	4.49	Wildlife

6.2.2.2 Ancient Woodland

There are no areas of ancient woodland listed on the Ancient Woodland Inventory (AWI) within or overlapping with the Site[27]. However, there are several parcels of ancient woodland within 5 km of the Site, with the closest located approximately 15 m to the south of the Site (**Figure 6.1**). This area is classified as Long-Established (of plantation origin). All turbines/infrastructure are proposed to be located over 800 m from ancient woodland listed on the AWI. These areas are classified as being either Ancient (of semi-natural origin), Long-Established (of plantation origin) or Other (on Roy map).

6.2.2.3 NBN Atlas Scotland

A search of the NBN Atlas Scotland[29] returned records of the following protected or notable species within 5 km of the Site in the last 15 years (since 2011):

- adder (*Vipera berus*) (Licence CC-BY[36], Amphibian and Reptile Conservation and Biological Records Centre);
- common lizard (*Zootoca vivipara*) (Licence CC-BY[36], Amphibian and Reptile Conservation and Biological Records Centre, Scottish Wildlife Trust (SWT));
- otter (*Lutra lutra*) (Licence OGL[37], SNH);

[36] Creative Commons with Attribution 4.0 (CC-BY). Available at: https://creativecommons.org/licenses/by/4.0/. [Accessed: March 2026].

- palmate newt (*Lissotriton helveticus*) (Licence CC-BY[36], Amphibian and Reptile Conservation and Biological Records Centre);
- red squirrel (Licence CC-BY[36], SWT); and

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

- common pipistrelle (*Pipistrellus pipistrellus*) (Licence OGL[37], NatureScot, Scottish Natural Heritage (SNH) / British Trust for Ornithology (BTO));
- brown-long eared bat (*Plecotus auritus*) (Licence OGL[37], SNH / BTO);
- Daubenton's bat (*Myotis daubentonii*) (Licence OGL[37], SNH / BTO, Bat Conservation Trust (BCT));
- Leisler's bat (*Nyctalus leisleri*) (Licence OGL[37], SNH / BTO);
- Natterer's bat (*Myotis nattereri*) (Licence OGL[37], SNH / BTO; and
- soprano pipistrelle (*Pipistrellus pygmaeus*) (Licence OGL[37], SNH / BTO).

The invasive non-native species (INNS) grey squirrel (*Sciurus carolinensis*) (Licence CC-BY[36], SNH), *Rhododendron ponticum* (Licence CC-BY[36], Botanical Society of Britain and Ireland (BSBI) and Biological Records Centre) and Himalayan balsam (*Impatiens glandulifera*) (Licence CC-BY[36], BSBI and Biological Records Centre) were also recorded within the 5 km search parameters.

6.2.2.4 SSRS

The SSRS sightings portal[32] has records of grey squirrel sightings within 5 km of the Site from 2013 to 2015, 2020, 2021 and red squirrels within 5 km of Site in 2013, 2015, 2016, 2018, 2020, 2021, 2023 and 2025.

6.2.2.5 Deer Distribution Survey

The Deer Distribution Survey[31] results suggest the likely presence of roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*) and fallow dear (*Dama dama*) within the general area of the Site.

6.2.2.6 Carbon and Peatland Map 2016

As shown on **Figure 6.2**, the Carbon and Peatland Map 2016[28] shows that the Site comprises mainly Class 0 Mineral Soil[38], with areas of Class 5[39] soils, Class 4[40] soils, Class 3[41] peatland and Class 1[42] peatland. Four proposed turbines (T8, T9, T15 and T16) are currently located

[37] Open Government Licence (OGL). Available at: https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/. [Accessed: March 2026].

[38] Class 0: Mineral Soil.

[39] Class 5: Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.

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

[41] Class 3: Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat.

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

within areas of mapped Class 1 peatland (**Figure 6.2**). There are no areas of Class 2[43] peatland within the Site.

Habitat and peat depth surveys undertaken for the Proposed Development take precedence over the Carbon Peatland Map information and provide further detailed site-specific information relating to Site vegetation and soils (see **Section 6.2.3.1** and **Chapter 8**).

6.2.3 Field Surveys

6.2.3.1 Habitat Surveys

National Vegetation Classification (NVC) surveys incorporating Phase 1 Habitat characterisation and potential GWDTE habitat classification were undertaken in August 2025, within the Site boundary at the time of the survey commencement. Further surveys will be undertaken in 2026 to complete coverage of areas of the Site that were not covered within the 2025 survey extent.

The habitat survey results are shown on **Figure 6.3**[44], and show that the majority of the survey area is made up of marshy grassland (B5), blanket bog (E1.6.1) and unimproved acid grassland (B1.1). Other habitats are mixed and more limited and fragmented in extent, including wet broadleaved semi-natural woodland (A1.1.1), unimproved neutral grassland (B2.1) and artificial rock exposure (mine) (I2.3) amongst numerous other habitats and mosaics (**Figure 6.3**). Many areas are disturbed and degraded reflecting the Site's mining legacy and limited restoration since.

Areas of potential GWDTE were found across the majority of the survey area based on the NVC survey results. A GWDTE assessment will be conducted as part of the Geology, Hydrogeology, Hydrology and Peat chapter of the EIAR (see **Chapter 8**).

6.2.3.2 Protected Species Surveys

Baseline protected species surveys were undertaken in August 2025 within the Site boundary at the time the surveys commenced., Evidence of otter, badger (*Meles meles*), pine marten (*Martes martes*) and potentially suitable reptile habitat were recorded. One otter spraint, one badger print, one potential pine marten scat and two potential reptile hibernacula were recorded in the western section of the Site. No other field signs of these species were identified and no evidence of bat Potential Roost Features (PRF) or red squirrel were recorded. Further general protected species surveys will be undertaken in 2026 to complete coverage of areas of the Site, including relevant buffers for protected species[45], that were not encompassed within the 2025 survey extent.

Habitat Suitability Index (HSI) assessments were conducted in August 2025 to determine the suitability of any waterbodies for great crested newt (GCN) (*Triturus cristatus*). Two ponds within the survey area were recorded as 'Poor' suitability for GCN. It is concluded GCN are absent based on 'Poor' suitability of these two ponds. If any further ponds are identified in the 2026 protected species survey area, HSI assessments will be conducted.

Seasonal static bat detector (Anabat) surveys were undertaken between April and September 2025, over three deployments in accordance with NatureScot *et al*. guidance[33]. Twelve Anabat detectors were deployed across the Site, with locations selected based on the indicative layout

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

[44] For further details of the Phase 1 habitat codes presented on **Figure 6.3**, refer to JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit, JNCC, Peterborough, ISBN 0 86139 636 7.

[45] Species-specific 30 m, 100 m, 200 m, 250 m and 500 m buffers will be considered outwith the Site boundary insofar as access is permitted.

provided at the time of survey commencement and positioned to cover the area in which the turbines were proposed to be located. An additional five detectors will be deployed in 2026 to provide sufficient survey coverage for the proposed turbines located within the 2026 survey area. Full results and analysis of the static bat detector data will be presented in the EIAR.

6.2.3.3 Fish Surveys

Electrofishing and fish habitat suitability surveys for the Proposed Development were undertaken by Ayrshire Rivers Trust (ART) at watercourses within and at catchments draining the Site in July and August 2025. Survey results will be presented and considered in preparation of the EIAR.

6.3 Potential Sources of Impact

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

Construction impacts that will be considered include:

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

Operational impacts that will be considered include:

- displacement of protected species from shelter, breeding or foraging habitats around operational turbines and other permanent infrastructure, including barrier effects;
- risks of bats colliding with or suffering barotrauma from proximity to operational turbine blades; and
- habitat restoration/enhancement to be delivered as part of the Proposed Development's Biodiversity Enhancement Management Plan (BEMP).

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

6.4 Method of Assessment

6.4.1 Assessment Methodologies

The EIAR will include an Ecological Impact Assessment (EcIA). This will consider the potential direct, indirect and cumulative impacts that the construction, operation and decommissioning phases of the Proposed Development could have on Important Ecological Features (IEFs), as

per CIEEM guidance[46]. The assessment will be supported by appendices that will include details of survey methodologies and all survey data.

An assessment of relevant cumulative impacts will be undertaken following published guidance. Where it is determined that a cumulative assessment is necessary, impacts will be assessed in combination with other relevant projects subject to the EIA process within 5 km, and their effects on a relevant reference population; for example, at a watercourse, watershed or Natural Heritage Zone (NHZ) level.

6.5 Approach to Mitigation

6.5.1 Design Considerations

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

- avoidance of statutory designated sites and LNCS;
- avoidance of Class 1 peatland when locating turbines and ancillary infrastructure;
- avoidance of active blanket bog habitat and GWDTEs when locating turbines and other infrastructure insofar as practicable;
- maintenance of a buffer from turbines to forest edge habitats or key linear features to ensure a minimum 50 m buffer from turbine blade tip to feature height for all turbines, as recommended by NatureScot *et al*. (2021)[33] in relation to bats;
- maintaining buffers between infrastructure and any protected species features in line with appropriate guidance;
- maintaining a 50 m buffer between infrastructure and any watercourses, except where watercourse crossings are required (to be kept to a minimum); and
- design of the track length and alignment to reduce the extent of track where practicable and maximise use of existing tracks where possible.

The scoping layout takes into account the above considerations, where appropriate.

6.5.2 Good Practice

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

- a Species Protection Plan (SPP) will be implemented as part of a Construction Environmental Management Plan (CEMP) during the construction phase to ensure that all reasonable precautions are taken to adhere to the relevant wildlife legislation;
- pre-construction and during-construction surveys will be undertaken by an Ecological Clerk of Works (ECoW), or suitably qualified ecologist, as part of the SPP. An ECoW will be present throughout the construction period; and
- a robust, Site-specific CEMP will be implemented. This will set out how the Principal Contractor will manage the works in accordance with the commitments and mitigation measures detailed in the EIAR, the SPP, statutory consents and authorisations, and industry good practice and guidance for environmental management, including appropriate pollution prevention measures, particularly in relation to watercourses.

[46] CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.

6.6 Potential Significant Effects

6.6.1 Potential Effects Scoped in to the Assessment

There is potential connectivity between the Proposed Development and Doon Valley Wetlands SSSI as the Site boundary is adjacent to the SSSI (**Figure 6.1**). As such, Doon Valley Wetlands SSSI will be given further consideration as the Site layout evolves, with the potential for it to be scoped into detailed assessment at the EIA stage.

There is potential connectivity between the Proposed Development and Benquhat Hill LNCS, Benbeoch / Pennyvennie Glen LNCS, Doon Valley Wetlands LNCS and Dunaskin Ironworks LNCS (**Figure 6.1**). As such, these will be given further consideration as the Site layout evolves, with the potential for them to be scoped into detailed assessment at the EIA stage.

Effects on priority peatland and Annex I habitats under the Habitats Directive cannot be scoped out until the presence and distribution of these habitats in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood. However, given the known presence of blanket bog and wet modified bog habitats and the respective mosaics of these habitats across the Site from surveys undertaken to date (**Figure 6.3**), blanket bog and wet modified bog will be scoped in as IEFs.

Effects on semi-natural woodland (**Figure 6.3**) cannot be scoped out until the presence and distribution of these habitats in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood.

Effects on bats, fish populations (migratory salmonids and resident fish), deer and protected species cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution of ecological features in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood. Whether the assessment of these is scoped in or out will be discussed further in the EIAR, and will be informed by several factors including baseline survey results and the final infrastructure layout.

6.6.2 Potential Effects Scoped Out of the Assessment

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

Based on the findings of the desk-based studies and fieldwork undertaken to date, the professional judgement of the EIA team, relevant project experience, and applicable policy or guidance, generally common and widely distributed habitats or species which are not legally protected, will be scoped out of the assessment. Specifically, this includes habitats and species which do not fall within the categories subsequently listed, i.e., habitats not on Annex I to the Habitats Directive and species not on Annex II to the Habitats Directive and habitats or species not protected by other legislation (e.g., the Wildlife and Countryside Act 1981 (as amended), the Nature Conservation (Scotland) Act 2004 or the Protection of Badgers Act 1992).

Adverse effects on Ness Glen SSSI and Loch Doon SSSI can be scoped out of the assessment due to distance and the respective qualifying features (**Table 6-1**) and a lack of ecological connectivity and absence of hydrological connectivity with the Site.

Adverse effects on LNCS within 5 km of the Site (with the exception of those within the Site boundary) are scoped out of the assessment due to hydrological, topographical, and/or ecological separation, lack of connectivity, distance from the Site, and the interest features of the respective LNCS (as per

Table 6-2). The following LNCSs are therefore scoped-out of the assessment:

- Cumnock Burn / Pennyvenie Burn LNCS,
- Auchenroy / Glenmount Uplands LNCS,
- Craigengillan / Ness Glen Woodland LNCS,
- Dalmellington Town Common LNCS,
- Wallace Moor / Keirs Hill LNCS,
- Martyrs' Moss LNCS,
- Straiton Hills LNCS,
- Bow Burn LNCS,
- Rankinston Scub; Water of Coyle LNCS,
- Bryan's Height LNCS,
- Ashentree Glen Wood LNCS,
- River Doon Woodland LNCS,
- Kerse Loch LNCS,
- Connel Burn / Benty Cowan LNCS,
- Craigs of Kyle LNCS,
- Loch Spallander LNCS; and
- Cloncaird Moor LNCS.

As discussed in **Section 0**, no areas of ancient woodland fall within the Site and are sufficiently distant (over 800 m) from any proposed turbines/infrastructure, and therefore AWI can be scoped out of the assessment.

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

6.7 Biodiversity Enhancement

The enhancement, restoration and creation of habitats of conservation value during the operational phase, through the delivery of a BEMP, would further reduce potential adverse effects on habitats. The Proposed Development provides an opportunity to deliver biodiversity enhancement at the Site, in line with the objectives of NPF4 Policy 3[47], the Onshore Wind Policy Statement[48], and the Scottish Biodiversity Strategy to 2045[49]. Accordingly, an outline BEMP, or similar, will be provided with the EIAR.

Specific biodiversity enhancement proposals will be developed through discussions with the Applicant, landowners, and relevant technical specialists in order to enhance, create and connect habitats of biodiversity value. Based on the existing knowledge of the Site, biodiversity

[47] Scottish Government (2024). National Planning Framework 4. Available at: https://www.gov.scot/publications/national-planning-framework-4/pages/3/. [Accessed: March 2026].

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

[49] Scottish Government (2022). Scottish Biodiversity Strategy to 2045. Available at: https://www.gov.scot/publications/scottish-biodiversity-strategy-2045/. [Accessed: March 2026].

enhancement measures for the Proposed Development may include, but are not limited to, native broadleaf riparian planting and/or priority peatland restoration. Where possible, opportunities to link up the biodiversity enhancement proposals with those of neighbouring developments, particularly the operational North Kyle Wind Farm and the proposed Breezy Hill Energy Project will be sought, with the aim of enhancing habitat connectivity. The full suite of proposals will be presented within the outline BEMP in the EIAR.

6.8 Scoping Questions to Consultees

Q6.1 Do consultees agree that the scope of IEFs to be included in the assessment is appropriate?

Q6.2 Do consultees agree that the methodology and scope of assessment is appropriate?

Q6.3 Do consultees agree with the potential effects to be scoped out of the assessment?

Q6.4 Are there any relevant consultees who should be consulted, or other sources of information that should be considered?

7.0 Ornithology

7.1 Introduction

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

This Chapter is supported by the following figures:

- **Figure 7.1**: Vantage Point Survey Locations and Viewsheds;
- **Figure 7.2**: Ornithological Survey Areas;
- **Figure 7.3**: Ornithological Designated Sites within 20 km; and
- **Confidential Figure 7.4**: Ornithological Design Constraints.

7.2 Consultation Undertaken to Date

The following statutory and non-statutory bodies have been consulted in relation to ornithology:

- RSPB Scotland: a data request was submitted to obtain existing ornithological records within the study area of the Site;
- Dumfries and Galloway Raptor Study Group (DGRSG): a data request was submitted to obtain existing ornithological records within the study area.

NatureScot's knowledge of any additional existing ornithological data sources relevant to the Site and surrounding area that it holds, or, that it is aware of and, which it believes should be reviewed to identify any additional ornithological features for consideration during the design and assessment of the Proposed Development, would also be welcomed.

7.3 Surveys and Assessment Methodologies

7.3.1 Field Surveys

The following surveys were completed between September 2023 and August 2024 / will be completed between November 2025 and August 2026. All surveys have been undertaken in line with the appropriate guidance (NS 2025a[50], Hardey *et al.* 2013[51], Gilbert *et al.* 1998[52]) and survey areas are detailed below. All survey areas were created using survey-specific buffers based on the Proposed Development provided at the time of survey commencement.

Following the completion of a year of baseline surveys (September 2023 to August 2024), the Proposed Development Site was extended (predominately to the west but also where the Site abuts the operational North Kyle Wind Farm). A review of the baseline survey coverage was undertaken in October 2025, and additional surveys were scheduled to extend the baseline survey coverage. These additional surveys commenced in November 2025 and will be completed by August 2026 as detailed below.

[50] NatureScot (2025a). Recommended bird survey methods to inform impact assessment of onshore wind farms. Available at: https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms [Accessed 10 November 2025]

[51] Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013) Raptors: a field guide for surveys and monitoring (3rd edition). The Stationery Office, Edinburgh.

[52] Gilbert, G., Gibbons, D. W. and Evans, J. (1998) Bird Monitoring Methods. RSPB, Sandy.

- Flight activity surveys: monthly from September 2023 and August 2024 and November 2025[53] to August 2026; minimum of 36 hours per vantage point (VP) per season, as per NS 2025a[50] (**Figure 7.1**).
    - The original development area was covered by three viewsheds (VPs 1, 4 and 5) and one year of coverage. Following the expansion of the developable area, surveys from an additional two VPs (6 and 7) are being undertaken to gather one year of coverage. The data from these two separate periods will then be combined to provide one full year of coverage for undertaking collision modelling.
- Scarce[54] breeding bird surveys: 2024 and 2026 breeding seasons, 2 km survey area (**Figure 7.2**).
- Black grouse lek surveys: 2024 and 2026 breeding seasons, 1.5 km survey area (**Figure 7.2**).
- Breeding wader surveys: 2024 and 2026 breeding seasons, 500 m survey area (**Figure 7.2**).
- Winter walkover surveys: 2023/2024 and 2025/2026 non-breeding season, 500 m survey area (**Figure 7.2**).

Appendix D provides a review of the first year of baseline surveys (2023-2024), available desk-based information and justification that a period shorter than two years of ornithological field surveys is sufficient to inform the robust design and assessment. Comment from NatureScot on the conclusions of **Appendix D** is welcomed.

A target species list was defined from the following lists and refined with reference to NatureScot guidance (2016a[60], 2025a[50], 2025c Annex 1[55]) regarding species perceived sensitivity to onshore wind farm developments, extensive knowledge of bird-habitat associations at the local/Scottish level and preliminary survey visits:

- Annex I of the EU Birds Directive[56];
- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)[57]; and
- Species (excluding passerines) included on the Birds of Conservation Concern (BoCC) Red list (Stanbury *et al.* 2021[58] and Stanbury *et al.* 2024[59]).

[53] It is acknowledged that the additional flight activity surveys that cover the 2025/2026 non-breeding season started in November rather than September. Surveys still ensured that the required 36 hours was completed per VP and whilst the first two months of the non-breeding season were not covered, considering the Site's limited value for wintering birds (the Site is not considered to be suitable for migratory geese) this is not considered to alter the robustness of any collision modelling.

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

[55] NatureScot (2025c). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas. Available at: https://www.nature.scot/doc/guidance-note-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect [Accessed 10 November 2025]

[56] Directive 2009/147/EC of the European Parliament and of the Council. Available at: https://www.legislation.gov.uk/eudr/2009/147/contents [Accessed 10 November 2025]

[57] Scottish Government (1981). Wildlife and Countryside Act 1981. Available at: https://www.legislation.gov.uk/ukpga/1981/69 [Accessed 10 November 2025]

[58] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds, 114, pp. 723-747.

[59] Stanbury, A. J., Burns, F., Aebischer, N. J., Baker, H., Balmer, D. E., Brown, A., Dunn, T., Lindley, P., Murphy, M., Noble, D. G., Owens, R., and Quinn, L. (2024) The status of the UK's breeding seabirds: an addendum to the

7.3.2 Study Area

The EIA Report will consider the following ornithological study areas (note that the buffers will be established based on the finalised design):

- Designated sites: 20 km study area (based on NatureScot guidance, SNH 2016a[60]);
- Collision risk modelling: the results of the flight activity surveys will be used to inform collision risk modelling. A Collision Risk Analysis Area (CRAA) will be created by buffering proposed turbine locations by 500 m (as per NS 2024a[61]);
- Scarce breeding birds[54]: 2 km study area from the proposed turbines (800 m buffer for the access track/other infrastructure where it extends beyond the turbine area), as per NatureScot guidance (NS 2025a[50]) and with reference to Goodship & Furness (2022[62]);
- Black grouse: 1.5 km study area from the proposed turbines (750 m for the access track/other infrastructure where it extends beyond the turbine area) as per NatureScot guidance (NS 2025a[50]) and with reference to Goodship & Furness (2022[62]);
- Breeding waders: 500 m study area from the proposed turbines/access track as per NatureScot guidance (NS 2025a[50]) and with reference to Goodship & Furness (2022[62]); and
- Cumulative assessment: as per NatureScot guidance (NS 2025b[63]), the Natural Heritage Zone (NHZ) level is considered practical and appropriate for most breeding species not connected to designated sites (for the Proposed Development, the NHZ will be NHZ 19, Western Southern Uplands and Inner Solway), unless a different geographical area is considered more relevant to a particular species.

7.3.3 Assessment

The assessment will consider the potential direct, indirect, and cumulative impacts that the construction and operation of the Proposed Development could have on Important Ornithological Features (IOFs, as per CIEM 2022[64]). The assessment will be supported by a technical appendix/confidential technical appendix for sensitive ornithological information that will include details of survey methodologies, all survey data and outputs from any collision risk modelling.

Impacts on IOFs will be assessed in relation to species' reference population, conservation status, range and distribution. The assessment of potential impacts will follow guidelines

fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds, 117, pp. 471-487.

[60] Scottish Natural Heritage (2016a). Assessing connectivity with Special Protection Areas (SPAs). Available at: https://www.nature.scot/doc/assessing-connectivity-special-protection-areas [Accessed 10 November 2025]

[61] NatureScot (2024a). Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms. Available at: https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms [Accessed 10 November 2025]

[62] Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283. Available at: https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance [Accessed 10 November 2025]

[63] NatureScot (2025b). 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 10 November 2025]

[64] CIEEM (2022) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management (CIEEM), Winchester.

published by CIEMM (2022[64]) and NatureScot (NS 2025b[65], 2025c[55]) and involve the following process:

- Identifying potential impacts of the Proposed Development;
- Considering the likelihood of occurrence of potential impacts;
- Defining the nature conservation importance and conservation status of relevant populations for each IOF to determine the overall sensitivity;
- Establishing the magnitude of the likely impact (both spatial and temporal) on each IOF;
- Based on the above information, making a judgement as to whether or not the consequent effect is significant. This will be determined through a standard method of assessment based on professional judgement, considering both sensitivity and magnitude of impact with 'major' and 'moderate' effects considered to be significant;
- If a potential effect is determined to be significant, proposing measures to mitigate or compensate the effect where required;
- Considering opportunities for enhancement where appropriate; and
- Concluding residual effects.

Where appropriate, the assessment will take into consideration specific measures of analysis, such as collision risk modelling using the NatureScot Band *et al.* (2007[66], 2024[67]) model.

7.4 Existing Conditions

7.4.1 Designated Sites

In review of NatureScot's SiteLink website[68], the Site is located within 20 km of the following statutory designated sites with ornithological interests, as shown on **Figure 7.3**:

- Muirkirk and North Lowther Uplands SPA (underpinned by the Muirkirk Uplands Site of Special Scientific Interest (SSSI) and the North Lowther Uplands SSSI), approximately 16.5 km to the northeast of the Site and designated for non-breeding hen harrier and breeding hen harrier, golden plover, merlin, peregrine falcon and short-eared owl.
- Doon Valley Wetlands SSSI, adjacent to the south of the Site and designated for a breeding bird assemblage[69].
- Merrick Kells SSSI, approximately 15 km to the south of the Site and designated for a breeding bird assemblage[70].

[65] NatureScot (2025b). 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 10 November 2025]

[66] Band, W., Madders, M., and Whitfield, D.P (2007), Developing field and analytical methods to assess avian collision risk at wind farms. In: Janss, G., de Lucas, M. & Ferrer, M (eds) Birds and Wind Farms. (Madrid: Quercus).

[67] Band, W (2024), 'Using a collision risk model to assess bird collision risks for onshore wind farms. NatureScot Research Report 909'.

[68] https://sitelink.nature.scot/home

[69] Citation notes willow tit (only regular breeding population in Ayrshire), water rail, grasshopper warbler, spotted flycatcher, reed bunting and black-headed gull (sporadic small breeding colony).

[70] Citation provides no further details regarding the species included in the assemblage.

7.4.2 Recorded Target Species

7.4.2.1 Black Grouse

Targeted black grouse surveys were undertaken in 2024 and are underway for 2026. No evidence of black grouse was recorded (lekking or otherwise). No evidence of black grouse has been recorded across any of the baseline surveys.

7.4.2.2 Raptors and Owls

Barn owl were identified to be potentially breeding/roosting at two locations within the survey area (but outwith the Site) during the 2024 breeding season.

Peregrine falcon were identified to be breeding at one location[71] within the survey area during the 2024 breeding season (and early 2026 surveys have confirmed their continued presence). Activity across the baseline survey period on the Site itself was relatively low (five flights) and activity was associated with the known nesting site.

Red kite were identified to be breeding at one location within the Site during the 2024 breeding season (early 2026 surveys have not identified any evidence of breeding behaviour). Activity across the baseline survey period was only recorded during the 2024 breeding season (eight flights).

Hen harrier were recorded on one occasion (ringtail in January 2026) and an osprey was also recorded overflying the Site on one occasion[72] (April 2024).

7.4.2.3 Waders

Curlew, lapwing and ringed plover (target wader species) were all recorded during baseline surveys with breeding activity confirmed for all species. Curlew activity was recorded outwith the Site, with the lapwing and ringed plover activity associated with the dormant opencast areas.

- Curlew: one territory identified during the 2024 breeding season.
- Lapwing: 4-5 territories identified during the 2024 breeding season.
- Ringed plover: 1-3 territories identified during the 2024 breeding season.

7.4.2.4 Geese and Gulls

Pink-footed goose were recorded on five occasions across the baseline survey period (flocks of five to 110 individuals). All activity was of birds overflying the Site, with no evidence of birds foraging on or directly around the Site.

Two greylag geese were recorded on one occasion (February 2024).

Black-headed, common, great black-backed, herring and lesser black-backed gulls were all recorded during baseline surveys, however the number of records was small, and no evidence of breeding was recorded.

[71] It should be noted that this is a known breeding location from the baseline surveys associated with North Kyle Wind Farm.

[72] Considering the direction of the flight, it is considered highly likely that this was a bird associated with the nesting platform known to be in use to the north of the Site (approximately 4.5 km from Site).

7.5 Design Considerations

Significant effects on ornithological features will be avoided or minimised where possible via the iterative design process (in line with the mitigation hierarchy) as further baseline information and environmental constraints data is gathered. Mitigation through iterative design will likely include:

- Barn owl: applying a 175 m disturbance buffer (Shawyer 2011[73]) around identified/suspected nest/roost sites (**Confidential Figure 7.4**). No turbines will be located within this buffer and infrastructure will be avoided/minimised.
- Peregrine falcon: with reference to Goodship & Furness[62]; applying a 500 m disturbance buffer (with no development within this buffer) and 750 m disturbance buffer (with development minimised within this buffer) around the identified nest site (**Confidential Figure 7.4**).
- Red kite: with reference to Goodship & Furness[62]; applying a 300 m disturbance buffer (with no development within this buffer) and 500 m disturbance buffer (with development minimised within this buffer) around the identified nest site (**Confidential Figure 7.4**).

7.6 Potential Significant Effects

The assessment will consider the potential for significant effects on IOFs, during the construction, operation and decommissioning of the Proposed Development. Where appropriate, impacts will also be considered in a cumulative assessment.

7.6.1 IOFs Scoped In

Whilst it is not possible to definitely scope out/in species from/to the assessment prior to undertaking collision modelling and a review of the ornithological baseline against the final design, considering the information available regarding the species assemblage and distribution at the Proposed Development and on the basis of professional experience, it is considered that peregrine falcon, red kite, lapwing and ringed plover are likely to be the species considered as IOFs and therefore scoped into the EIA assessment.

Furthermore, considering the proximity of the Doon Valley Wetlands SSSI to the Site, it is proposed to scope the SSSI in to the EIA assessment.

7.6.2 Ornithological Features Scoped Out

On the basis of baseline data, experience from other relevant projects and policy guidance or standards e.g., CIEMM 2022[64], NS 2025c[55], the following features will be scoped out since significant effects are unlikely:

- Common and/or low conservation species not recognised in statute as requiring special conservation measures i.e., not listed as Annex 1/Schedule 1 species;
- Common and/or low conservation species not included in non-statutory lists i.e., not listed as Amber or Red-listed Birds of Conservation Concern species, showing birds whose populations are at some risk either generally or in parts of their range;
- Passerine species, not generally considered to be at risk from wind farm developments (NS 2025a[50]), unless being particularly rare or vulnerable at a national level.

[73] Shawyer, C. R. 2011. Barn owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

NatureScot have specific guidance relating to pink-footed goose which states "*In light of the robust population and its high avoidance rate of 99.8%, collision risk modelling for pink-footed geese is only required if a proposal has connectivity with a protected area where this species is a qualifying interest*.". Considering that pink-footed geese are not listed as a qualifying feature for any SPA within 20 km (maximum connectivity distance as per SNH 2016a[60]) of the Proposed Development, pink-footed goose is proposed to be scoped out of the assessment.

Based on the guidance from NatureScot (SNH 2016a[60]) regarding connectivity with SPAs and the distance between the Site and the SPA, there is considered to be no connectivity and therefore no potential for a likely significant effect on the SPA as a result of the Proposed Development. As such, the Muirkirk and North Lowther Uplands SPA (and underpinning SSSIs) is proposed to be scoped out of the assessment.

Considering the distance between the Site and the Merrick Kells SSSI and the species likely to form the breeding bird assemblage (upland waders and raptors/owls), there is considered to be no connectivity and it is proposed to scope the Merrick Kells SSSI out of the assessment.

7.6.3 Approach to Mitigation

In addition to the design considerations detailed in **Section** Error! Reference source not found., the following embedded mitigation will be considered to be in place prior to assessment.

- To ensure all reasonable precautions are taken to avoid disturbance to birds and comply with environmental legislation, prior to construction and decommissioning the Applicant will appoint a suitably qualified Ecological Clerk of Works (ECoW) who will advise the Applicant and the Contractor on all ornithological matters (with the assistance of a suitably qualified/licenced ornithologist if required). The ECoW will be required to be present on Site during the construction and decommissioning periods and will carry out monitoring of works and briefings with regards to any ornithological sensitivities on the site to the relevant staff within the Contractor and subcontractors.
- A Bird Disturbance Management Plan (BDMP) will be implemented during construction of the Proposed Development and will form part of the Construction Environmental Management Plan (CEMP). The BDMP will detail measures to ensure legal compliance and safeguard breeding birds known to be in the area and will include species-specific guidance. The BDMP shall include pre-construction surveys and good practice measures during construction. Pre-construction surveys will be undertaken to check for any new breeding bird activity in the vicinity of the construction works. The ECoW will oversee the implementation of the above measures.
- An operational BDMP will also be implemented for species-specific mitigation measures for the scoped in IOFs identified to be present within the site during the operational phase of the Proposed Development.

7.7 Questions for Consultees

Q7.1 Do consultees agree with the species proposed to be scoped out of the detailed assessment, and the resultant identified IOFs?

Q7.2 Do consultees believe that there are any further species, or any designated sites which need to be considered in the assessment?

Q7.3 Are there any other relevant sources of information that should be referenced with respect to the ornithology assessment?

Q7.4 Do consultees agree that the methodology and scope of the proposed ornithological impact assessment is appropriate?

Q7.5 Do consultees have any suggestions for habitat management measures?

Q7.6 Comment from NatureScot on the conclusions of **Appendix D** is welcomed.

8.0 Geology, Hydrogeology, Hydrology and Peat

8.1 Introduction

This section of the Scoping Report outlines the proposed scope of the EIAR to assess the potential significant effects from the Proposed Development on geology, hydrology, hydrogeology and peat.

This chapter is supported by the following figures:

- **Figure 8.1.1 – 8.1.4**: Local Hydrology;
- **Figure 8.2:** Peat Depth

8.2 Environmental Baseline

8.2.1 Geology and Hydrogeology

British Geological Survey (BGS) mapping[74] indicates that the Site is underlain by sedimentary rocks of the Scottish Lower, Middle and Upper Coal Measures Formations and igneous intrusions of the Western Midland Valley Westphalian to Early Permian Sills comprising gabbros.

Numerous inferred faults, inferred coal seams and inferred ironstone beds are also noted across the Site, which have largely been extracted or disturbed by previous opencast and underground mining activities.

The bedrock is generally overlain by peat to the north and glacial till to the south and northwest. Slopes across the Site are shown to be absent of any superficial deposits and it is noted that areas of previously disturbed ground and large spoil heaps are recorded across the Site.

Where present, the till and peat superficial deposits that underlie the Site are unlikely to contain significant amounts of groundwater due to low bulk permeability. The sedimentary bedrocks which underlie the Site have been classified by BGS as a moderately productive aquifer whilst igneous bedrocks have been classified as a low productivity aquifer. Groundwater is generally expected to flow through fractures and other discontinuities however higher yields may occur where the bedrocks have been previously mined.

All of Scotland's groundwater bodies have been designated as a Drinking Water Protected Area (DWPA). The Site is located within the Cumnock groundwater body (SEPA ID: 150646), which is currently (2024) classified as Poor overall status due to poor water quality.

8.2.2 Soils and Peat

The National Soil Map of Scotland[75] indicates that the southern extent of the Site is underlain by noncalcareous gleys. Peaty gleys and peaty podzols are recorded within the northeastern extent of the Site whilst the northwestern extent is shown to be underlain by blanket peat.

Peatland classification mapping[76] indicates that peatland classification is variable across the Site (**Figure 6.2**). Areas of Class 1, Class 3 and Class 5 peatland are shown across the central and northern extent of the Site. Class 1 peatland areas are considered nationally important priority peatland habitats with carbon rich soils and deep peat which are areas likely to be of

[74] GeoIndex (onshore) - British Geological Survey. Accessed December 2025

[75] National Soil Map of Scotland | Scotland's soils, Accessed December 2025

[76] Carbon and peatland 2016 map | Scotland's soils, Accessed December 2025

high conservation value and restoration potential. Class 3 and 5 peatlands are not considered priority peatland habitats however carbon rich soils and areas of deep peat may be present.

Mineral soils (Class 0) and Class 4 peatland areas are shown within the southern and northwestern extent of the Site which are not considered representative of peatland habitats.

Phase 1 peat depth probing exercises were completed in 2024 and 2026 by MacArthur Green and SLR across the majority of the Site where peat deposits may be present, as shown in **Figure 8.2**. Localised areas of deep peat (>1m deep) are recorded across the Site, particularly within the northern and eastern extent of the Site. Probing is absent in areas of mining disturbed land.

8.2.3 Mining

The Mining Remediation Authority map[77] shows the Site to have an extensive mining history, with probable underground mining, and mine entries present onsite. Much of the Site has been subject to underground and opencast coal mining, prior to abandonment in 2013. No mining voids remain on the Site. Limited restoration has been ongoing at the Site in recent years.

JWHRoss prepared a Coal Mining Risk Assessment[78] at the Site in October 2023 followed by a further Outline Mining Risk Assessment[79] prepared by SLR Consulting at the Site's proposed western extension in December 2025, the results of which will inform the Proposed Development layout. The Coal Mining Risk Assessments are attached in **Appendix C**.

8.2.4 Hydrology

The majority of the Site is located within the River Doon surface water catchment, including the Cummock Water sub catchment, whilst the northern boundary of the Site is located within the River Ayr surface water catchment.

Several tributaries of the River Doon, including the Dunaskin Burn, Cutler Burn and Burnton Burn rise within the Site. It is noted that local hydrology within the Site has been significantly altered by historical mining operations including the creation of numerous drainage ditches and large settlement ponds.

None of the catchments located within, or hydrologically connected to, the Site have been designated as a Surface Water Drinking Water Protected Area (DWPA).

SEPA flood mapping[80] indicates the majority of Site is not at risk of fluvial flooding, except for the southwestern extent of the Site which is located within the floodplain of an unnamed tributary of the River Doon. A floodplain is also noted along the banks of the Dunaskin Burn within the western extent of the Site however this is shown to be generally confined to the existing watercourse corridor. Numerous surface water flow paths are also noted across the Site, however these are shown to be shallow (<0.3m deep) or confined to the existing watercourses corridors within the Site. It is noted that the SEPA mapping is coarse in nature and any alterations made to the Site, as a result of previous mining operations, may have not accurately modelled as part of the SEPA mapping.

[77] Mining Remediation Authority Map Viewer. Accessed December 2025

[78] JWHRoss (August 2023), Mining Stability Report Including Past Mining Risk Assessment. Proposed Windfarm Development, Glenmuir, East Ayrshire

[79] SLR Consulting Limited (December 2025), Chalmerston Wind Farm – Proposed Western Extension.

Outline Mining Risk Assessment.

[80] Flood Risk Management Maps. Accessed February 2026

8.2.5 Designated Sites

Review of NatureScot's SiteLink[81] indicates that there are two designated sites within the Site:

- Dunaskin Glen Geological Conservation Review (GCR) and SSSI which has been designated for important Upper Carboniferous sediment sequence and Paleozoic palaeobotanical floral assemblages. The GCR and SSSI is confined to the Dunaskin Burn channel within the southwestern extent of the Site.
- Benbeoch GCR and SSSI is located within the eastern extent of the Site and has been designated for sill outcrop which is an important part of the Permo-Carboniferous igneous activity history in central and southern Scotland. The Benbeoch GCR designation relates specifically to the igneous sill outcrop; however, a walkover from an experienced geologist confirmed that within the northern portion of the GCR boundary, there are no such outcrops, identifying disturbed ground, with areas of outcropping sedimentary rock of the Coal Measures Formation.
- The Doon Valley Wetlands SSSI is located immediately south of the Site within the River Doon floodplain. The wetlands are designated for several wetland habitats and supporting breeding bird assemblage. The majority of the Proposed Development drains to the River Doon and therefore the SSSI is potentially hydraulically connected to the Proposed Development.

8.3 Potential Sources of Impact

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

8.3.1 Potential Impacts During Construction

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

- disturbance and loss of carbon rich soils and peat deposits;
- potential adverse impacts to designated sites (Dunaskin Glen GCR and SSSI, Benbeoch GCR and SSSI and Doon Valley Wetlands SSSI);
- ground instability (including peat slide if present);
- potential impacts on hydrological and hydrogeological receptors from disturbing contaminated land and historic mining areas;
- impacts on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances;
- discharge of sediment laden runoff to drainage systems and watercourses;
- increased flood risk to areas downstream of the Site during construction through increased surface runoff;
- changes in groundwater levels, or saturation of peat deposits, from dewatering excavations;

[81] SiteLink - Map Search. Accessed February 2026

- potential change of groundwater flow paths and contribution to areas of peat and GWDTEs;
- disturbance of watercourse bed and banks from the construction of culverts;
- potential adverse impacts to licenced and private water supplies, if present; and
- disturbance and or pollution resulting from borrow pit formation and use.

8.3.2 Potential Impacts During Operation

The following potential impacts are considered to have the potential to result in significant effects during the operational phase, and therefore will be considered in the EIAR:

- increased runoff rates and flood risk, resulting from increases in areas impermeable hardstanding areas;
- increased flood risk from restriction of flow at permanent watercourse crossings;
- potential adverse impacts to designated sites (Dunaskin Glen GCR and SSSI, Benbeoch GCR and SSSI and Doon Valley Wetlands SSSI);
- changes in natural surface water drainage patterns (which may affect water contribution to areas of peat and GWDTE);
- changes to groundwater levels and groundwater movement;
- longer term impacts on abstractions for water supplies, particularly any supplies dependent on groundwater; and
- pollution impacts on surface water quality from maintenance work.

8.4 Method of Assessment and Reporting

The assessment will be undertaken in line with current legislation, planning policy and guidance, principally published by SEPA, NatureScot, East Ayrshire Council, and the UK and Scottish Governments.

8.4.1 Study Area

The geological, hydrological and hydrogeological Study Area will extend to 500 m from the application boundary (**Figure 8.1.1**). The cumulative effects Study Area will extend to 5 km from the application boundary.

8.4.2 Desk Study

An initial desk study will be undertaken to determine and confirm the baseline characteristics by reviewing available information relating to soils and peat, geology, hydrology, and hydrogeology such as groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and private water supplies, surface water flows, flooding, rainfall data, water quality and soil data. This will include review of published geological maps, Ordnance Survey maps, aerial photographs, and site-specific data such as digital terrain models (slope plans) and geological literature.

The desk study will identify sensitive features which may potentially be affected by the Proposed Development and will confirm the geological, hydrogeological, and hydrological environment.

8.4.3 Field Survey

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

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

- verify information collected during the desk and baseline study;
- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;
- visit any potential GWDTE (in consultation with the project ecologists);
- verify flow paths and any areas of flooding identified by SEPA and informed by scoping walkover surveys;
- obtain private water supply information from EAC and visit any public and private water supplies within the Study Area that might be affected by the Proposed Development to confirm details of the location of the abstraction, its type and use, as required;
- prepare a schedule of potential watercourse crossings (where required);
- assess the Site geomorphology and conduct additional peat depth probing (where required); and
- inspect rock exposures, establish by probing an estimate overburden thickness (a probe is pushed vertically into the ground to refusal and the depth is recorded).

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

Once the desk study is completed and sensitive soil and peat, geological and water features are confirmed an EIAR will be prepared to assess the potential effects on soils and peat, geology, hydrology and hydrogeology because of the construction and operation of the Proposed Development.

It is anticipated the EIAR will include the following technical appendices and assessments:

- peat landslide hazard and risk assessment (PLHRA);
- outline peat management plan (PMP);
- coal mining risk assessment (CMRA);
- peatland condition assessment (PCA);
- schedule of watercourse crossings (which will comprise photographs and dimensions);
- private water supply risk assessment in accordance with SEPA's guidance[82], as required; and
- GWDTE risk assessment in accordance with SEPA's guidance[83], as required.

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

[82] guidance-on-assessing-the-impacts-of-developments-on-groundwater-abstractions.docx. Accessed December 2025

[83] guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx, Accessed December 2025

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

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

The sensitivity of the receiving environment together with the magnitude of change defines the level of the effect, which will be categorised into significant or not significant.

8.4.4 Approach to Mitigation

The Proposed Development will undergo design iterations and evolution in response to constraints identified as part of the baseline studies and field studies so as to avoid and/or minimise potential effects on receptors where possible.

For example, it is expected that the following potential embedded mitigation will be included in the design of the Proposed Development:

- where excavations are deeper than 1 m, a buffer of 50 m will be applied to watercourses shown on 1:10,000 scale mapping;
- where excavations are shallower than 1 m, a 10 m or 15 m buffer will be applied to watercourses shown on 1:10,000 scale mapping, in accordance with the SEPA Recommended Riparian Corridor dataset;
- avoid areas with significant floodplains or large extents shown to be at risk from flooding as shown by SEPA mapping;
- existing access tracks will be used where possible, including those legacy tracks to the former opencast mine, and any new tracks will be designed to limit the amount of required watercourse crossings;
- areas of deep peat (>1 m deep) or peat confirmed to be in near natural condition will be avoided wherever possible;
- areas of potential increased peat slide risk will be avoided; and
- impacts on private water supply sources and areas of GWDTEs will be avoided in accordance with SEPA’s guidance.

There is much best practice guidance which has been developed to assist developers minimise the risks associated with wind farm construction and operation, and this will be used to develop site-specific mitigation measures. Measures will be proposed to control and mitigate, for example, pollution risk (from anthropogenic and geogenic sources), flood risk, watercourse crossings, impacts on surface and groundwater flow paths, and management of peat and carbon rich soils.

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

Subject to the adoption of embedded mitigation and industry standard good practice measures no significant effects on geology (including soils), hydrogeology, hydrology and peat are anticipated.

It is expected that a programme of pre-development and construction phase water quality monitoring would be required to ensure that the water environment is safeguarded. It is

anticipated that the monitoring programme would be agreed with statutory consultees post determination.

A biodiversity enhancement management plan will also be developed, and an outline plan will be presented within the EIAR. The final details will be provided and agreed with consultees prior to construction.

8.4.5 Peat Management Plan, Peatland Condition Assessment and Peat Landslide Hazard and Risk Assessment

A PCA will be completed to identify areas of peatland in near natural condition and areas of Priority Peatland which should be avoided during the design of the Proposed Development in accordance with Policy 5 (Soils) of NPF4.

An outline PMP will be prepared as a supporting Technical Appendix in line with NPF4 and SEPA Regulatory Position Statement: Developments on Peat (2012) and Good Practice During Wind Farm Construction (2024). The Waste Framework Directive (WFD) 2008/98/EC, transposed into National Law under The Waste Management Licensing (Scotland) Regulations 2011, sets out a requirement to apply a waste hierarchy. In terms of this project, this hierarchy should be considered as follows:

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

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

The following works will be completed:

- additional peat depth survey at 10 m grid at proposed infrastructure locations will be completed (the probing will also provide information of the substrate below the peat), and 50 m centres with 10 m offsets along linear infrastructure;
- a limited (in terms of spatial extent) geomorphological mapping exercise will be undertaken to link the topographic features with the underlying geology, assess the impact of land use practices, and to visit those areas of the Site that may be identified as potentially ‘at risk from peat slide’;
- the thickness of the peat will be established by probing and the underlying sub-strata confirmed by inspection of watercourses;
- the investigation will consider turbine locations, access routes, compounds and borrow pits for signs of existing or potential peat instability;
- augering of a representative selection of peat probe locations will be undertaken and the proportion of acrotelmic and catotelmic peat recorded; and
- output from the field survey will comprise a record of investigation locations and summary of peat depths and augering results.

A PLHRA will be completed using the Site survey data and slope analysis (using Digital Terrain Model (DTM) data), if required by best practice guidance, highlighting areas that have the potential to be impacted by a peat slide so that appropriate mitigation measures and can be identified.

8.4.6 Cumulative Impact

A review of other existing and proposed wind farm developments near the Proposed Development will be undertaken and potential impacts on geology, hydrology, hydrogeology and soils will be assessed to identify cumulative impacts. Non-wind developments will not be considered as part of the cumulative assessment unless any specific projects are requested to be considered by consultees.

With regard to the Proposed Development, it is likely that mitigation measures will be proposed that will have a neutral effect or provide betterment compared to baseline conditions. It is considered unlikely that there will be any significant residual or cumulative impact to report.

The cumulative effects on geological, soil, hydrological and hydrogeological receptors will be assessed using the surface water catchments within the study area, with a maximum downstream distance of 5 km from the application boundary.

8.5 Consultation

As part of the consultation phase of the project, environmental data and views of the Proposed Development will be sought from:

- East Ayrshire Council;
- SEPA;
- NatureScot;
- Scottish Water; and
- Ayrshire Rivers Trust, in partnership with the Ayr and Doon District Salmon Fishery Boards.

8.6 Matters Scoped Out

It is proposed that the potential impacts outlined above will be assessed as part of the EIAR. At this stage, it is proposed that the following can be scoped out of detailed assessment:

- It is proposed to scope out effects on geology. While there will be effects arising from rock extraction for borrow pits, track construction and for turbine and crane pad areas, these are limited in area and do not extend beyond the immediate development footprint. Assuming that the final layout does not encroach on the qualifying features of the identified GCRs (also SSSIs), we expect that impacts on the identified GCRs and SSSIs can be scoped out. The Benbeoch GCR designation relates specifically to the igneous sill outcrop; however, a walkover from an experienced geologist confirmed that within the northern portion of the GCR boundary, there are no such outcrops, identifying mining disturbed ground, with areas of outcropping sedimentary rock of the Coal Measures Formation. The layout presented at scoping does not encroach on the Dunaskin Glen GCR and SSSI, with no proposals to excavate bedrock within the designation.
- Full suite of water quality monitoring to inform the baseline assessment of the EIA. Classification data is available from SEPA for the watercourses adjacent to the Site highlighting a range of conditions from Poor to Good. However, while a full suite of baseline water quality monitoring is proposed to be scoped out, due to the presence of historic mines located on Site, it is proposed that one round of indicative water quality monitoring is conducted to understand the site-specific water quality conditions prior to their dilution in the receiving watercourses monitored by SEPA.
- A standalone detailed Flood Risk Assessment. Published mapping confirms that flooding at the Site is limited to fluvial and surface water flooding which is largely confined to the immediate watercourse corridors. Furthermore, the highly modified nature of the Site due

to historic mining has altered surface water flow pathways to discharge to artificial settlement ponds and disconnected drainage ditches, with limited connection to the downstream receiving environment. It is proposed, therefore, that a simple screening of the potential sources of flooding (fluvial, coastal, groundwater, pluvial, infrastructure etc.) is presented in the EIAR and measures that would be used to control the rate and quality of runoff will be specified in the EIAR.

- A Drainage Impact Assessment. Design standards and measures which would be used to control and manage incident rainfall would be specified in the EIAR. A site drainage design plan would be prepared as part of the detailed site design (post-planning) and form part of the final Construction and Environmental Management Plan. This would be submitted to SEPA for approval at that stage.

Subject to the adoption of appropriate embedded mitigation it is anticipated that other impacts on geology, hydrology and hydrogeology receptors could be scoped out in line with Streamlining EIA for Onshore Wind Farms guidance. Any additional receptors which are proposed to be scoped out will be agreed with key consultees once the design of the Proposed Development has been agreed.

8.7 Questions to Consultees

The following are questions to consultees:

Q8.1: It is proposed that a simple screening of potential flooding sources (fluvial, coastal, pluvial, groundwater etc.) is presented in the EIAR. Is this approach acceptable?

Q8.2: It is not proposed to prepare a detailed drainage design. Rather, measures that would be used to control the rate and quality of runoff will be specified in the EIAR. Is this approach acceptable?

Q8.3: Site investigations, including detailed peat probing, augering and condition assessment, private water survey, and GWDTE assessment will be undertaken as part of the proposed assessment. Should any additional investigation or data sources be considered when assessing baseline conditions?

Q8.4: It is proposed to apply a 50 m buffer to watercourses shown on 1:10,000 scale mapping where excavations are deeper than 1 m. Where excavations are shallower than 1 m, it is proposed to apply a 10 m or 15 m buffer, in accordance with the SEPA Recommended Riparian Corridor dataset. Where the site survey identifies artificial watercourses and waterbodies on the Site which are not connected to natural watercourses it is proposed that these buffers need not apply. Is this mitigation approach acceptable?

Q8.5: It is not proposed to undertake any water quality sampling, establish groundwater monitoring points, surface water monitoring points or undertake leachability trials of any rock as there is published data that can be used to characterise baseline conditions and complete the impact assessment. However, while a full suite of baseline water quality monitoring is proposed to be scoped out, due to the presence of historic mines located on Site, it is proposed that one round of indicative water quality monitoring is conducted to understand the site-specific water quality conditions prior to their dilution in the receiving watercourses monitored by SEPA. Is this acceptable?

Q8.6: Please advise if there is any specific information or methodology that should be used / followed as part of the private water supply risk assessment?

Q8.7: Do you agree that the scope of the proposed assessment is appropriate?

9.0 Forestry

9.1 Introduction

The Site is largely open especially to the west; however, it is also associated to the east with a poorly restored opencast coal mine and associated impacted land. Since the opencast mine closed (c 2013) there has been an ongoing programme of restoration works that have included establishment of broadleaf woodland. The Proposed Development borders the recently commissioned North Kyle Wind Farm which is located to the north. There is an opportunity to deliver a significant restoration improvement to the Site, including restoration of the landscape, biodiversity, and recreational access. This part of the EIA Scoping Report sets out the proposed scope and methodology for the assessment of potential impacts on forestry which may arise as a result of the construction and operation of the Proposed Development.

This chapter is supported by:

- **Figure 9.1:** Forestry Review.

9.2 Guidance and Legislation

The following policies and guidance will be taken into consideration:

- Scotland's Forest Strategy 2019-2029[84]
- The Land Use Strategy for Scotland 2021-2026[85]
- National Planning Framework 4[86]
- Control of Woodland Removal Policy[87]
- Ayrshire and Arran Forestry and Woodland Strategy (2014)[88]
- North Kyle Forest Masterplan 2016[89].

A discussion of how these policies influenced the methodology used to assess the potential effects of the Proposed Development will included in the forestry technical appendix of the EIAR.

9.3 Methodology

9.3.1 Forestry Study Area

The Forest Study Area (FSA) incorporates all the Forest Land and Other Land (OL) within the Proposed Development boundary (the Site), shown in **Figure 9.1**. Compartment boundaries within the FSA have been drawn by RTS Forestry within QGIS 3.4 Madeira with Project Coordinate Reference System (CRS) OSGB 1936/British National Grid EPSG: 7405 using existing PDF maps, Ordnance Survey (OS) base maps and aerial images as references.

[84] Scotland's Forestry Strategy 2019–2029 - gov.scot

[85] scotlands-third-land-use-strategy-2021-2026-getting-best-land.pdf

[86] National Planning Framework 4 - gov.scot

[87] woodland removal policy | Scottish Forestry

[88] Ayrshire and Arran Forest and Woodland Strategy 2014

[89] North Kyle Masterplan | Forestry and Land Scotland

9.3.2 Buffer Zones

The infrastructure layout provided for the Proposed Development was buffered as follows (See Figure 9.1: Forestry Review) in order to carry out analysis of the impact on existing woodland:

- Tracks 10 m either side; and
- Turbines 100 m radius of tower position.

9.3.3 Surveys

Site and desktop surveys will be undertaken by a suitably qualified and competent forester. Considerations will be made regarding the potential direct and indirect impacts that the construction and operation phases of the Proposed Development will have on the current planned forestry baseline.

9.3.4 Desk Study

A desk-based assessment has been undertaken to establish baseline woodland conditions and identify potential constraints and opportunities and potential sensitivities. This involved a review of key datasets and spatial information including:

- Ancient Woodland Inventory (AWI) as either Ancient Woodland of semi-natural origin or Long-Established Woodlands of Plantation Origin (LEPO);
- Native Woodland Survey of Scotland (NWSS);
- Scottish Forestry Land Information Search (LIS);
- Ordnance Survey mapping, aerial photography, and spatial datasets to assess woodland cover and topography;
- Forest GALES (DAMS), which models the likelihood of windthrow based on site-specific conditions; and
- Ecological site classification is a decision support system that helps match tree species and woodland communities to the ecological conditions of a site, including soil, climate, and future climate projections.

9.3.5 Field Survey

A site visit will be undertaken to compile field surveys. The survey will record the following:

- Species composition;
- Tree height;
- Stand structure and condition;
- Any evidence of windblow;
- Management status and woodland age class estimates; and
- Identification of areas potentially vulnerable to windthrow, especially along newly created woodland edges, where Forest GALES 2.5 (DAMS) outputs informed identification of areas where management felling may be required to maintain a stable woodland edge. This would involve felling trees beyond the development footprint to create windfirm ‘green edges’ – stable woodland boundaries that protect the remaining forest from wind damage.

9.4 Baseline Conditions

Baseline conditions have for the purpose of this scoping report been informed by a desktop analysis:

- The Site as shown in **Figure 9.1** extends to approximately 1,294 ha. This area contains a range of woodland types and age classes, open ground and unplanted land, and water bodies associated with former opencast mining;
- There are no designated or classified sites under the Ancient Woodland Inventory within, or near the Proposed Development;
- Within the FSA, there are 2.72 ha of native woodland as per the Native Woodland Survey of Scotland. These are identified as upland birchwood, upland mixed Ashwood and lowland mixed deciduous woodland;
- The Scoping layout overlaps with 32.87 ha of the National Forest Estate (North Kyle Forest Masterplan 2016) to the northeast;
- The Proposed Development predominantly comprises of open areas, however, there has been extensive broadleaf planting associated with the restoration of the Chalmerston opencast coal mine. Analysis of aerial photography, (Google 2026), in QGIS has indicated that in total woodland cover is primarily mixed broadleaves 207.12 ha (16.01% of total area). Conifers cover approximately 2.28 ha of the Site (0.17% of total area);
- Age structure of the woodland from aerial photography indicates a mixed age structure from establishing trees to mature woodland;
- Yield classes[90] for the Site are estimated at between YC4 (broadleaves) to YC 26 (Mature Sitka-spruce) through analysis with the ecological site classification.; and
- Based on aerial photography there are currently no areas of windblow identified. This will need to be verified during a site visit.

9.5 Impact Assessment

9.5.1 Woodland Removal and Compensatory Planting

There is a general presumption against permanent woodland removal unless it delivers clear public benefits or addresses environmental concerns. NPF 4, Policy 6 states that: "*b. Development proposals will not be supported where they will result in* (…) iii. *Fragmenting or severing woodland habitats, unless appropriate mitigation measures are identified and implemented in line with the mitigation hierarchy*".

9.5.2 Avoid removal and fragmentation of ancient and native woodland and trees

The native woodland Survey of Scotland identifies some areas which are located within the Proposed Development. However, the current Chalmerston Wind Farm Proposal will not impact directly on these areas. There are no areas designated within the Ancient Woodland Inventory identified within the Proposed Development. NPF 4, Policy 6. B. "*Development proposals will not be supported where they will result in adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value, or identified for protection in the Forestry and Woodland Strategy*".

[90] Yield class is an index used in Britain for the potential productivity of even-aged stands of trees. It is based on the maximum mean annual increment of cumulative timber volume achieved by a given tree species growing on a given site and managed according to a standard management prescription. It is measured in units of cubic metres per hectare per year.

9.5.3 Management Felling

Felling associated with the Proposed Development (i.e. to accommodate the wind farm infrastructure and ancillary infrastructure) is unlikely to increase windthrow risk in adjacent woodland.

9.6 Mitigation

9.6.1 Woodland Removal and Compensatory Planning

Development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal. Mitigation measures are proposed in accordance with NPF4, which addresses the potential loss of woodland through the requirement for compensatory planting. The project through negotiations with the local planning authority may reach agreement to deliver suitable mitigation for tree loss through alternative landscape and environmental improvements associated with the restoration of the open cast coal mine site.

9.6.2 Management Felling

Felling back to a stable, wind-firm edge can reduce long-term risk, although this is subject to landowner agreement. Forest GALES modelling indicates that the surrounding woodland is moderately exposed. The project does not currently propose any management felling.

9.7 Residual Effects

A desktop analysis has estimated that a total of 24.83ha of compensatory woodland planting will be required to offset the woodland removal at the Proposed Development, based on the Scoping layout. This would ensure that there is no net loss of woodland cover and supports long-term sustainable forest management objectives in accordance with Scottish Government policy. As the Proposed Development will only impact on broadleaf woodland it is estimated that there will be no areas identified for management felling. Should the project reach agreement for an alternative suite of mitigation works the value of delivering the 24.83 ha of compensatory planting will be used to value the extent of such other works as agreed.

9.8 Reporting

As discussed in Section 9.6, the loss and compensatory planting of forestry (or other agreed compensatory measures) within the Site to accommodate the Proposed Development would result in no net loss of forestry. It is therefore not anticipated that the impacts on forestry would be significant (in terms of the EIA Regulations) and will therefore be scoped out of the EIA. However, it is acknowledged that information on the baseline, proposed infrastructure and management felling and compensatory planting and/or other mitigation measures should be made available to inform decision-making. It is therefore proposed to include a brief description of the anticipated forestry management measures in the Project Description chapter of the EIAR, to be accompanied by a more detailed Forestry Technical Appendix.

9.9 Questions to Consultees

Q9.1: Do you agree with the proposed scope and methodology to assess potential impacts on forestry?

Q9.2: Do you agree with the proposal to consider alternative mitigation strategies to compensatory planting such as development of the area to enhance public access and create recreational attractions to assist FLS with their aims as set out in the North Kyle Forest Masterplan (2016)?

Q9.3: Do you agree with the proposal to include the forestry information in a technical Appendix of the EIAR with a brief description in the Project Description chapter of the forestry management measures to be implemented?

10.0 Noise

10.1 Introduction

10.1.1 Overview

This section outlines the proposed scope of the EIA in relation to noise arising from the construction and operation of the Proposed Development.

Noise will be generated by the Proposed Development during the construction and operational phases. The effects of these factors are assessed at residential receptor locations in the vicinity of the Proposed Development by comparing likely noise levels arising with the relevant noise limits.

The assessment will consider potential effects on nearby noise-sensitive receptors arising from:

- construction phase activities including turbine and infrastructure construction;
- construction traffic associated with delivery of materials and components; and
- operational turbine noise.

The purpose of the assessment will be to determine whether the Proposed Development has the potential to give rise to significant noise effects at nearby receptors and to confirm the scope of detailed assessment to be presented within the EIAR.

10.1.2 Consultation

East Ayrshire Council (EAC) will be consulted in relation to the assessment methodology, including the Study Area, assessment criteria, and the number and locations of baseline measurements. EAC will be invited to attend the installation of the noise monitoring equipment.

The scope for the cumulative assessment will also be discussed with EAC, including identification of other wind farms to be included in the cumulative assessment.

10.2 Methodology

10.2.1 Study Area

10.2.1.1 General Principles

Noise sensitive receptors for the purposes of the noise impact assessment are defined as residential receptor locations in the vicinity of the Proposed Development. Noise limits for construction and operational noise apply at residential receptor locations. No non-residential noise-sensitive receptors have been identified in the vicinity of the Proposed Development.

Receptors have been identified based on publicly available mapping data, aerial photography, and street-level photography, where applicable. Receptors will be finalised for the EIA based on these same sources, including AddressBase data.

If noise impacts are considered acceptable at the nearest noise sensitive receptors, it can be inferred that they will be acceptable at receptors at greater distances from noise sources (in the same general direction).

10.2.1.2 Construction Noise

The study area for construction noise is set at 300 m from works areas, including access tracks, turbine hardstanding, construction compounds, and locations of ancillary infrastructure.

The nearest identified noise-sensitive receptors to construction works areas based on the Scoping layout are set out in **Table 10-1**, alongside the closest distance to potential works areas. Receptors falling outside of the study area for the finalised design layout will not be assessed.

Table 30-1 Construction Noise Receptors

Receptor	Co-ordinates (Easting, Northing)	Approx. Distance to Works Area
CR1 – Ardoon House	244045, 608676	1.2 km to nearest access track
CR2 – 10 Chapel Row	244472, 608107	1.3 km to nearest turbine hardstanding
CR3 – Laight Farm	245856, 607714	970 m to temporary construction compound
CR4 – Minnivey	246267, 607371	560 m to BESS
CR5 – The Craigmark Inn	247400, 607195	335 m to nearest access track
CR6 – Clawfin	250605, 607352	115 m to nearest access track.

10.2.1.3 Operational Noise

The study area for operational wind turbine noise is defined by the predicted operational noise levels relative to the relevant noise limits. The lowest noise limit potentially applicable to noise from all wind farm developments is 35 dB L_{A90}. Therefore, if predicted cumulative operational noise levels are below 35 dB L_{A90} then the noise sensitive receptors will fall outside of the study area.

In addition to this, the study area is also set by the predicted operational noise levels from the Proposed Development acting alone. It is considered that noise sensitive receptors can be scoped out where predicted operational noise levels from the Proposed Development acting alone are below 25 dB L_{A90}, which will result in negligible contributions to any potential exceedance of the noise limit even on a cumulative basis.

The operational noise study area for sources other than wind turbines (i.e. ancillary infrastructure including substations, transformers, and any energy storage) will comprise all noise-sensitive receptors within 500 m of relevant sound sources.

The closest noise-sensitive receptors identified at this stage are set out in **Table 10-2**.

Table 10-2 Operational Noise Receptors

Receptor	Co-ordinates (Easting, Northing)	Approx. Distance to Nearest Turbine
R1 – Ardoon House	244045, 608676	1.4 km
R2 – 10 Chapel Row	244472, 608107	1.4 km
R3 – Laight Farm	245856, 607714	1.6 km
R4 – Minnivey	246267, 607371	1.8 km
R5 – The Craigmark Inn	247400, 607195	1.5 km
R6 – Pennyvenie Farm	250605, 607352	2.0 km
R7 – Clawfin	261709, 620412	1.8 km
R8 – Upper Beoch	262364, 620072	2.0 km
R9 – Meiklehill	262481, 619944	3.0 km

10.2.2 Construction Noise

10.2.2.1 Construction of Wind Turbines and Access Tracks

If required, the assessment of construction noise will be undertaken in accordance with BS 5228-1:2009+A1:2014[91] 'ABC method' (as detailed in BS 5228-1 Annex E).

The lowest (worst-case) background noise category (Category A) will be assumed, setting noise thresholds of 45, 55 and 65 dB L_{Aeq}, for night-time (23:00-07:00), evening and weekends (19:00-23:00 weekdays, 13:00-23:00 Saturdays and 07:00-23:00 Sundays), and daytime (07:00-19:00 weekdays and Saturdays 07:00-13:00) periods respectively.

Construction noise effects lasting for one month or more will be deemed significant where noise levels exceed the applicable thresholds.

Predicted construction noise levels will be calculated using spreadsheet-based calculation methods incorporating typical representative source noise data obtained from manufacturer data or BS 5228-1 Annex C or Annex D, as well as ground conditions and meteorological factors.

Screening distances will be established beyond which construction noise levels are predicted to fall below significance thresholds, with more detailed assessment undertaken to quantify and report the level of noise at receptors within these distances, if required.

10.2.2.2 Construction Traffic

If required, HGV movements associated with delivery of construction materials will be assessed along identified access routes and at sensitive receptors near site access points.

Construction traffic noise will be assessed in accordance with the guidance provided in the Design Manual for Roads and Bridges (DMRB) LA 111[92]. The assessment will consider the number of construction vehicle movements during peak construction periods. The basic noise level (BNL) will be calculated for road links affected by construction traffic, using the calculation methods set out in Calculation of Road Traffic Noise[93] (CRTN), and considering baseline traffic scenarios and 'with construction traffic' scenarios.

In accordance with DMRB, an increase of 1 dB $L_{A10,18h}$ or greater will be considered potentially adverse effect, with an increase of 3 dB $L_{A10,18h}$ indicating a significant adverse effect.

10.2.3 Operational Noise – Wind Turbines

Operational turbine noise assessment will be conducted in accordance with the methodology set out in ETSU-R-97[94], the Institute of Acoustics (IOA) Good Practice Guide[95] (GPG).

Where suitable baseline noise data does not already exist, baseline noise surveys will be undertaken at representative noise-sensitive receptors to establish the relationship between background noise levels ($L_{A90,10min}$) and wind speed at 10 m height standardised wind speeds, derived with respect to the proposed turbine hub height. Survey durations will typically extend

[91] British Standards Institute, BS 5228-1:2014+A1:2019 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (London: BSI, 2019)

[92] Highways England, Design Manual for Roads and Bridges LA 111 Noise and vibration, Revision 2 (London: Highways England, 2020).

[93] Department of Transport and Welsh Office, Calculation of Road Traffic Noise (CRTN), (London: HMSO, 1988).

[94] ETSU-R-97: The Assessment and Rating of Noise from Wind Farms (London: ETSU for the DTI, 1996)

[95] Institute of Acoustics, A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (St Albans: IOA, 2013)

over a continuous period of at least 3 weeks to capture a sufficient range of wind speeds and directions in accordance with IOA GPG recommendations.

Derived noise limits will be established following ETSU-R-97 criteria. For daytime periods (07:00 to 23:00), the noise limit is 35-40 dB L_{A90} or 5 dB above the 'quiet day-time hours' prevailing background noise, whichever is the greater. The actual value within the 35-40 dB(A) lower limiting value range depends on the number of dwellings in the vicinity; the impact of the limit on the power able to be generated by the Proposed Development; and the duration and level of exposure. With reference to the night-time period, ETSU-R-97 sets out a noise limit of 43 dB L_{A90} or 5 dB above night-time background noise levels, whichever is greater.

An exception to these criteria is made where a resident is considered to be financially involved with the Proposed Development, whereby higher noise limits are permitted to be adopted for those properties, typically adopting 45 dB(A) as the lower limiting value during both daytime and night-time periods.

Noise predictions will assume downwind noise propagation in all directions, with assessments undertaken across the operational wind speed range.

Where noise from the Proposed Development is 10 dB or more below the adopted noise limits, the contribution to cumulative noise from the Proposed Development will be considered to be negligible.

The assessment methodology will be updated to reflect any updates to ETSU-R-97 or the IOA GPG adopted by the Scottish Government prior to the submission of the EIAR.

10.2.4 Operational Noise – Other Sources

If required, noise from ancillary infrastructure, including substations, transformers, and any energy storage or other collocated sound sources will be assessed against appropriate criteria using BS 4142:2014+A1:2019[96].

If required, background sound levels ($L_{A90,T}$) will be established through baseline surveys conducted during representative time periods. The specific sound level ($L_{Aeq,T}$) from operational infrastructure will be predicted based on manufacturer sound power data, topography, ground conditions and meteorological conditions.

Typically, a difference of around +10 dB or more between rating level and background level is likely to indicate significant adverse impacts, while a difference of around +5 dB is likely to indicate adverse impacts. Where the rating level does not exceed the background sound level, this is an indication of low impact. However, the assessment will consider the context in which the sound occurs to determine significance.

10.2.5 Cumulative Noise – Wind Turbines

Cumulative assessment will consider the combined operational noise from the Proposed Development and other existing, consented, or in-planning wind energy developments affecting the study area in accordance with relevant guidance.

The assessment will identify all relevant wind energy developments that are predicted to contribute 25 dB L_{A90} or greater at any receptor within the study area.

The assessment will compare cumulative noise levels against the derived noise limits.

The cumulative developments identified within 5 km of the development or relevant receptors that will be considered for potential inclusion in the cumulative noise assessment are set out

[96] British Standards Institution, BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (London: BSI, 2019).

in **Table 10-3**. Consented developments will be assumed to be constructed, while developments in planning will be assumed to be consented and subsequently constructed for the purposes of the assessment. However, consideration will be given, where required, to potential scenarios where in-planning development applications are refused, withdrawn, or otherwise not ultimately constructed. The relevant cumulative developments will be kept under review up to the Proposed Development application submission, in case other development applications are submitted, altered, or a planning decision is reached.

Table 10-3 Cumulative Wind Farm Developments

Development	Status	Approx. Distance
North Kyle	Existing	0.4 km to Proposed Development
Knockkippen	In Planning	0.5 km to Proposed Development
Breezy Hill	In Planning	0.8 km to Proposed Development
South Kyle II	In Planning	1.3 km to shared receptor
Overhill	Consented	1.7 km to shared receptor
Sclenteuch	Consented	2.0 km to shared receptor
South Kyle	Existing	2.1 km to shared receptor
Enoch Hill	Existing	2.3 km to shared receptor
Dersalloch	Existing	3.2 km to shared receptor
Greenburn	Consented	4.0 km to shared receptor

10.2.6 Cumulative Noise – Other Sources

The cumulative effect of operational noise from other non-turbine sources, including substations and ancillary infrastructure from adjacent developments, will be considered where relevant.

Where infrastructure from multiple developments is within 500 m of the same receptors such that cumulative effects could be significant, a cumulative assessment of combined sound levels will be undertaken, with the assessment following the BS 4142:2014 methodology to determine the cumulative rating level and assess the likelihood of adverse impacts.

No such cumulative infrastructure is currently identified.

10.2.7 Topics Scoped Out

The following topics are proposed to be scoped out of the detailed assessment:

- Construction vibration: Vibration impacts arising from construction activities are typically localised and limited in spatial extent. Any vibration arising from blasting operations can be appropriately controlled through standard management measures secured within the Construction Environmental Management Plan (CEMP).
- Operational vibration: At the anticipated separation distances between wind turbines and residential receptors, vibration levels from turbine or other collocated technology operation are expected to be imperceptible to human receptors.
- Acoustic features (tonality and amplitude modulation): These characteristics will be appropriately addressed through post-construction compliance monitoring and planning conditions, consistent with standard Scottish planning practice.

- Low-frequency noise: Available evidence demonstrates that control of noise through A-weighted assessment methodologies provides suitable protection against low-frequency noise effects.
- Infrasound: Infrasound levels generated by wind turbines and associated infrastructure are imperceptible at residential receptor locations and do not require detailed assessment.
- Operational maintenance activities: Noise effects from maintenance activities and associated traffic movements during the operational phase are expected to be negligible given the limited frequency and nature of such activities.

10.3 Baseline Conditions

A baseline noise survey has not yet been undertaken at the time of preparing this Scoping Report. However, a baseline noise monitoring campaign will be conducted at representative noise-sensitive receptor locations in accordance with ETSU-R-97, the IOA GPG, and supplementary Scottish Government guidance prior to submission of the EIAR.

The Site is located within a predominantly rural environment characterised by agricultural land, forestry and former mining land uses. The baseline sound environment in the surrounding area is expected to be typical of rural locations and influenced by:

- wind-related vegetation noise;
- occasional road traffic on local roads;
- agricultural activities; and
- other existing wind farms in the wider area.

Noise-sensitive receptors include residential properties located within several kilometres of the Site.

Survey locations will be selected to represent the range of receptors and sound environments that are present in the vicinity of the Proposed Development, and will be agreed with EAC.

Baseline measurements will be used to derive wind-dependent background sound levels for comparison with predicted turbine noise levels in accordance with the methodology described in ETSU-R-97 and associated guidance.

10.4 Noise Impact Assessment

This section presents a qualitative and bounding assessment of likely noise effects to inform the proposed scope of the Noise Assessment. The purpose of this assessment is to identify whether there is a credible pathway to significant effects, and whether detailed quantitative assessment is required at the EIAR stage.

10.4.1 Construction Noise

10.4.1.1 Turbine Erection and Construction of Access Tracks

Construction noise effects will arise from typical wind farm activities including earthworks, track construction, turbine foundation works, and turbine erection. These activities are temporary, intermittent, and spatially mobile, with the noisiest activities limited in duration at any individual location.

The nearest noise-sensitive receptors are located at distances where construction noise effects can be effectively managed through standard best-practice controls in accordance with BS 5228-1:2009+A1:2014. Construction works will be undertaken during normal daytime working hours, with no routine evening or night-time works proposed.

Given the temporary nature of construction activities, the separation distances to receptors, and the ability to control noise through a Construction Environmental Management Plan (CEMP), significant construction noise effects are not anticipated. On this basis, it is proposed that construction noise be controlled through a CEMP rather than detailed quantitative prediction at the EIAR stage.

10.4.1.2 Construction Traffic Noise

Construction traffic will result in a temporary increase in HGV movements along local access routes during peak construction periods. Some of these routes are characterised by low baseline traffic flows typical of rural areas.

On low-flow roads, changes in road traffic noise are not able to be reliably calculated and daily average traffic noise levels are not a reliable indicator of perceptibility. Noise effects are therefore more appropriately considered in terms of absolute noise levels, duration, and the temporary nature of the activity. This is recognised within DMRB, which identifies limitations in the application of standard traffic noise metrics at low flows.

Given the temporary duration of construction traffic and the limited number of daily movements, significant construction traffic noise effects are not anticipated. It is therefore proposed that construction traffic noise be addressed qualitatively at EIAR stage, supported by a Construction Traffic Management Plan (CTMP).

10.4.2 Operational Noise – Wind Turbine Noise

Wind turbines generate aerodynamic and mechanical noise which may be audible at nearby residential receptors which could give rise to adverse effects on residential amenity.

Operational noise effects are typically assessed using the guidance contained within:

- ETSU-R-97 The Assessment and Rating of Noise from Wind Farms; and
- the Institute of Acoustics Good Practice Guide to ETSU-R-97.

These documents set out recommended methods for assessment and the noise limits for wind turbine developments which are designed to protect residential amenity.

Preliminary noise predictions have been undertaken for the Proposed Development using indicative turbine sound power data and conservative modelling assumptions.

These calculations indicate that:

- predicted turbine noise levels from the Proposed Development are less than 35 dB L_{A90} at nearby receptors under worst-case downwind conditions; and
- cumulative noise levels including other wind farms in the area are predicted to reach up to 38 dB L_{A90} at the most exposed receptors.

Several of the wider cumulative developments in the surrounding area are understood to operate under noise limits based on the ETSU-R-97 lower limiting value of 40 dB L_{A90}.

Based on these preliminary results, the Proposed Development is expected to operate within the applicable operational noise limits on both an individual and cumulative basis, and therefore significant operational noise effects are not anticipated.

Such predictions will be revised and finalised following development designs and will include any relevant changes to cumulative developments. Where necessary, operational mitigation measures such as turbine operational management (e.g. noise-reduced operating modes) will be considered to ensure compliance with noise limits.

Operational wind turbine noise therefore remains scoped into the EIAR; however, no significant residual effects are anticipated.

10.4.3 Operational Noise – Ancillary Infrastructure

Since the Proposed Development will include ancillary infrastructure such as substations, transformers or energy storage facilities, operational noise from such sources will be assessed, where required against appropriate criteria using BS 4142.

Where such infrastructure is located sufficiently distant from noise-sensitive receptors, operational noise effects will be negligible. It is proposed that this topic be scoped out where infrastructure is located more than 500 m from any noise-sensitive receptor.

10.4.4 Vibration

Vibration impacts are typically associated with activities such as blasting or vibratory piling.

The construction activities associated with the Proposed Development are not expected to involve significant vibration-generating processes, and the distance between construction works and nearby residential receptors is expected to be sufficient to avoid perceptible vibration effects.

Operational wind turbines do not generate perceptible levels of ground-borne vibration at the distances of identified residential receptors.

Accordingly, vibration effects are not considered likely to be significant and are proposed to be scoped out of the EIAR.

10.5 Mitigation

10.5.1 Embedded Mitigation

A range of embedded mitigation measures will be incorporated into the design and operational management of the Proposed Development to minimise noise impacts at sensitive receptors.

A CEMP will be prepared and implemented throughout the construction phase to control noise emissions from construction activities. The CEMP will include specific measures such as:

- restrictions on working hours (typically 07:00-19:00 Monday to Friday, 07:00-13:00 Saturday, with no working on Sundays or public holidays except in emergency situations);
- use of modern, well-maintained plant and equipment fitted with appropriate silencers and acoustic enclosures;
- implementation of "quiet" working methods where practicable;
- establishment of site speed limits to reduce vehicle noise;
- Positioning of static plant (generators, compressors) as far as practicable from sensitive receptors; and
- use of low-noise reversing alarms (broadband or ambient-sensitive types).

A CTMP will be prepared in consultation with the relevant roads authority to manage construction traffic movements and minimise associated noise impacts, where practicable. The CTMP will include:

- scheduling of deliveries to avoid sensitive times where practicable;
- use of designated haul routes that avoid, where possible, the most sensitive receptors and residential areas;
- speed restrictions on access tracks and approach roads;
- maintenance of road surfaces and access tracks in good condition;

- advance communication with local communities regarding abnormal load deliveries and peak construction traffic periods; and
- procedures for monitoring and managing construction traffic movements throughout the construction programme.

Turbine selection will consider acoustic performance as a design criterion, with preference given to turbine models with reduced sound power levels, such as those fitted with serrated trailing-edge (STE) blades, or enhanced noise reduction modes where these are available and compatible with the energy yield and other design requirements of the project.

The layout design will consider separation distances to noise-sensitive receptors as part of the iterative design process, seeking to minimise noise effects at residential properties while balancing other environmental and technical constraints.

10.5.2 Further Mitigation

Where further construction noise mitigation control measures are required, provision of acoustic screening or barriers or altered working methods will be implemented, where necessary, for particularly noisy construction activities in proximity to receptors.

Turbine curtailment strategies can be implemented to reduce noise emissions during specific operational conditions, which may include certain wind speeds or directions or time periods.

These potential mitigation measures provide flexibility to ensure that the Proposed Development can operate in full compliance with the relevant noise criteria. Any required mitigation will be secured through appropriately worded planning conditions.

10.6 Residual Effects

10.6.1 Description of Potential Residual Effects

Following implementation of embedded mitigation measures, residual construction noise effects are anticipated to be not significant. Construction noise will be temporary, limited to normal working hours, and controlled through the CEMP to ensure compliance with BS 5228-1 criteria. Minor adverse effects of short duration may occur at receptors near construction activities during peak periods. Construction traffic noise effects are similarly anticipated to be not significant given the temporary nature of impacts and implementation of the CTMP, although minor short-term effects may occur at receptors close to access routes.

Operational turbine noise will be assessed against derived noise limits. The Proposed Development is anticipated to comply with applicable noise limits at all receptors. However, turbine noise may still be audible at some locations and time periods.

Cumulative operational noise effects will be assessed where the Proposed Development operates in combination with other wind energy developments. Where cumulative noise limits are met, residual cumulative effects are anticipated to be not significant. Additional mitigation using noise-optimised operational modes will be adopted, if required.

10.6.2 Statement of Significance

The Proposed Development is anticipated to comply with relevant noise criteria for all development phases, ensuring appropriate protection of residential amenity at all identified noise-sensitive receptors. No significant residual noise effects are anticipated from the Proposed Development.

10.7 Questions to Consultees

Q10.1: Is it agreed that construction noise effects can be appropriately addressed through standard best-practice controls secured within a Construction Environmental Management Plan (CEMP), without the need for detailed quantitative construction noise predictions at EIAR stage, given the temporary nature of works, typical separation distances to receptors, and proposed working hours?

Q10.2: Is it agreed that, on low-flow rural roads, construction traffic noise effects are more appropriately considered in terms of absolute noise levels, duration and context rather than calculated changes in road traffic noise metrics, with effects addressed qualitatively and through a Construction Traffic Management Plan (CTMP)?

Q10.3: Is it agreed that operational wind turbine noise should be assessed in accordance with ETSU-R-97 and the IOA Good Practice Guide, or any adopted superseding guidance published following this Scoping Report, following completion of a site-specific baseline noise survey agreed with East Ayrshire Council?

Q10.4: Is it agreed that noise-sensitive receptors may be scoped out of detailed operational noise assessment where predicted cumulative turbine noise levels are below 35 dB L_{A90}, or otherwise where the Proposed Development acting alone contributes less than 25 dB L_{A90} at a receptor?

Q10.5: Is it agreed that operational noise from non-turbine infrastructure (e.g. substations, transformers, energy storage) can be scoped out of detailed assessment where no such infrastructure is located within 500 m of any noise-sensitive receptor?

Q10.6: Is it agreed that cumulative operational noise assessment should be limited to wind energy developments that are operational, consented, or sufficiently progressed through the planning system, and which are predicted to contribute 25 dB L_{A90} or greater at relevant receptors?

Q10.7: Is it agreed that the following topics can be scoped out, on the basis that they will not give rise to significant effects:

a) construction vibration;

b) operational vibration;

c) low-frequency noise and infrasound;

d) acoustic characteristics (tonality and amplitude modulation), to be addressed through post-construction compliance and planning conditions; and

e) operational maintenance noise?

11.0 Access, Traffic and Transport

11.1 Introduction

This Chapter of the Scoping Report outlines the proposed method to assess the potential effects associated with access, traffic and transport by the vehicle movements generated during the construction and operation of the Proposed Development.

The assessment of the effects of these vehicle movements will follow the guidance in the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, July 2023[97][98]. The method will involve:

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

The assessment will also be informed by Scottish Renewables' Guidelines on Streamlining Environment Impact Assessment for Onshore Wind Farms[99], Transport Scotland's Transport Assessment Guidance[100] and the Scottish Government's Planning Advice Notice: PAN 75 – Planning for Transport[101].

11.2 Baseline

11.2.1 Study Area

The study area for the assessment will comprise the public road network likely to be used by vehicles travelling to and from the Proposed Development. The extent of the study area will be determined through assessment, but it is likely to comprise the following sections of road:

- the A713 between the junction with the B741 in Dalmellington and the A77;
- the B741 between the A713 in Dalmellington and the A76 in New Cumnock; and
- the A76 north of the B741 through New Cumnock.

These roads are all single carriageway roads with one lane in each direction, although turning lanes are provided at some junctions. They are generally subject to a 60 mph speed limit (lower limits for some vehicle types[102]) but lower limits apply through some built-up areas. The A76 is a trunk road and so is managed by Transport Scotland (TS), while the other roads are

[97] The IEMA was renamed as The Institute of Sustainability and Environmental Professionals (ISEP) in July 2025

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

[99] Scottish Renewables (2025). Guidelines on streamlining Environmental Impact Assessment for Onshore Wind Farms. Scottish Renewables.

[100] Transport Scotland (2012). Transport Assessment Guidance. Glasgow: Transport Scotland.

[101] Scottish Government (2005) Planning Advice Notice: PAN 75 – Planning for Transport. Edinburgh: The Scottish Government.

[102] Speed limits - GOV.UK

managed by Ayrshire Roads Alliance (ARA) on behalf of South Ayrshire Council (SAC) or EAC.

The assessment will also consider the effects of the vehicles delivering the turbine components and that will cover a wider area than listed above, as it will include the route between the Proposed Development and the nearest suitable port. A report assessing the feasibility of delivering the turbine components will be included as a technical appendix to the EIAR. At present, it is envisaged that turbine components would be delivered to King George V dock in Glasgow (with some also perhaps delivered to Ayr port) and then delivered via the A77 and A713 to the Proposed Development.

11.2.2 A713

The main access to the Proposed Development will be from the existing access from the A713 to the North Kyle Energy Project (referred to as the Chalmerston Entrance). The A713 in the vicinity of this access is generally bordered by open farmland, with occasional homes, fields, farms and other developments taking direct access from it.

The A713 within the study area is classed as an 'Agreed Route' in the Timber Transport Forum's 'Agreed Routes Map for Timber Transport'[103]. An 'agreed route' is defined as "*Roads which can be used for timber haulage without restriction other than as regulated by the Road Traffic Act 1988*". Many vehicles involved in timber haulage would be Heavy Goods Vehicles (HGVs) so it is reasonable to consider that this section of the A713 is suitable for HGV usage.

To the northwest of the access, the A713 passes through the settlements of Waterside, Patna and Hollybush. A footway commences on the southern side of the road at the southern edge of Waterside and continues through to the northern edge of Patna. A footway starts on the northern side of the road at around the southern edge of Patna and continues to the settlement of Polnessan. Several homes and other developments front onto the A713 as it passes through these settlements. North of Polnessan, there is no substantial length of footway until in the vicinity of University Hospital on the outskirts of Ayr.

To the southeast of the access, the A713 passes through the settlement of Dalmellington. Several homes and other developments front this section of the A713 and there are footways on each side of it along most of this section.

11.2.3 B741

The B741 meets the A713 in Dalmellington and then passes through the town centre (as defined by EAC's Local Development Plan (LDP) 2). Various homes, commercial and other developments directly access this section and there are footways on each side of it.

The B741 also passes through the settlements of Burnside, Bank Glen and Connel Park. Each of these have some development (such as homes) directly fronting the road and have footways along at least part of the road as it passes through each settlement.

Outwith the above areas, the B741 is generally bordered by open farmland, with occasional homes, fields, farms and other developments taking direct access from it and has no footways.

The existing access to the North Kyle Energy Project, located on the B741 opposite New Cumnock substation, may also be used for some vehicle movements travelling to or from the Proposed Development.

[103] Agreed Route Map for Timber Transport Forum

11.2.4 A76

The A76 passes through the town centre of New Cumnock (as defined by EAC's LDP2) approximately 12.5 km to the northeast of the Site. New Cumnock Primary School is located at the junction of the B741 and A76. There are footways on each side of the of the A76 as it passes through New Cumnock, with the exception of a section approximately 250m long between the River Nith and Pathhead, where there is a footway on only the western side. There is a signalised pedestrian crossing of the A76 in the vicinity of the primary school and pedestrian islands at several locations to aid pedestrians crossing.

11.2.5 Non-Motorised Users

The following Core Paths interact with the roads within the study area:

- To the east of the A713 in Waterside;
- To the south of the A713 at Garden Court in Hollybush;
- To the east of the B741 at Kirk o' the Covenant in Dalmellington;
- Crossing the B741 at Faulds Moss west of Bankglen;
- On the B741 from Bankglen eastwards to Afton Road in New Cumnock (with several Core Paths leading to this section); and
- To the east of the A76 and south of the River Nith in New Cumnock.

No sections of road with the study area form part of the National Cycle Network (NCN).

11.2.6 Data Collection

Vehicle movement data will be collected for the roads within the study area by undertaking week-long Automatic Traffic Counts (ATCs). The locations of these ATCs will be determined through the assessment but would likely be at least on the A713 in the vicinity of Patna, on the B741 east of New Cumnock substation and on the A76 in New Cumnock. These ATCs will give data on vehicle volumes, types and speeds. The timing of the ATCs will avoid local school holiday periods.

A 'low' growth factor from the National Road Traffic Forecasts (NRTF) dataset will be applied to the observed vehicle movement data to allow for traffic growth to the year when construction of the Proposed Development could be expected to commence.

Data on accidents will be collated from the Department for Transport's (DfT's) Mapping Application for Visualising Road Injury Casualties (MAVRIC).

11.3 Scope of Assessment and Method

11.3.1 Sources of Impact

The Proposed Development will generate vehicle movements during construction by staff travelling to and from the Site and plant, components, materials and supplies being delivered to or removed from it. This will lead to additional cars, vans, Light Good Vehicles (LGVs) and HGVs on the road network.

The number of typical daily construction-related vehicles that will be generated during each month of the construction phase will be estimated. These estimates will reflect the activities that will take place during construction and the volume of materials and number of items of equipment that will need to be delivered to or removed from the Proposed Development. These estimates will also reflect an assessment of the amount of aggregate that could be won from onsite borrow pits, using the Applicant's knowledge gained from the construction of the

adjacent North Kyle Energy Project, onsite geological conditions and information from the mining risk assessments, as appropriate.

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

Professional judgement will be applied to estimate the routes taken by vehicles travelling to and from the Proposed Development based on the locations of potential suppliers of materials. The increase in vehicle movements during the busiest month (or months) of construction on each section of road in the study area will be calculated based on the above estimates.

The delivery of the turbine components during construction will require Abnormal Indivisible Load Vehicle (AILV) movements as some of the vehicles carrying the components will have at least one dimension that does not comply with the maxima in The Road Vehicles (Construction and Use) Regulations 1986. A report will be prepared to consider the potential routes for these AILVs and this report will be included as a Technical Appendix to the EIAR. The effects of the passage of these AILVs will be considered in the assessment.

Transport demand during operation will likely be much lower than during construction, since during operation there will be only occasional visits from maintenance or inspection vehicles. It is proposed, therefore, that the transport impacts of the Proposed Development once it is fully operational are scoped out of the assessment.

Initial Screening

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

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

Rule 1 Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)

Rule 2 Include highway links of high sensitivity where traffic flows have increased by 10% or more."

All sections of road will be subject to the threshold in Rule 1. Sections of road will be identified as being of 'high sensitivity' (i.e. also subject to Rule 2 above) if they are subject to substantial use by sensitive groups (e.g. children, elderly or mobility impaired) or they are at sensitive locations (e.g. fronted by schools, hospitals or care homes). The baseline study work referred to in **Section 11.2** will have established which sections of road within the study area could be classified as being of 'high sensitivity'.

Where the estimated increase in traffic arising from the Proposed Development does not breach the relevant threshold for any section of road, the significance of any effects will be considered to be low and not significant in EIA terms. No further assessment work will be undertaken on such sections.

11.3.2 Assessment of Effects

Where the estimated increase in traffic arising from the Proposed Development breaches the relevant threshold for any section of road, potential effects on the following will be assessed:

- severance;
- road vehicle driver and passenger delay;

- non-motorised user delay;
- non-motorised user amenity;
- fear and intimidation of and by road users;
- road user and pedestrian safety; and
- hazardous / large loads.

The magnitude of impact on each of these will be determined based on the criteria in **Table 1-1**.

Table 11-1 Categorisation of Impact Magnitude by Potential Effect

Topic	Impact Magnitude			
	Large	Medium	Small	Negligible
Severance	Change in road link traffic flow of 90% or over.	Change in road link traffic flow of 60% to less than 90%.	Change in road link traffic flow of 30% to less than 60%.	Change in road link traffic flow of less than 30%.
Road Vehicle Driver and Passenger Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Non-Motorised User Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Non-Motorised User Amenity	Judgement based on the individual characteristics of sections of road. Medium or Large likely if change in total traffic flows or HGV flows of more than 100%.			Change in total traffic flows or HGV flows of less than 10%.
Fear and Intimidation of and by Road Users	Two changes in 'Level of fear and intimidation'.	One change in level of fear and intimidation with >400 vehicle increase in average 18 hour (hr) vehicle flow or >500 Heavy Vehicle (HV) increase in total 18hr HV flows.	One change in level of fear and intimidation with <400 vehicle increase in average 18hr vehicle flow or <500 HV increase in total 18hr HV flows.	No change in Level of fear and intimidation.
Road User and Pedestrian Safety	Judgement based on accident data and individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Hazardous / Large Loads	Judgement based on number of such movements and nature of affected road network.			

However, there may be instances where, for example, a relatively low increase in vehicle movements results in a relatively large percentage increase simply because the baseline vehicle movements may breach one of the thresholds in **Table 11-1**, but, in absolute terms, may be considered to have a lesser impact magnitude. Professional judgement will be used in the application of the thresholds in **Table 11-1**.

11.3.3 Receptor Sensitivity

Receptor sensitivity will be defined as shown in **Table 11-2**.

Table 11-2 Receptor Sensitivity Definitions

Sensitivity	Description
Very high	Receptor with no capacity to accommodate a particular effect and no ability to recover or adapt.
High	Receptor with very low capacity to accommodate a particular effect with low ability to recover or adapt.
Moderate	Receptor with low capacity to accommodate a particular effect with low ability to recover or adapt.
Low	Receptor has some tolerance to accommodate a particular effect or will be able to recover or adapt.
Negligible	Receptor is generally tolerant and can accommodate a particular effect without the need to recover or adapt.

Professional judgement will be used in the application of the definitions shown in **Table 11-2**. For example, pedestrians may be less sensitive to severance effects if there are measures in place to aid pedestrians crossing the road. This is acknowledged in paragraph 1.31 of the IEMA Guidelines which states *"For example, pedestrians are less sensitive to changes in traffic if there are adequate footways and crossing facilities".*

11.3.4 Significance Criteria

An effect significance matrix based on the impact magnitude and receptor sensitivity is set out in **Table 11-3**.

Table 11-3 Effect Significance

Impact Magnitude	Sensitivity of Receptor				
	Very High	High	Moderate	Low	Negligible
Large	Major	Major	Major	Moderate	Negligible
Medium	Major	Major	Moderate	Minor	Negligible
Small	Moderate	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

Effects of '**Major**' significance will be considered to be 'significant' in terms of the EIA Regulations. Effects of '**Moderate**' significance will be considered to be either 'significant' or 'not significant` in terms of the EIA Regulations and professional judgement used to determine the level of significance. Effects of '**Minor**' or '**Negligible**' significance will be considered to be 'not significant' in terms of the EIA Regulations.

11.3.5 Mitigation

Mitigation measures will be proposed to lessen any effects of the vehicle movements generated by the Proposed Development. These will be developed in accordance with the guidance in the 'IEMA Impact Assessment Guidelines: Implementing the Mitigation Hierarchy from Concept to Construction' of August 2024[104], which identifies the following three types of mitigation:

- Primary mitigation, which are measures that are an inherent part of the project design (such as using onsite borrow pits to reduce the amount of aggregate that will need to be brought in from offsite sources).
- Secondary mitigation, which are measures that require further activity in order to achieve the anticipated outcome and are often secured through planning conditions, requirements and/or management plans (for example a Construction Traffic Management Plan (CTMP)).
- Tertiary mitigation, which are measures which will be required regardless of any EIA assessment, as they are measures which are imposed, for example, as a result of legislation or standard practices.

11.3.6 Cumulative Effects

A cumulative assessment will be undertaken to determine the increase in vehicle movements arising from the Proposed Development and any other developments that would affect the same sections of the road network at around the same time as the Proposed Development would be constructed. The significance of cumulative effects will be assessed using the same process as described above.

The baseline traffic surveys will record vehicle movements generated by potential cumulative developments that were operational or under-construction at the time of the surveys. No specific allowance need therefore be made for potential cumulative developments of these types. Insufficient information is likely to be available for potential cumulative developments that are only at the scoping stage and these are proposed to be excluded from the cumulative assessment.

For the purposes of this assessment, therefore, potential cumulative developments will be considered relevant if they would affect the same sections of the road network at around the same time as the Proposed Development would be constructed and either:

- have consent and are unbuilt; or
- are the subject of a valid (but undetermined) consent application.

[104] Beadle, Burgess, Callaghan, Howard, Knott, Riley, Walker et al. (2024) Institute of Environmental Management and Assessment (IEMA) Guidelines: Implementing the Mitigation Hierarchy from Concept to Construction. London: IEMA

11.4 Matters Scoped Out

Potential transport effects of the Proposed Development once it is fully operational are proposed to be scoped out of the assessment for the reasons explained in **Section 11.3.1**.

11.5 Questions to Consultees

Q11.1: Is the proposed methodology acceptable?

Q11.2: Are there any key locations on the road network within the study area that consultees would wish to be considered as sensitive receptors?

Q11.3: Are there any locations on the road network within the study area with atypically-high accident rates?

Q11.4: Are there any particular committed developments that consultees would wish to see included in the cumulative assessment?

12.0 Aviation & Radar

12.1 Introduction

This section provides an indication of the potential effects of the construction and operation of the Proposed Development on aviation. Further, it provides a summary of the full assessment methodology to be adopted and the key reference documents covering legislation, policy and guidance.

12.2 Guidance and Legislation

The primary planning policy document is the National Planning Framework 4 (NPF4) (2023).

NPF4 states, under Policy 11 concerning development proposals for all forms of renewables, that project design and mitigation will demonstrate how "*impacts on aviation and defence interests and seismological recording*" are addressed.

Scottish Onshore Wind Policy Statement (2022), states under Chapter 6, that wind turbines have the potential to affect aviation operations, including, but not limited to, effect on aviation radar.

The effects of wind turbines on aviation interests have been widely publicised, but the primary concern is one of aviation safety alongside environmental. There are two dominant scenarios that may lead to objections from aviation stakeholders:

- Physical Obstruction: Wind turbines can present a physical obstruction at or close to an airfield or in the military Low Flying environment; and
- Radar/Air Traffic Services: Wind turbines induced clutter appearing on radar display can affect the safe provision of air traffic services as it can mask unidentified aircraft from the air traffic controller and/or prevent them from accurately identifying aircraft under their control.

This document recognises recent progress stating that bespoke solutions which alleviated specific, individual objections have been deployed successfully over the last decade or more, releasing significant volumes of renewable generation. However, the pace of deployment necessitated by the climate emergency means the Scottish Government must find a way to alleviate these impacts in an effective, efficient and timely manner. It is also important that solutions are cognisant of the cost of deploying renewable energy, particularly given the need to focus on both security of supply and low-cost generation, given the current international and economic situation.

Beyond the above statement of need, the document sets out the aims of Industry and Government to address the issues of radar impacts, creation of a physical obstruction and aviation obstacle lighting fitment; specifically, the Onshore Wind Aviation Radar Delivery 2030 Group and the Aviation Lighting Working Group. The Guidance on Aviation Lighting Impact Assessment (2024) focuses on delivering consistent methods, practices and recommendations to aid in assessing aviation obstacle lighting impacts. The guidance sits with relevant stakeholders.

The Scottish Government Planning Circular 2/2003 (revised), Safeguarding of Aerodromes, Technical Sites and Military Explosive Storage Areas, contains annexes which describe the formal process by which planning authorities should consider safeguarding, including in relation to wind energy developments. As a statutory consultee, the Ministry of Defence (MOD) will be consulted through the Section 36 scoping application. It publishes a guidance document on www.gov.uk called 'Wind farms: MOD safeguarding', updated 21 July 2021. They state that WTGs can adversely affect several MOD operations including radars, seismological recording

equipment, communications facilities, naval operations and low flying. These effects are not limited to specific geographical areas.

The MOD wind energy team deals specifically with wind-related developments and processes planning applications and pre-application consultation requests for on- and offshore wind farm developments. The MOD wind energy team also liaises with a broad range of experts to formulate a comprehensive MOD response. Where the MOD has concerns about a development the team will work with the developer to seek ways to mitigate them.

Civil Aviation Authority (CAA) guidance, within Civil Aviation Publication (CAP)764 (Policy and Guidance on Wind Turbines) (2025), sets out recommended consultation and assessment criteria for the impacts of WTG on all aspects of civil aviation.

The CAA involvement in the Wind Farm Pre-Planning Consultation Process has ceased; CAP764 now states that 'developers are required to undertake their own pre-planning assessment of potential civil aviation related issues' and that 'it is incumbent upon the developer to liaise with the appropriate aviation stakeholder to discuss – and hopefully resolve or mitigate – aviation related concerns without requiring further CAA input.'

12.3 Study Area

The initial Aviation Impact Assessment will exhaustively identify all potential issues and the associated aviation stakeholders potentially affected by the Proposed Development. This involves considering all military and civil aerodrome operations in the wider area out to *c.* 60 km, all radar installations out to the limit of their range, all navigational aids and air-ground-air communications stations to the limit of their safeguarding areas and low flying activities in the airspace above and around the Proposed Development.

12.4 Baseline Description

The aviation facilities likely to be affected by the Proposed Development are:

- National Air Traffic Services En-Route Plc (NERL) Lowther Hill Primary Surveillance Radar (PSR).
- Glasgow Prestwick Airport (GPA) PSR.
- GPA Very High Frequency (VHF) Communications.
- MOD Low Flying; and
- Glasgow Airport and GPA Instrument Flight Procedures (IFPs).

Based on our understanding of the effect of wind turbines on aviation infrastructure in this area, we believe that industry standard mitigation solutions can be agreed and implemented such that the Proposed Development will have no residual significant effects on aviation.

The Proposed Development lies outside the GPA Control Zone (CTR). It lies underneath the GPA Control Area (CTA). These are areas of Controlled Airspace (CAS), dedicated to aircraft flying into and out of the airport. The Proposed Development lies at a range of approximately 19 km, southeast of the Aerodrome Reference Point (middle of the GPA main runway), to the south of extended centreline of the main runway.

12.5 Aviation Impact Assessment

Because of the proximity of the site to GPA, combined with the elevation of the terrain, there is the potential for wind turbines to have an effect as physical obstacles, upon aspects of flight procedures. The Applicant will work with a CAA Approved Procedure Design Organisation (APDO), to identify and address any conflicts with current procedures.

The wind turbines might be detectable to the GPA Primary Surveillance Radar (PSR). Mitigation of the PSR impacts might be required and is available.

The wind turbines might also be detectable to and cause effects to the NATS En-route PSR at Lowther Hill, 25 km to the east. These effects, if any, can be mitigated.

No negative effects are expected on Navigational Aids (NAVAIDS) or military infrastructure.

Due to the height of the wind turbines, at or above 150 m above ground level (agl), some of the wind turbines might be required to be lit, under CAA Regulations, with visible aviation obstacle lighting. It is the intention of the Applicant to propose, and ultimately agree, a reduced lighting scheme with the CAA. Details of this will be set out in the description of Proposed Development section of the EIAR and the night-time visual impact of the proposed reduced lighting scheme will be assessed as part of the Landscape and Visual Impact Assessment (LVIA), in accordance with “Guidance on Aviation Lighting Impact Assessment” (NatureScot 2024) - refer also to **Section 4.3.6** for more detail on the LVIA scope of assessment.

The surrounding landscape context of the Proposed Development contains some existing sources of artificial aviation obstacle lighting, particularly when considering surrounding wind farms already consented with visible aviation obstacle lighting.

The MOD is expected to request Infrared lighting. Infrared lighting will be provided, the details of which will be agreed with the MOD prior to implementation. This lighting is invisible to the human eye.

12.6 Proposed Scope and Methodology of Assessment

The acceptability of the Proposed Development, in terms of net effects on aviation related interests, is established through engagement with all relevant stakeholders within the consenting process. The initial task is to independently assess the potential effects and where significant effects might occur, to design the Proposed Development to minimise those adverse effects and as required, to enter a dialogue with the affected stakeholders. The initial assessment includes a review of the following:

12.6.1 Airspace Environment

- Proximity to aerodromes.
- Airspace Classification – Proximity to Air Traffic Services (ATS) routes.
    - CAS, Restricted Areas.
- Proximity to military aeronautical training areas.

12.6.2 Checks for Physical Obstruction

- Through infringement of aerodrome Obstacle Limitation Surfaces (OLS).
- Potential for penetration of Instrument Flight Procedure (IFP) safeguarding surfaces.

12.6.3 Radar Line of Sight (LoS) Overview for the following Radar

- NERL PSR and Secondary Surveillance Radar (SSR) (none of which are within 10 km of the Proposed Development).
- GPA PSR.

12.6.4 Aviation Lighting Scheme

- Due to the height of the wind turbines, at or above 150 m agl, some of the wind turbines might be required to be lit, under CAA Regulations, with visible aviation obstacle lighting.

Agree a reduced lighting scheme with the CAA in accordance with “Guidance on Aviation Lighting Impact Assessment” (NatureScot 2024).

12.6.5 Proximity to other Technical Sites [105]

- NAVAIDs (Very High Frequency (VHF) Omni-Directional Ranging (VOR), Distance Measuring Equipment (DME).
- Air-ground-air communications locations operated by NERL and GPA.

Where adverse effects are of concern additional analysis may be required; and where adverse effects are deemed unacceptable, mitigation solutions will be identified and explored with the goal of reducing adverse effects to acceptable levels. While the aim of this dialogue is to enable the approval of all aviation stakeholders before full submission, this is not always possible. In the case of adverse effects, typically solutions are identified but do not reach full maturity in terms of the assessment by the aviation stakeholders and the contracting of mitigation (where required) until full planning applications have been submitted.

12.7 Proposed Mitigation

Radar Mitigation Schemes (RMS) might be required to mitigate the impacts to the NATS En-route Lowther Hill radar and the GPA PSR.

Mitigation schemes have been agreed on other projects located in the Ayrshire and southwest Scotland regions, including for the adjacent operational North Kyle Energy Project. The same mitigation could readily be applied to the Proposed Development subject to commercial agreement. Subject to a full assessment of the final layout by an APDO, some amendments to IFPs might be required. Any such changes will be conducted through the related airport to the point of CAA approval and implementation prior to project build.

12.8 Potential Residual Impacts

There will be no residual aviation impacts.

12.9 Receptors and Impacts Scoped In or Out of Assessment

Technical reporting will be provided in the form of an appendix to the main EIAR. Impacts on aviation will not require assessment through the EIA process within an EIAR chapter.

As no aviation effects to NAVAIDs are expected, this will be scoped out by the Applicant. However, the aviation stakeholders consulted will conduct or stipulate an assessment of all potential areas of effect, independent of any assessment conducted by the Applicant.

12.10 Reporting

In line with the Scottish Renewables guidance on streamlining wind farm EIAs, an Aviation Impact Assessment of the Proposed Development will be undertaken and submitted as a Chapter to the EIAR. It will assess the effect of the Proposed Development on aviation infrastructure and set out mitigation as required. Planning conditions will be proposed as part of the Section 36 application to ensure that any mitigation is delivered.

[105] ‘Technical Sites’ in this context refers to Off-aerodrome Aeronautical equipment; NAVAIDS (VOR, DME), VHF/UHF Communication towers/aerials (air-ground-air), and radar.

12.11 Questions to Consultees

Q12.1 Do you agree that aviation impacts can be assessed within a technical report provided in the form of an appendix to the EIAR?

Q12.2 Do you agree with the proposed consultation strategy, assessment methodology, and approach to potential mitigation of impacts?

13.0 Telecommunications & Utilities

13.1 Telecommunications

13.1.1 Baseline

A desktop assessment was undertaken to determine whether any telecommunications fixed links are present within or near the Site. Publicly available information[106] showed that there are four fixed links that crossed the southwestern area of the Site boundary (**Figure 13.1**).

Further investigations found that the adjacent consented Knockkippen Windfarm, in order to mitigate its own effects on these fixed links, has proposed the construction of a relay mast that will re-route the fixed links. This new mast requires additional consideration and the application of a 500 m avoidance buffer in respect to turbine siting. The Site design satisfies this requirement as all turbines are situated beyond 500 m from the consented Knockkippen relay mast coordinates.

Interim buffers have been considered at this stage regarding the fixed link paths. Given the evolving nature of the fixed links crossing the Site, feedback from telecommunications and fixed link providers would be welcomed as to their status and avoidance requirements in order to inform ongoing design considerations.

13.1.2 Potential Impacts of Wind Turbines on Telecommunications Links

Wind turbines can introduce electromagnetic signal interference due to both physical and electrical factors. Physical interference can disrupt electromagnetic signals, leading to a ghosting effect that particularly impacts television and radar. Electrical interference stems from the operation of the generator within the turbine's nacelle and may affect communication equipment near the turbines.

13.1.3 Mitigation Through Design

Site design has taken into account the location of the proposed relay mast associated with the Knockkippen consented wind farm. Turbines are situated outwith a 500 m avoidance buffer surrounding this relay mast.

A separate avoidance buffer applied to the fixed link paths has also been considered in relation to turbine siting. All turbines in the Scoping layout are further than 100m from both the existing fixed link paths and the planned realigned fixed links that will connect to the consented Knockkippen relay mast.

13.1.4 Reporting

The treatment of the fixed link as a hard constraint and the avoidance of the fixed link path in compliance with the operator's requirement effectively removes any potential for the Proposed Development to impact on the telecommunications links. It is therefore proposed that a brief description of the locations of the telecommunications links within the Site and how they have been avoided will be included in the Design Evolution chapter of the EIAR.

However, should a new fixed link, altered fixed link pathway or new potential impacts be identified by the telecommunications operators at final design stage, a discussion of the baseline, potential impact and mitigation will be included in the EIAR as a technical appendix,

[106] Ofcom Spectrum Information Portal. https://www.ofcom.org.uk/spectrum/frequencies/spectrum-information-portal [Accessed 17/04/2026]

rather than an EIAR chapter. This is in line with the Guidelines on Streamlining EIA for Onshore Wind Farms (Scottish Renewables, September 2025).

13.1.5 Questions to Consultees

Q13.1 Consultees are invited to provide information on any fixed links or other telecommunications infrastructure within or near the Site, including those which may not publicly available.

Q13.2 Do consultees agree that the 100 m avoidance buffer applied to the existing and likely alternative fixed link paths (which are anticipated to connect to the consented Knockkippen relay mast) is appropriate? If not, please provide specific requirements.

Q13.3 The realignment of the fixed links to connect with the consented Knockkippen relay mast has been assumed based on the information set out in the Knockkippen decision notice and the application documentation that was submitted for the proposed Knockkippen Wind Farm. Please could the consultees confirm that these assumed alternative routes of the fixed links are correct and if possible, provide up to date information on the redirection of the fixed links in light of this change.

13.2 Utilities

13.2.1 Baseline

At this stage, the Applicant is aware of three overhead lines within the Site (**Figure 13.2**). A 132kV powerline crosses the southwestern Site boundary after crossing the A713, and runs along the boundary for approximately 1.6 km before branching off just south of the proposed Scoping layout substation location. This line delivers power generated at the Dersalloch Wind Farm to the New Cumnock Substation. See **Photograph 13.1** below. In addition, two single wood pole overhead lines are present in the southwest area of the Site boundary. It is assumed that these lines provide electricity to Burnton and Dalmellington.

Photograph 13.1: Image of the 132kV power line where it crosses the A713, photo facing southwest, with Dersalloch Wind Farm in the rear (Google Maps, Streetview, accessed 25/02/26).

Further baseline information will be obtained from other utility providers e.g. Scottish Gas Networks (SGN) during the design process to ensure any underground gas lines are protected.

13.2.2 Potential Impacts of Wind Turbines on Overhead Lines

It is currently understood that wind turbines have the potential to impact on overhead lines as follows:

- Potential toppling of the turbines in the direction of the overhead line would damage the overhead line; and
- Wind roses coming off the turbine blades during operation of wind farms have the potential to cause overhead lines to sway, which reduces the life of the cables and requires more frequent maintenance and replacement of the cables.

13.2.3 Mitigation Through Design

The most effective way to eliminate the potential for the Proposed Development to impact on existing overhead lines is to implement appropriate avoidance buffers. A topple distance buffer of tip height plus 10% (220 m) will be applied to all existing surface infrastructure including overhead lines, roads and buildings. Where this is not possible, the transmission operator (in this case Scottish Power Energy Networks (SPEN)) will be contacted to discuss potential mitigation options.

Should any underground infrastructure be identified while establishing the utilities baseline, appropriate avoidance measures will be put in place, in consultation with the applicable utilities operator. Where it is not possible to avoid any underground infrastructure that might be present, the utilities operator will be contacted to discuss potential mitigation options.

13.2.4 Reporting

It is proposed that a discussion concerning the presence of any existing or proposed utilities infrastructure, along with a discussion of the measures implemented through design to mitigate or eliminate potential impacts on the infrastructure, will be included in the Design Evolution chapter of the EIAR.

13.2.5 Questions to Consultees

Q13.4 Should consultees be aware of any utilities infrastructure within or near the Site, please could this be provided?

Q13.5 Do consultees agree that a description of any infrastructure present within the Site and mitigation though design would be included in the Design Evolution chapter of the EIAR?

14.0 Shadow Flicker

14.1 Introduction

This section considers shadow flicker, a phenomenon that occurs when a certain combination of conditions prevail at a certain location, time of day and year. It firstly requires the sun to be at a certain level in the sky. The sun then shines onto a window of a residential dwelling from behind the turbine rotor. As the wind turbine blades rotate it can lead to the projection of alternating light and dark shadows, resulting in a strobe light effect. This “flickering” can cause significant disturbance to residents in affected properties.

14.2 Guidance and Legislation

There are no formal guidelines established to determine acceptable exposure levels in relation to shadow flicker. There is also no standard for the assessment of shadow flicker. The guidance provided by the Scottish Government, Onshore Wind Turbines: A Web Based Guide (Scottish Government, 2014) sets out the potential area that may require assessment: “*Where shadow flicker could pose an issue, developers must furnish calculations to quantify the effect. However, in most instances, maintaining a separation between turbines and nearby dwellings, typically equivalent to ten rotor diameters, should alleviate concerns regarding shadow flicker*.

The Department of Energy and Climate Change (DECC) has evaluated the current understanding of shadow flicker in its research paper, Update of UK Shadow Flicker Evidence Base (DECC, 2011). This research confirms that an acceptable study area for assessment in terms of shadow flicker should be ten rotor diameters from each turbine and within 130 degrees either side of north. It is also determined that effects should be considered significant where a receptor is identified as experiencing greater than 30 hours of flicker per year or more than 30 minutes per day on the worst affected day (based on realistic scenario), whichever is greater.

The EAC considers any level of shadow flicker to be significant and expects it to be treated as such, regardless of other guidance on this matter. As such, any shadow flicker expected to be experienced at any of the receptors will be regarded as significant in EIA terms.

14.3 Shadow Flicker Study Area

As detailed above, the shadow flicker study area includes land within a distance of ten times the rotor diameter of the proposed turbines and 130 degrees either side of north for each. As shown in **Figure 14.1**, there are nine residential properties located within these defined areas.

14.4 Proposed Scope of Assessment

A shadow flicker assessment will be undertaken using computer modelling software (WindPRO or equivalent) and will be run for both a worst case scenario (accounting for 365 sunshine days per year and 100% turbine operation) and realistic scenario (using, where possible, measured meteorological data and 85% turbine operation) on the potential shadow flicker occurrence for a 1 m x 1 m ground floor window at each identified sensitive receptor location, assumed to be facing directly towards the Proposed Development.

The sensitivity of the receptors will be considered high unless there are particular reasons for reduced sensitivity. The assessment will present clear findings on the estimated number of hours of shadow flicker impact anticipated for each receptor, for both scenarios. Where required, potential mitigation measures will be discussed. As mentioned above, any amount of shadow flicker will be regarded as significant.

14.5 Proposed Mitigation

The Applicant is committed to minimising the potential for shadow flicker effects of the Proposed Development to impact on residential receptors. During the iterative design process, positioning of turbines will be informed by the consideration of potential shadow flicker effects, and will continue to be an important consideration during ongoing refinement.

The Applicant proposes that, if shadow flicker will be experienced by the sensitive receptors, prior to erection of the first turbine a written scheme (known as the 'Wind Farm Shadow Flicker Protocol') will be submitted to and approved in writing by the Local Planning Authority. This will set out mitigation measures to alleviate shadow flicker attributable to the Proposed Development as well as a protocol for addressing a complaint from a receptor within the study area.

Operation of the turbines would be required to take place in accordance with the approved Shadow Flicker Protocol and any mitigation measures that have been agreed through the protocol would require to be implemented as appropriate.

Mitigation measures could include the provision of local screening to reduce or block shadow flicker affecting a receptor. Should screening provision not be possible, the most effective mitigation measure is selective automatic turbine shutdown during times of the year when shadow flicker is predicted, if the weather conditions are correct. The relevant technology while will allow for the automatic shutdown of the turbine will be fitted to the Proposed Development turbines and details included within the 'Wind Farm Shadow Flicker Protocol'.

14.6 Reporting

It is proposed that the shadow flicker assessment results and any proposed mitigation will be set out in a technical appendix, in line with the EIA Streamlining Guidance. Where potential shadow flicker has influenced the design of the Proposed Development, this will be discussed in the Design Evolution chapter of the EIAR.

14.7 Questions to Consultees

Q13.1: Do consultees agree that the study area of 10x rotor diameter as outlined is appropriate?

Q13.2: Do consultees agree that shadow flicker can be scoped out of the EIA with potential effects and any mitigation measures set out in a technical appendix to the EIAR?

15.0 Air Quality & Human Health

The air quality of the Site is expected to be good due to the rural location, with few pollution sources. The main pollution source is likely to be local emissions from traffic on the A713.

During the construction of the Proposed Development, the movement of vehicles and the on site plant would generate exhaust emissions. Given the short-term nature of the construction period and the limited area to be developed, effects on air quality are likely to be negligible.

Construction activities have the potential to generate dust during dry spells, which may adversely affect local air quality. Given the scale, nature and duration of construction activities, it is considered that dust from construction is unlikely to cause a nuisance, particularly with the implementation of standard mitigation measures as detailed in a CEMP, e.g. wheel washes; dampening of loads.

An operational wind farm produces no notable atmospheric emissions. The operation of the wind farm would therefore have no discernible adverse effects on local or national air quality.

Relevant mitigation measures for air quality, dust and pollution control will be captured within a site-specific CEMP, to be developed and agreed with the EAC prior to the commencement of construction.

The assessment of human health effects will be undertaken in the context of residential amenity and will be captured in various chapters of the EIAR as appropriate e.g. visual impact, noise and shadow flicker assessments.

It is therefore proposed that an assessment of air quality & human health is scoped out of the EIA.

15.1 Questions to Consultees

Q15.1 – Do you agree that air quality and human health can be scoped out of EIA, with relevant aspects being addressed in other chapters of the EIAR as appropriate?

16.0 Risk of Major Accidents and/or Disasters

Given the nature of the Proposed Development, the risk of major accident or disaster is considered to be extremely low. The Principal Designer will ensure a Design Risk Assessment process is followed during the design phase to ensure designers fully assess the risks and mitigate to a level deemed as low as reasonably practicable during the design stage as part of the requirements of the Construction (Design and Management) Regulations (2015).

During the operational phase of the Proposed Development, routine maintenance inspections will be completed in order to ensure the safe and compliant operation of all built infrastructure.

It is therefore proposed that an assessment of the risk of major accidents and/or disasters is scoped out of the EIA.

16.1 Questions to Consultees

Q16.1 – Do consultees agree that major accidents and disasters can be scoped out of EIA?

17.0 Socio-Economic, Recreation and Tourism Report

17.1 Introduction

This section of the Scoping Report considers the approach to assessment of the potential socio-economic, recreation and tourism effects of the Proposed Development arising during construction and operation. As discussed in Section 3.4.3, the potential impacts during the decommissioning phase are anticipated to be similar to those of the construction phase, and in line with the EIA Streamlining Guidance, it is proposed to scope out assessment of the decommissioning phase impacts on socio-economics, recreation and tourism.

This section includes a consideration of employment and Gross Value Added (GVA) generation, tourism effects, and any indirect supply chain economic effects from the Proposed Development. It also considers the effects on recreational and land-use assets associated with the Proposed Development.

Socio-economic assessments of onshore wind farms over the last decade have consistently found no significant adverse effects in terms of the EIA Regulations, and there is no reason to expect significant adverse effects for the Proposed Development. It is therefore proposed to scope socio-economics, recreation and tourism out of the EIA.

Nevertheless, it will be necessary to determine whether the Proposed Development would comply with Policy 11(c) of National Planning Framework 4 (NPF4), which states that "*development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities*".

It is proposed that a separate Socio-Economic, Recreation and Tourism Report will be provided and submitted alongside the EIA Report. This section of the Scoping Report forms the start of the consultation process; further consultation will be undertaken as required during the EIA process.

This section has been compiled by MKA Economics, who has led the socio-economic, recreation and tourism assessment of over 50 renewable developments across Scotland, recently including Greenburn Wind Farm, Dalfad Wind Farm and Blackwood Wind Farm. MKA Economics has worked closely with East Ayrshire Council (EAC), regional economic partnerships, and community groups.

17.2 Baseline Description

The baseline study will cover and compare three areas:

- Local Area: The electoral wards of Doon Valley and Cumnock and New Cumnock, which cover the Proposed Development and nearest settlements (Dalmellington, Bellsbank, Patna, and New Cumnock).
- Regional Authority: East Ayrshire Council (EAC) area.
- National: Scotland.

The economic impacts will be quantified and presented for EAC and Scotland study areas. The recreation and tourism assessment will consider assets within 10 km from the Site boundary.

The baseline study will cover:

- Demographic profile: Population trends, age structure, and projections for East Ayrshire, noting historical decline and projected fall compared to Scottish growth (as identified in the Greenburn report).

- Employment and economic activity: Economic activity rates, employment rates, claimant count unemployment, and workless households, benchmarked against Scottish averages. East Ayrshire typically shows lower activity and higher deprivation.
- Industrial structure: Key sectors in East Ayrshire, including the legacy of coal mining, the emerging renewables sector, manufacturing, and public services.
- Tourism sector role: Analysis of visitor numbers, spend, and the value of tourism to East Ayrshire and Ayrshire & Arran as a region. Note that East Ayrshire is the smallest sub-region for tourism in Ayrshire.

Local tourism assets: Identification of accommodation providers, visitor attractions, and recreational routes within 10km of the Site. These include (based on Blackwood and Greenburn examples):

- Dumfries House (stately home and estate, c. 5km north)
- New Cumnock Lagoons (rewilding project, c. 4km east)
- Lochside House Spa (c. 2km east)
- Afton Water Route, Glen Afton Route, Miners Walk (recreational walking routes)
- The Barony A-frame (mining heritage landmark)
- Baird Institute (museum, Cumnock)
- Wage and salary levels: Comparison of East Ayrshire earnings to Scottish average.
- Deprivation: Review of the Scottish Index of Multiple Deprivation (SIMD), noting that East Ayrshire is the 7th most deprived local authority in Scotland, with significant pockets of deprivation in the Coalfield communities around the Site.

The tourism, recreation and land-use assessment will cross-reference the Landscape and Visual and Cultural Heritage chapters of the EIA Report.

17.3 Guidance and Legislation

There is no established guidance for conducting a socio-economic, recreation and tourism assessment in parallel with the EIA process. It is therefore proposed that the assessment uses desk-based information sources to assess the likely scale of effects, supplemented by consultation with local stakeholders and informed by professional judgement.

The assessment will be guided by the following key policies and documents:

- National Planning Framework 4 (NPF4) (Scottish Government, 2023) – particularly Policy 11 (Energy) and Policy 1 (Tackling the climate and nature crises).
- Onshore Wind Policy Statement (Scottish Government, 2022) – ambition for 20GW of onshore wind by 2030.
- National Strategy for Economic Transformation (NSET) (Scottish Government, 2022) – focus on green growth, just transition, and Community Wealth Building.
- Net Economic Benefits and Planning (Scottish Government, 2016) – guidance on demonstrating net economic impact.
- East Ayrshire Local Development Plan 2 (2024) – policies on economic development, renewable energy, and community benefit.
- East Ayrshire Economic Development Strategy (2014-2025) – identifies renewables as a priority growth sector.

- Ayrshire Regional Economic Strategy (2023) – guides delivery of the Ayrshire Growth Deal, with community wealth building at its heart.
- Ayrshire Growth Deal – over £250 million investment, supporting inclusive economic recovery.

Socio-economic impacts associated with onshore wind farms primarily relate to job creation, use of local services, income spent in the locality, and community benefit. The assessment will be completed in line with NPF4 Policy 11(c), ensuring that net economic impact is maximised.

A cumulative assessment will be presented, taking into account other similar renewable and infrastructure projects ongoing or planned in the local area, including those identified in the Chalmerston cumulative development list (to be agreed with consultees). The cumulative impact will assess development within a 20km radius of the Proposed Development.

17.4 Embedded Mitigation

The Applicant is committed to implementing accepted good practice measures during construction and operation, thereby ensuring that potential adverse social and economic effects can be avoided or reduced. Possible embedded mitigation measures may include:

- Programming the transportation of abnormal loads to avoid peak visitor or other busy periods (e.g., school holidays, local events) to mitigate effects on sensitive tourist/recreational locations and viewpoints.
- Local sourcing of construction materials where feasible to reduce traffic movements on the surrounding road network, minimising related adverse effects upon visitors and local residents.
- Use of established local supply chains, drawing on experience from the North Kyle Energy Project.
- Opportunities to enhance positive effects include:
- Local promotion of contract and supply chain opportunities during construction and operation to maximise the use of local business and labour.
- Skills development and training programmes to increase local take-up of training, apprenticeship, and employment opportunities.
- Establishing effective linkages with local job centres (e.g., Ayrshire Employability Partnership) and partners.
- Promotion of the wider East Ayrshire area and its attractions as part of the marketing of the Proposed Development.

17.5 Proposed Scope and Methodology of Assessment

The assessment of construction-related effects will be based on dialogue with the Applicant and technical consultants, drawing on MKA Economics' own knowledge from other onshore wind farms in East Ayrshire (e.g., North Kyle, Greenburn). Where required, we will draw on case study evidence from RenewableUK research on the economic benefits of onshore wind farms.

To calculate the economic effect of new jobs, the GVA per head for civil engineering related projects in East Ayrshire and Scotland will be utilised, sourced from Scottish Annual Business Statistics.

The economic impact assessment will also take displacement and multiplier effects into consideration to provide a net economic impact figure at the local, regional, and national levels.

Operational effects will be based on employment levels provided by the Applicant, supported by evidence from RenewableUK modelling. The employment impacts associated with the mature operational phase will be presented by occupation type.

GVA per head for professional, scientific, and technical work in East Ayrshire and Scotland will be utilised.

Displacement levels are not expected to be significant during operation and maintenance, and multiplier effects will be built into the assessment using Scottish Government Type II multipliers.

The link between renewable developments and the tourism sector is a subject of debate. However, the most recent research has not found a link between tourism employment, visitor numbers, and renewable developments. Key studies (e.g. Glasgow Caledonian University, 2008; Scottish Government, 2012; BiGGAR Economics, 2021; DESNZ Public Attitudes Tracker, 2026) consistently show:

- 93 to 99% of tourists state wind farms do not affect their decision to return to an area.
- No empirical evidence of adverse tourism impacts from onshore wind farms.
- The tourism sector in Scotland has grown alongside increasing onshore wind capacity.

As such, no significant adverse tourism effects are anticipated. The assessment will nonetheless identify local tourism assets and consider potential temporary construction disturbance (e.g., road diversions, HGV movements) and mitigation.

17.6 Potential Additional Mitigation

In addition to the stated economic opportunities at the construction and operational phases, there are wider economic impacts which have positive effects on regional and national economies:

- Supporting policy objectives: Contributing to NSET, NPF4, Ayrshire Growth Deal, and East Ayrshire Economic Development Strategy.
- Local supply chain opportunities: Hosting "Meet the Buyer" events to encourage local contractor involvement in groundwork, civil engineering, fencing, and road maintenance.
- Pre-development costs: Consultancy fees, legal costs, and planning fees already benefiting Scottish companies.
- Exchequer impacts: Non-Domestic Rates (business rates) and other tax revenues.
- Perception benefits: Promoting East Ayrshire as a place to work, live, and invest, supporting green credentials.
- Community benefits: The Applicant is committed to a community benefit package in line with Scottish Government Good Practice Principles. Discussions may also consider opportunities for shared ownership in line with Scottish Government policy.

Where required, mitigation measures will be presented only where there are any moderate or major adverse effects. For beneficial effects, measures will be presented to aid delivery (e.g., community funding, 'Meet the Buyer' events).

17.7 Potential Impacts

The issues to be considered in this assessment include potential socio-economic, recreation, and tourism effects.

Socio-economic impact analysis will use the methodology developed by RenewableUK and deployed by MKA Economics, assessing:

- Temporary effects on the regional/national economy due to construction phase expenditure.
- Permanent effects on the regional/national economy due to operational and maintenance expenditure.
- Permanent effects from additional public expenditure supported by additional tax revenue.
- Permanent effects on the local economy supported by community funding and/or shared ownership proposals.

Tourism and recreation assessment will consider potential effects on:

- Tourism attractions (e.g. Dumfries House, New Cumnock Lagoons, Lochside Spa).
- Tourism businesses (accommodation providers, food and drink outlets).
- Recreational trails (Afton Water Route, Miners Walk, Core Paths).
- Hill summits and hill walks within 10km.
- Potential positive impacts during construction (e.g. contractor spend in local accommodation).

The assessment will be undertaken in conjunction with the Landscape and Visual Impact Assessment, as many tourism/recreational assets are also visual receptors.

17.8 Receptors and Impacts Scoped In or Out of Assessment

In line with the Scottish Renewables Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms (2025), and consistent with other similar assessments in East Ayrshire (e.g., Blackwood Wind Farm), it is proposed that the assessment of socio-economics, recreation and tourism is scoped out of the EIA Report and presented as a standalone report.

The long-term impacts associated with the decommissioning phase are not proposed to be assessed given the significant time lapse between planning and decommissioning phases, and because effects are expected to be similar to or less than construction effects (consistent with Section 3 of this Scoping Report).

The following aspects would be assessed in the standalone report:

- Local employment and GVA (construction and operation);
- Local supply chain opportunities;
- Community benefit fund recipients (community councils, local groups);
- Tourism attractions and accommodation within 10 km;
- Recreational routes and core paths within 10 km; and
- Cumulative effects with other wind farms in the area (e.g., North Kyle, Greenburn, Blackwood, Lethans, Sandy Knowe).

The following would not be provided:

- An EIA Report chapter; and
- Any assessment of decommissioning phase impacts.

17.9 Consultees to be Consulted

It is proposed that the following stakeholders will be consulted in relation to the assessment:

- East Ayrshire Council (EAC) – Economic Development, Access, Tourism, and Planning teams;
- Energy Consents Unit (ECU) – Scottish Government;
- VisitScotland – national tourism lead body;
- Ayrshire & Arran Tourism – regional destination organisation;
- Community Councils – Dalmellington, Patna, Bellsbank, New Cumnock, Auchinleck, Cumnock;
- New Cumnock Development Trust – local development trust;
- The Scottish Rights of Way and Access Society (ScotWays);
- Mountaineering Scotland; and
- Local recreation, land-use, and tourism groups (e.g., Afton Waterways Group, Dumfries House Estate).

17.10 Questions to Consultees

The following specific questions are posed to consultees:

Q17.1 Do ECU, EAC, and Statutory Consultees agree with the approach of scoping socio-economics, recreation and tourism out of the EIA and into a standalone report?

Q17.2 Do consultees agree that the range of baseline data sources is sufficient and appropriate to describe the socio-economic and tourism baseline?

Q17.3 Are consultees aware of any other key sensitive receptors (e.g., specific tourism assets, core paths, community facilities) that should be taken into account within 10km of the Site?

Q17.4 Are consultees aware of any other local groups, businesses, or consultees in the Dalmellington/Patna/New Cumnock area who may wish to provide comment on the scope of this assessment?

Q17.5 Does EAC have specific expectations regarding community benefit distribution models (e.g., proximity, population, deprivation) consistent with other wind farms in the area (e.g., North Kyle, Greenburn)?

Q17.6 Do consultees agree that the proposed cumulative assessment (20km radius, including operational, consented, and planned wind farms) is acceptable? Are there any specific non-wind developments that should be included?

18.0 Summary of the EIA Scope

This EIA Scoping Report outlines the proposed technical and environmental assessments that are proposed to be included within the EIAR for the Proposed Development. **Table 17-1** summarises these and indicates the technical topics which are proposed to be scoped out of the EIAR. In the preceding sections of this Scoping Report, the proposed scope for each assessment have been provided. Should any further information be required in order that a full EIA Scoping Opinion can be provided, further information could be provided and/or any further requirements discussed.

Table 17-1: Topics Scoped In and Out of EIA

EIA Topic	Scoped In / Out
Landscape & Visual	Scoped In
Cultural Heritage	Scoped In
Ecology	Scoped In
Ornithology	Scoped In
Geology, Hydrogeology, Hydrology & Peat (including Carbon Balance)	Scoped In
Forestry	Scoped Out (report to be provided as technical appendix to EIAR)
Noise	Scoped In
Access, Traffic and Transport	Scoped In
Aviation and Radar	Scoped Out (report to be provided as technical appendix to EIAR)
Telecommunications and Utilities	Scoped Out (report to be provided as technical appendix to EIAR if new links or new impacts arise from final layout)
Shadow Flicker	Scoped Out (report to be provided as technical appendix to EIAR)
Air Quality and Human Health	Scoped Out
Risk of Major Accidents and / or Disasters	Scoped Out
Socio-Economics, Recreation and Tourism	Scoped Out (standalone report to be provided)

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Appendix B Cultural Heritage Appraisal

Table B1: Scheduled Monuments within 10km of the Proposed Turbines (Scoping Layout)

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM5393	Auchencloigh Castle	Secular: castle	0	7.1	Northwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM5200	Munteoch, settlement and field systems	Secular: settlement, including deserted, depopulated and townships	0-4	5.9	Northeast	The asset comprises a post-medieval settlement complex, comprising two phases of homesteads with outbuildings and agricultural enclosures and a kiln. The asset is located in an upland landscape, set within a curve of the Shalloch Burn and a number of smaller tributaries. To the east and south is commercial forestry, and to the northwest is Dersalloch Windfarm. The contributions to the asset's setting is limited to its local environment, which comprises the burn which provides an accessible water source and a relatively level area for settlement and agricultural activity. There is also already the presence of modern renewable energy infrastructure in northwest views c.0.5km to the northwest, which does not currently detract from the ability to understand, experience and appreciate the practical position of the settlement and agricultural features within this landscape as outlined above. The predicted four visible turbines are only visible from the very southern extents of the scheduled area. It is not considered that the visibility of up to four turbines from the far south extent of the scheduled area would detract from the ability to understand, experience and appreciate these areas and the wider

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						monument to the north, with key views looking north over the settlement and agricultural complex, including observing the landscape and the burn in which the settlement takes advantage of. Overall, the visibility of four additional turbines to the northeast from the southern extent of the monument would not effect the ability to understand, experience or appreciate the asset in its current setting, and therefore it has been scoped out of further assessment.
SM5280	Martnaham Castle	Secular: castle	0	9.1	Southeast	Due to this asset, its approach and third party viewpoints falling outwith the ZTV, this asset has been scoped out of further assessment.
SM3009	Dalmellington,motte	Secular: motte	17	2.7	Southwest	The asset comprises an Anglo-Norman Motte dating to between the late 11th and the early 12th centuries and is located near the Muck Water River. The motte is situated in a naturally defensive position, providing wide views along the valley to the east and west, allowing the inhabitants to control and monitor the approaches to the asset along the Muck Water and its valley. The Motte would have been visually dominant in the landscape and demonstrated ownership and authority in the surrounding areas. The steep hills to the north and northeast act as a barrier to block views and advancements from this area, making the motte highly defendable. This defensive position with key views focused along the open landscape to the east, west and southwest

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						forms the primary aspect of the asset's setting from which it derives its significance. The asset's modern setting is now almost entirely surrounded by the modern settlement of Dalmellington, which has altered the approach and how the motte is perceived. This has diminished the visual dominance of the motte, although the motte can still be appreciated from its eastern and western approaches. The modern houses surrounding the motte form a distraction to the ability to understand, appreciate, and experience this aspect of the asset's setting. The bare earth ZTV predicts seventeen turbines will be visible from the asset in views towards the north. The Proposed Development would therefore be present in the peripheral views over the Muck Water and its valley towards the east and west. The Proposed Development would cause at most; a minor distraction to the ability to understand, appreciate, and experience the long-distance views in these directions, which form an aspect of the asset's setting which contributes to its significance. The Proposed Development would be present in peripheral views towards the motte along the valley from the east and west. Given that the asset is prominent within the landscape, it is unlikely that the Proposed Development would cause anything more than a minor distraction in the ability to appreciate its dominance within the landscape.

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						As such, the Proposed Development is predicted to form only a minor distraction to the ability to understand, appreciate, and experience the aspects of its setting that contribute to its significance. It is therefore scoped out of further assessment.
SM7690	Laight Castle	Secular: castle	17	5.1	Northeast	Scoped in for further assessment.
SM7863	Waterside, miners' villages & mineral railways N of	Industrial: rail	17	0.25	North	The assets comprise a complex of three Scheduled Monuments, which together form an industrial mining landscape. The industrial complex is located on the north slopes of the River Doon, with the ironworks and the bing located on the banks, whilst the rails, mines and miners' cottages are located on the upper slopes. The assets are located for practical, non-visual purposes; the mines are located for the extraction of minerals and ores below ground level, and therefore the rails, miners' homes, the ironworks for processing and bing are all located within proximity for the practicality of the industrial process. The setting of each asset individually is local, comprising the asset's immediate landscape and how it interacts with it. However, each asset forms part of one another's setting, as they all form part of the process of extraction, processing and transport.
SM4345	Waterside, Dalmellington Ironworks	Industrial: mines, quarries	17	1.3	Northeast	The River Doon supplied water to the Dalmellington Ironworks, contributing to the asset's wider context in which water supplies were essential for the industrial process. The railway line running parallel to the River

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM7544	Waterside Bing, iron slag bing, Dalmellington Ironworks	Industrial: tip, bing, dump	17	1.7	Northeast	Doon was also built for the convenience of transporting processed materials and distributing goods. Subsequently, the Bing forms an aspect of the Ironworks setting, as it is a product of the industrial landscape during this time. However, all aspects outlined above are functional aspects of the asset's setting and views to or from them do not contribute to the asset's significance. The anticipated visibility of the proposed turbines is varied throughout the scheduled areas, with the highest visibility (up to seventeen turbine tips) being on the slopes to the northeast of SM7863, with one turbine within the circuit of the rail track of the monument. Conversely, the areas of the scheduled monuments located within the valley southwest will have a varied visibility of the turbines, ranging from 0 - 17. The assets form a group which contribute towards one another's understanding, experience and appreciation, as they form the entire complex of extraction, process and exportation of the industry at the time, but also the workers and their domestic and leisure facilities provided in the immediate area. The surviving rural landscape remaining within the 'circuit' and outwith the monument SM7863, or further views across the landscape into the Site to the southeast, does not make a contribution to how these assets are understood, experienced and appreciated. These assets are appreciated not entirely in their visual relationships, but their intrinsic remains and physical relationships, forming the whole picture of the industrial period operation at this facility.

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						The presence of the turbines would not detract from the ability to understand, experience and appreciate the relationship of these industrial period monuments and how they functioned, both domestically and practically, as they lie within the rural landscape outwith the mining complex, and views of the rural landscape do not contribute toward our understanding, experience or appreciation of the industrial complex. Overall, the turbines would not cause an effect on any of the asset's key contributing aspects of setting. Therefore, they are scoped out of further assessment.
SM7491	Knockdon, enclosure 700m NE of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	12	8.3	Northeast	This asset comprises a prehistoric oval enclosure, consisting of a stony bank measuring up to 1.5m in height, and 2.6m wide. There is evidence for an entrance on east-southeastern side of the enclosure. The enclosure is situated to the west of Knockdon Craig summit, with the peak to the east offering natural protection to views from this direction. Additionally, the position of the enclosure utilises relatively flat land above the Knockdon Burn, taking advantage of the fertile landscape, contributing to our understanding of the asset as a domestic settlement. The enclosure has views along the Knockdon Glen toward the Water of Girvan, although views along this larger valley would be limited. The aspects of the enclosure's setting which contribute towards its significance is its domestic and defensive location, utilising lower slopes proximate to the Knockdon Burn likely for agricultural purposes, whilst also being strategically positioned to observe the landscape to

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						the north, west and south, particularly southward which likely formed its primarily approach. The upper landscape to the east likely formed a natural topographical boundary, of which the approach would be visible from the enclosure. The entrance to the enclosure is also positioned toward an undesignated cairn c.0.36km to the southeast, which may be associated with the asset. Intervisibility between these two assets may contribute toward their uses, as well as toward our understanding of these two prehistoric asset's relationships. Of the contributing aspects outlined above, the only aspect in which the proposed turbines may be visible is in north views along Knockdon Burn. However, the turbines would be beyond the backdrop of views in this direction, being far outwith the extent of the views which contribute toward the setting of the asset. These turbines would be unlikely to distract or effect from the north view and its contribution to understanding, experiencing and appreciating this aspect of setting, Therefore, as all aspects of the asset's setting are unlikely to be effected, the ability to understand, experience and appreciate the asset would be unaffected by the proposals, and has been scoped out of further assessment.
SM1046	The King's Cairn,chambered cairn and cairn to W of Water of Deugh	Prehistoric ritual and funerary: chambered cairn	0	9.6	North	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM4390	Dalnean Hill, farmstead and field system	Secular: farmstead	17	3.2	Northeast	The asset comprises a medieval or later settlement and field system, including stone footings, two parallel rectangular buildings, turf banks and rig and furrow. Historic mapping records the 'Dalneen' in 1650 before appearing to be deserted in the mid-19th century. Located within the valley on the south slopes, the views from the settlement would have extended over the agricultural landscape. The farmstead sits in the valley and overlooks the agricultural land in the west and southwest. The settlement and agricultural nature of the asset demonstrates its setting is the fertile landscape the inhabitants cultivated, with fertile soils, well-draining land, and the nearby River Doon and Bogton Loch to the north and northeast providing a water source as well as a transport and communication link. Whilst there would be seventeen turbines visible, they would not be anticipated to form a distraction from the localised agricultural setting of the asset. As such, the Proposed Development will be of minor effect and will not greatly impact our ability to understand, appreciate, and experience the asset. Therefore, this asset will be scoped out for further assessment.
SM13693	Bogton Loch airfield, 175m SSE of Buchan's Bridge, Dalmellington	20th Century Military and Related: Military airfield	0 - 17	0.65	Northeast	The asset comprises a First World War Airfield, built in 1917 as part of the proposed Loch Doon Gunnery School, with the remains of hangar foundations, workshops, stores, taxiways, bridges, and a railway loading dock. The site

Designation Reference	Designation title	Category	Turbine Visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						was set up as a training school for aerial gunnery. The airstrip at Bogton Loch was located on the west side of the Muck Water, with a bridge connecting it to the east side, where the supporting area was situated. Attempting to imitate a French gunnery school the asset was unsuccessful due to the unsuitability of the landscape. The immediate setting is important to understanding its intended use and eventual failure but long-distance views and the hills to the north do not contribute to this. As such the proposed turbine layout will not erode from the ability to understand, appreciate, or experience the asset and therefore, the asset is scoped out of further assessment.

Table B.2: Category A Listed Buildings

Designation Reference	Designation title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
LB7558	Drumfad Dovecot	0	9.2	Northeast	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
LB1092	Dunaskin Brickworks, Waterside Ironworks, Dalmellington	3	1.4	Northeast	This asset is comprised of an engine house associated with the Waterside Ironworks (SM4345). As a functional aspect of a wider industrial landscape, the aspects which contribute the assets setting are the surrounding industrial remains related to the Waterside Ironworks, with long distance views unlikely to contribute to its significance. Therefore, views of the Proposed Development to the north would not form a distraction to the ability to understand, appreciate, or experience the functional role this asset would have played within an industrial landscape. As such, the asset is scoped out for further assessment.
LB18793	Craigengillan	0	5.8	Northeast	This asset is scoped in for further assessment in combination with its associated Craigengillan Garden and Designed Landscape (GDL00111).
LB18794	Stable block, Craigengillan	0	5.8	Northeast	This asset is scoped in for further assessment in combination with its associated Craigengillan Garden and Designed Landscape (GDL00111).
LB19089	Straiton Parish Church, Main Street, Straiton	0	8.4	Northeast	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
	Churchyard, Straiton Parish Church, Main Street, Straiton	0	8.5	Northeast	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.

Designation Reference	Designation title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
LB19094	Blairquhan House	0	9.5	Northeast	This asset will be assessed in combination with its associated Blairquhan Garden and Designed Landscape (GDL00063).
LB7558	Drumfad Dovecot	0	9.3	East	Due to this asset, and its third party viewpoints, falling outwith the ZTV, this asset has been scoped out of further assessment.

Table B.3: Category B Listed Buildings

Designation reference	Designation title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
LB1086	Lodge At Entrance To Craigengillan	15	2.7	Northeast	Scoped in for further assessment as part of the Craigengillan Garden and Designed Landscape (GDL00111).
LB1087	Bridge, Adjacent To Lodge	17	2.7	Northeast	Scoped in for further assessment as part of the Craigengillan Garden and Designed Landscape (GDL00111).
LB1088	Linn River Bridge	17	4.6	Northeast	Scoped in for further assessment as part of the Craigengillan Garden and Designed Landscape (GDL00111).
LB1090	Patna Bridge Main Street, Patna	2	3.8	Southeast	This asset comprises the early 19th century Patna Bridge on Main Street, crossing the River Doon. The parapet flares outward at both ends, with the terminal piers topped with pyramidal caps, adding to the decorative aspects of the bridge. The bridge crossing diverges from the A713 and forms part of the main road and entrance to the northeast of Patna. The bridge's setting is solely functional and includes the River Doon in which it crosses, forming the primary setting of the asset from which it derives its significance. The two turbines visible to the southeast of the asset would at most cause very minor distraction when crossing from the west, although this would not adversely impact the setting of the asset as the ability to understand, appreciate and experience the bridge remains intact. As such, the asset is scoped out of further assessment.
LB1094	Waterside, Ardoon House	11	1.4	Northeast	This asset comprises of an asymmetrical two-storey villa, built in 1857 with Jacobean detailing, indicative that the architect may have been William Burn or David Bryce. The villa's garden appears to have a focal point to the northwest and an entrance from the southeast. Long-distance views from the villa do not appear to be of significance to the asset. Views towards the villa from the southeastern and southwest approaches, form the primary aspect of the asset's setting from which is derives its significance.

Designation reference	Designation title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					Given the Proposed Development is situated to the northeast of the asset, the eleven turbines visible will not be in the key views when approaching the villa. Additionally, when leaving the villa, the proposed turbine layout is offset, creating a peripheral distraction at most, although given these views do not contribute to our ability to understand, appreciate, and experience the asset, the Proposed Development would not adversely impact the setting of the asset. Therefore, the asset is scoped out of further assessment.
LB1105	Kirk Of The Covenant	17	2.4	Northeast	This asset primarily derives its significance from its architectural features and preservation. The asset also contributes to the Dalmellington conservation area (CA43). The asset's setting is that of its immediate environment, including the main approach from the south, wherein the village high street is located. As a church, the asset is placed within the heart of the village, providing a centre of the community. The asset's spire is visible from a distance outwith the village and provides a marker within the landscape for those travelling towards it. The bare earth ZTV predicts seventeen turbines will be visible from the asset, encroaching on views when approaching the Kirk from the south. Although the turbines would not distract from the ability to understand, appreciate, and experience the asset's placement within Dalmellington. Long-distance views from the asset also do not contribute to the asset's setting. Therefore, the asset is scoped out for further assessment.
LB1106	Old Kirkyard	17	2.7	Northeast	The asset comprises a walled enclosure containing funerary monuments, including a Greek Revival Mausoleum of the Macadam Cathcarts of Craignengillan. This shows a clear statement for the legacy of the Macadam Cathcarts family and the sociocultural and religious influences of the post-medieval period. The graveyard's setting comprises its placement within the village of Dalmellington and in proximity to the historic Craigengillan estate. Views to and from the Kirkyard do not contribute to the asset's setting, and as such, the seventeen turbines predicted to be visible would not distract

Designation reference	Designation title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					from the ability to understand, appreciate, and experience the asset. As such, the asset is scoped out for further assessment.
LB1107	Cathcart Hall	17	2.5	Northeast	This asset comprises the original parish church in use between 1766-1846, before being restored and repurposed into Dalmellington village's Cathcart church hall in 1887. The halls' setting comprises its historic preservation and contribution to the Dalmellington conservation area (CA43), with the asset's approach from the south forming its primary views. Views from the asset do not contribute to its setting. Whilst the ZTV predicts that seventeen turbines would be visible, this would not impact our ability to understand the asset's setting within the Dalmellington village. Upon the southern approach, views of the turbines may cause a very minor distraction but would not impact our ability to appreciate and experience the asset, nor the ability to understand the Hall. As such, the asset is scoped out for further assessment
LB1111	Doon Tavern	17	2.7	Northeast	This asset is situated in the centre of the village and primarily derives its significance from its architectural features and preservation. The Old Tavern's setting comprises the Dalmellington village, its location along the routeway in and out of the village, and the respite it offered to any travellers. Given that the asset is placed functionally in the village to serve those within the community and any travellers passing through, any views towards the asset do not contribute to the asset's significance. As such the Proposed Development will not impact the ability to understand, appreciate, and experience the asset and is scoped out for further assessment.
LB1113	Doon Bridge On Straiton Road	17	3.0	North	This asset comprises the Doon Bridge on Straiton Road, crossing the River Doon. The square ends at either side of the bridge are topped with splayed capitals, adding a decorative feature to the asset.

Designation reference	Designation title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					The bridge crossing is part of the B741, a main road and entrance to the west of Dalmellington. The bridge's setting is solely functional and includes the River Doon in which it crosses, forming the primary setting of the asset from which it derives its significance. The seventeen turbines visible to the northeast of the asset would at most cause very minor distraction when crossing from the west, although this would not adversely impact the setting of the asset as the ability to understand, appreciate and experience the bridge remains intact. As such, the asset is scoped out of further assessment.
LB6595	Waterside, Waterside Institute	0	1.6	Northeast	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
LB6623	Palace Bar, Waterside Village	3	1.7	Northeast	The asset comprises a 19th century bar, constructed originally as a Company Store for the Dalmellington Iron Company. It remains a well-preserved example of 19th century architecture, and as the only surviving ironworks store, albeit with an altered function, within Scotland. The asset's significance derives primarily from its preservation and its historical association with the ironworks. The asset's setting is functional and localised, deriving from its proximity to the iron mines themselves and the homes of the workers in Waterside, within which the asset sits. The introduction of up to three turbine tips would not impact the ability to understand, appreciate and experience the assets architectural style, its historical function, nor its local connections to Waterside. As such, it is scoped out of further assessment.

Table B.4: Inventoried Garden & Designed Landscapes

Designation Reference	Designation Title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
GDL00111	Craigengillan	17	4.7	North	Scoped in for further assessment.
GDL00342	Skeldon House	0 - 17	9.0	Southeast	The asset comprises the estate designed around Skeldon House, established in the late 18th and early 19th centuries. The landscape utilises the natural water courses of the River Doon, the Prim[ton Burn on its north boundary, and the undulating topography, to form its key features within the estate. The main approach into and through the estate is from the village of Dalrymple to the northwest, with the drive passing Primpton Burn and forestry to the southeast until it approaches Skeldon House (LB1101). The house only becomes visible upon the bend immediately before it, forming a designed frame of view. Views along the length of the drive are limited by woodland, and only open up to overlook a forested feature known as Black Mount Wood, a hill within the estate with a circular woodland feature on. Skeldon House and its gardens are located on land within a U shaped meander of the River Doon. This piece of land forms the 'core' of the estate, with the main drive leading to Skeldon House on the northern side, and pathways south leading to wooded areas, the gardens and walkways along the River Doon. This creates an isolated designed area within the estate for the formal gardens, bounded by a natural water feature. The walkways extend along the River Doon throughout the rest of the estate. The walkway to the west of the house and gardens allows for views along River Doon to the northwest, further emphasising its importance in the GDL's design. The remains of Skeldon Castle (LB1103), now incorporated into a modern building, are also located within the estate, past the Skelton Mains in the northeast; this aspect of the estate indicates

Designation Reference	Designation Title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					a long line of high status succession in this landscape, although it is not contemporary with it. The open grassland within the north, northeast and south of the estate is practical, kept as pasture. Whilst this allows certain areas to remain open, such as along the south side of the river and around the Black Mount Wood, these areas only contribute to understanding of the partial agricultural aspects of the estate's funcationlity. Overall, the estate's design incorporates a lot of woodland, and pathways focusing on the blend of the River Doon and these woodland areas. There are very few key views across the estate, and where these are present, they are limited to short viewsheds, primarily focusing on the river , the house or the features of Black Mount Wood and the remains of the old castle. Whilst the ZTV indicates that up to all 17 of the proposed turbines have potential visibility from within the GDL's boundary, most of this visibility is within areas of woodland and/or agricultural areas. The key areas where views are considered important have no potential visibility of the proposed turbines, including along the river and the gardens to the south of the house. Whilst there is some potential visibility of the turbines along the main drive to the house from the northwest, these areas have no designed views outward in the direction of the proposed turbines, due to the presence of designed woodland. Overall, the ability to understand, experience and appreciate the setting of the GDL and it's associated listed buildings would remain unaffected by the proposed development. Therefore, it has been scoped out of further assessment.
GDL00063	Blairquhan	0 - 17	9.4	Northeast	The asset comprises the Blairquhan estate, a garden and designed landscape, which was laid out between the 17th and 18th centuries, with 19th and 20th century remodelling and additions. It is situated in upland country, bordered by the B7045 to the north and B741 to the south.

Designation Reference	Designation Title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					The estate is designed around the Water of Girvan and its vale, with the core, architectural center of the estate being in the south end where the valley orientates east-west, and widens. This layout provides the main house (LB19094) with views north over the Water of Girvan and its valley, whilst being backed to the south by valley slopes. The majority of the estate comprises segments and enclosures of woodland with designed openings, with the pathways making the water course its main feature. The main approach is from the southeast of the GDL, with the main drive passing over the bridge of Blairquhan (LB19102) and past the lodge (LB19100), passing through an open area of the valley before reaching the built core of the estate enclosed in forestry on all sides but the north. This design allows views to focus on the landscape, whilst navigating past a number of buildings to create a cohesive architectural appreciation of the estate, before arriving at the house last as the grand focus. Pathways and drives continue to the west of the house briefly, before turning north to continue through the vale, passing through woodland, past lochs, tree bands and the Tranew Linn waterfall, eventually exiting the estate. Other designed walkways are focused to the north of the main house, navigating the Water of Girvan and the wider valley. Overall, the setting of the GDL is contained within its boundary. Whilst up to 17 of the proposed turbines would be visible from within the GDL's boundary, the areas with visibility are limited to the upper slopes in the very south extent of the GDL, where walkways are either encased in designed woodland, or there are no main routes or pathways. Additionally, these areas have no designed key views; they are either designed to be isolated areas of woodland provided for a sense of wild nature in contrast to the estate; there are no designed views from these areas. No turbines would be visible throughout most of the GDL, including alone the drive through the estate in both directions, from the walkways that appreciate the landscape in the valley, nor from the listed buildings across the estate, including from Blairquhan house and its north views. Overall,

Designation Reference	Designation Title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					the ability to understand, experience and appreciate the setting of the GDL and its associated assets would remain intact. Therefore, it has been scoped out of further assessment.

Table B.5: Conservation Areas

Designation Reference	Designation Title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
CA43	Dalmellington	0-17	2.6	North	This asset comprises Dalmellington village, situated within the eastern extent of the Doon Valley. The Muck Water runs through the centre of the village, around which the village's core is situated. There are three main streets within the GDL, Main Street to the west, High Street to the east and High Main Street (Cumnock Road) to the north. The roads meet at the centre of the village, with the village having developed outwards from this centre in a roughly triangular shape. The town is nestled at the foot of surrounding hills in all directions, providing a rural setting for the village. The villages core primarily comprises post-medieval buildings, including the Kirk of the Covenant and Cathcart Hall. The village was relatively small until the introduction of coal mining into the surrounding landscape, which contributed to a heightened expansion of the village in order to house and provide for the workers. As such, the character of the conservation area comprises the post-medieval village buildings and those associated with the rapid expansion of the village due to increased industrial activity. Due to the villages placement within the valley, outward views from within the core of the village towards the wider landscape are restricted and do not contribute to the character of the conservation area. Despite the industrial activity that surrounded the village, its placement at the foot of the hills and within the valley provides a juxtaposition to the surrounding rural landscape, with the Kirk of the Covenant (LB1105) clearly visible as the only prominent architecture within the village. These views towards the village do contribute to our understanding of the character of the conservation area, as well as our understanding of the asset's setting.

Designation Reference	Designation Title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					The ZTV indicates that up to seventeen turbine tips would be visible from within the conservation area itself. As outward views of the wider landscape do not contribute to the asset's significance, the proposed development would not impact the asset's significance. Views towards the conservation area from the north would not be impacted by the Proposed Development, as it would be placed to the rear, and any views of turbines would be restricted and peripheral at most when looking towards the conservation area from the east and west. There would be views of up to seventeen turbine tips when approaching the conservation area from the south. However, the turbines would be placed behind the crest of the hills to the north of the village and would be sufficiently offset so as to not compete with the Kirk of the Covenant for visual dominance within the landscape. The ability to understand, appreciate and experience the juxtaposition between the rural setting and the development of the mining village would be unimpacted and the conservation areas character would be retained. As such, the asset is scoped out of further assessment.
CA50	Waterside	0-17	1.5	Northeast	The conservation area forms the standing architectural character and aspects of an industrial complex of mining, processing, transportation and waste management, but also a domestic setting and public buildings for the workers, of the ironwork industry in the Doon Valley. The conservation area's significance derives from the mid 19th industrial architectural character of the designated area. It can be further understood by its associations with the other scheduled monuments and listed buildings which comprise part of the Doon Valley ironworks components; miner's villages and mineral railways (SM7863), Dalmellington Ironworks (SM4345), the iron slag bing south of Dalmellington Ironworks (SM7544), and the associated listen buildings within the conservation area (Waterside Engine House, Chapel of Ease,

Designation Reference	Designation Title	Turbine visibility (0-17)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					Ardoon House, Waterside Institute and Waterside War Memorial and Palace Bar). The conservation area's boundary contains the contributing aspects of character which warrant its designation as a conservation area. However, associated assets that are outside of the conservation area can contribute to how it is understood, experienced and appreciated, as they form a larger complex of the ironworks which contributes towards the understanding, experience and appreciation of the ironworks infrastructure and domestic setting for its workers. Due to the built nature of the asset, these other contributors such as the mineral railways and miner's villages, do not form key viewsheds or visual relationships, but are experienced whilst navigating the landscape. No long distance views between these assets are important to its setting, but their physical associations do. Whilst the conservation area is predicted to have up to seventeen visible turbines from within its boundary, the landscape outwith the conservation area and its associated assets, forms undeveloped rural landscapes, which do not contribute towards its setting, nor do any long distance views outwith the conservation area. Therefore, although the turbines would be visible from within the conservation area, they would not impede on any key viewsheds or distract from the ability to understand, experience and appreciate the asset and its associated designations. Therefore, it has been scoped out of further assessment.

Table B.6: Non-Designated Garden and Designed Landscape[107]

Centre Point Coordinate		Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
Easting	Northing					
248417	606459	Camlarg/ Dalmellington	0-17	1.9	North	This asset comprises a designed landscape belonging to the former Camlarg House, located to the northeastern periphery of the village of Dalmellington. The Camlarg House estate represents early 16th century land ownership and architectural development throughout the centuries until the house's demolition in the mid-20th century. Alterations have taken place to the designed landscape, including the removal of trees for mining activities. Additionally, the land to the southern portion of the site came under use during graveyard expansion. The main point appreciation for the non-inventoried GDL would have been outward views from the estate house, which has since been demolished, and its main approach from the west. The modern alterations to the non-designated GDL mean that the ability to understand, appreciate, and experience the asset is limited. As such the Proposed Development does not significantly impact the ability to understand, appreciate, or experience the asset given the already extensive alterations to specific aspects of its setting which contribute to its significance. Therefore, the asset is scoped out of further assessment.
243237	608314	Keirs Castle	0-17	3.4	Northeast	This asset comprises a small linear designed landscape surrounding the ruins of Keirs Castle, situated to the southwest of the A713 road. The grounds are marked on 18th century mapping, associated with Keirs Castle. The assets' significance derives

[107] These appraisals have been assisted by the East Ayrshire Local Development Plan 2: Gardens and Designed Landscapes Non-statutory Planning Guidance (2025) Available at: https://www.east-ayrshire.gov.uk/Resources/PDF/L/ldp2-gardens-and-designed-landscapes.pdf

Centre Point Coordinate		Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
Easting	Northing					
						from its potential to contribute towards research into Keirs Castle, and its immediate surroundings including Keirs Burn. No relationship has been confirmed between the landscape and the castle, other than the assets recorded state of decline in the 19th century. It is also unclear as to whether the woodland area around Keirs Burn is contemporaneous with the castle and designed landscape. As such, the setting of the asset would have incorporated its immediate local environment within the extent of the castle, as well as further views along Keirs Burn to the north and northeast contributing key aspects of the assets setting from which it derives its significance. Therefore, the ability to understand, appreciate, and experience the asset is not significantly impacted by the Proposed Development and the asset is scoped out for further assessment.
244751	606286	Grimmet	0-17	2.9	Northeast	The asset comprises a small, mostly pastoral designed landscape including belts of woodland surrounding the Grimmet Cottage, situated to the west of Dalmellington and north of the B741. The landscape has changed ownership throughout the 17th to 19th centuries and comprises traditional dry-stone walls, belts of woodland and scenic paths and waterfalls along the River Burn. Ongoing land development has taken place within the asset, including quarrying to the south and west. The asset's setting is localised to its pastoral landscape, with key views being limited to those over the associated agricultural fields. There are no key views outwith the boundary of the designed landscape. As such, the whilst the turbines would be visible in places, the Proposed Development will not impact the ability to understand,

Centre Point Coordinate		Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
Easting	Northing					
						appreciate, and experience the asset and it is scoped out of further assessment.
239263	614426	Hollybush House	0-17	7.0	Southeast	This asset comprises of Hollybush House (LB1104) and its policies, encompassing the majority of Hollybush as well as the planted woodland, pastures, and field enclosures. Situated to the south of the B7034 and straddling the River Doon to the south, Hollybush can be accessed from the village from the north. The non-inventoried garden and design landscape comprises ancient woodland, a wetland and neutral grassland habitat, and a walking path circling the entire estate. The assets setting is focused on the immediate locale environment, with Hollybush village being the extent of the assets setting outwith its boundary. Views within the designed landscape form the primary aspect of the assets setting from which it derives its significance, with no key outward views contributing to the significance of the asset. Any views of the turbines from the house and the approach to the house would have limited or no anticipated visual of the turbines. Additionally, any views from within the estate that include the turbines are limited to the farmland to the east, which is a functional landscape which has no intended scenic views. As such, the Proposed Development would not impact the ability to understand, appreciate or experience the asset and is scoped out of further assessment.
239041	617132	Martnaham	0-4	9.0	Southeast	This asset comprises of a designed landscape featuring two natural lochs, Martnaham Castle (SM5280), a planted woodland, and a 19th century hunting lodge. The non-inventoried GDL dates as early as the medieval period, with ongoing historical development forming a key aspect of the asset's significance.

Centre Point Coordinate		Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
Easting	Northing					
						The historical activity within Martnaham furthers our understanding of hunting and fishing practices wherein lochs and woodland areas were utilised. As such, the immediate local environment and natural resources within the landscape contributes to a key aspect of the asset's setting. The assets setting incorporates its local environment with key views focused within the designed landscape including views over and between the two lochs. No identifiable views outwith the asset have been identified as contributing to its setting. Whilst turbines are predicted to be visible from some areas within the non-inventoried GDL, these are not to the extent in which they will encroach on key views within the asset and as such will not impact the ability to understand, appreciate, and experience the asset. Therefore, the asset is scoped out of further assessment.
243868	619102	Drongan	0-17	8.4	Southeast	This asset comprises woodland belts and field enclosures, located to the north of Drongan village. The woodland area within the site is a combination of ancient and contemporary woodland, with a key focus to the south-western portion of the site working on native replantation. Modifications to the designed landscape have altered the natural woodland and historic pathways and as such have changed key aspects of the assets setting in which it derives its significance. The B780 road and railway to the eastern portion of the site are available on first edition OS mapping and demonstrate the ongoing use and construction that has taken place from the post-medieval period. The assets setting focuses on its immediate environment, although the alterations within the landscape due to changes in land ownership and the modern village of Drongan to the north,

Centre Point Coordinate		Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
Easting	Northing					
						as well as community woodland groups, has resulted in limited preservation for the assets historical setting. Additionally, there are no key frames from within the asset that contribute to its setting. Whilst seventeen turbines are predicted to be visible in some areas within the estate, the ability to understand, appreciate, and experience the asset will not be impacted and as such, is scoped out of further assessment.

Appendix C Mining Risk Assessments

Appendix D Ornithology – Scope of 2023-2024 Baseline Studies

D.1 Introduction

This Appendix provides a summary of the baseline studies (including field surveys) to inform the design and assessment of any subsequently proposed development were undertaken between September 2023 and August 2024. At the time of these baseline surveys, the area under investigation did not include the land to the west around Benquhat Hill – **Image D-1** below shows the area under investigation for the 2023-2024 surveys in grey, with the Site Boundary for the Proposed Development shown as the red line. For ease of reference, in this Appendix, 'Proposed Development' refers to the Site Boundary as shown in **Figure 7.1** and 'Area of Interest' refers to the site as known when consideration of this scheme originally commenced (**Image D-1**).

The purpose of this Appendix is to:

- Provide NatureScot with an overview of baseline ornithological studies (from desk-based data gathering and targeted surveys) that have been undertaken between September 2023 to August 2024 for the Area of Interest;
- Set out the key ornithological features identified from the 2023-2024 baseline ornithological studies;
- Provide justification that a period shorter than two years of ornithological field surveys is sufficient to inform the robust design and assessment of the Area of Interest as part of the Proposed Development; and,
- Seek advice or otherwise comment from NatureScot on the above.

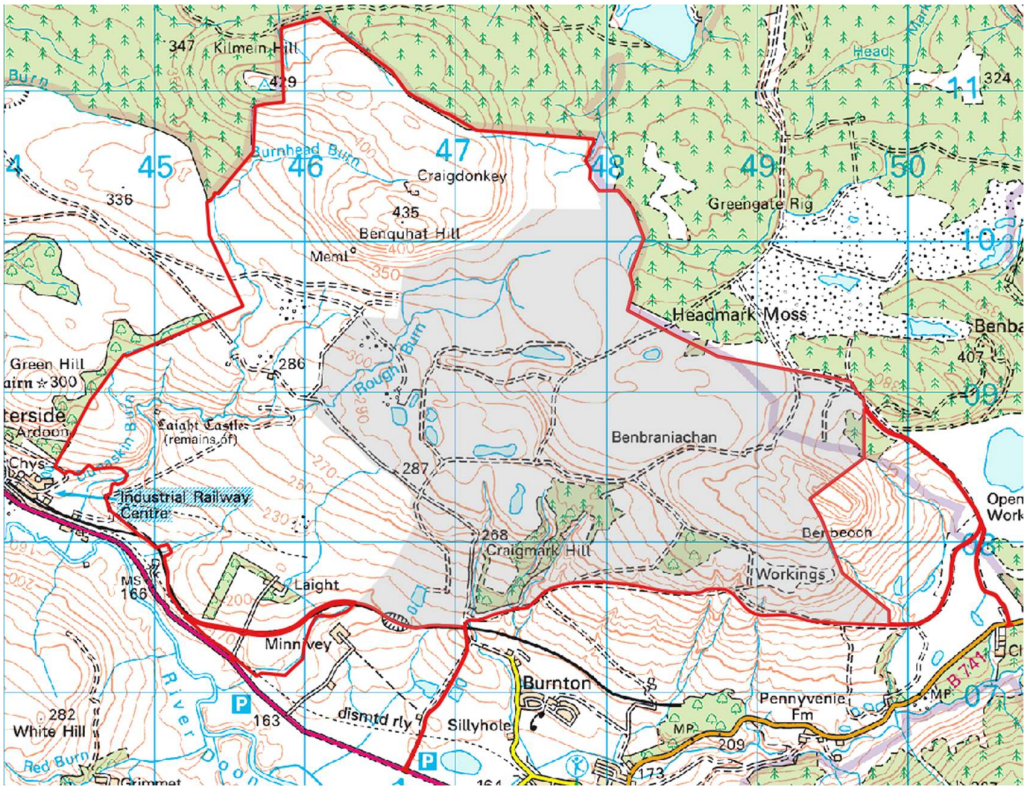

Image D-1: The Proposed Development (red line) and 2023-2024 Area of Interest (grey fill)

The Area of Interest is comprised of predominately dormant opencast mining with fragmented areas of scrub/grassland and a small area of blanket bog habitat (to the north of the Area of

Interest) which lies to the northeast of the under-construction North Kyle Wind Farm[108] and submitted Breezy Hill Wind Farm[109]. The habitats around the Area of Interest are predominately a combination of blocks of commercial forestry with remnant opencast mining features (within which North Kyle and Breezy Hill Wind Farms are situated), and upland habitat comprising grassland/moorland.

Baseline ornithological studies to inform the Area of Interest commenced in September 2023 and comprised a desk-based review of existing ornithological information relevant to the Area of Interest and a full year of ornithological field surveys (September 2023 to August 2024 inclusive).

A target species list was defined from the following lists and refined with reference to NatureScot guidance (2016a[110], 2025a[111], 2025c Annex 1[112]) regarding species perceived sensitivity to onshore wind fam developments, extensive knowledge of bird-habitat associations at the local/Scottish level and preliminary survey visits:

- Annex I of the EU Birds Directive[113];
- Schedule 1 the Wildlife and Countryside Act 1981 (as amended)[114];
- Species (excluding passerines) included on the Birds of Conservation Concern (BoCC) red list (Stanbury *et al*. 2022[115] and Stanbury *et al.* 2024[116]).

The following key sources were also consulted for existing ornithological information:

- NatureScot Sitelink[117]; and,
- Dumfries and Galloway Raptor Study Group (DGRSG).

Data was also gathered from Environmental Impact Assessment (EIA) reports and associated Technical Appendices that are already in the public domain and relating to the following operational/consented wind farms:

- North Kyle Wind Farm (2017 and 2018 breeding seasons; 2016/2017 and 2017/2018 non-breeding seasons).
- Breezy Hill Wind Farm (2020, 2021 and 2024 breeding seasons; 2020/2021 and 2021/2022 non-breeding seasons).

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[108] ECU Ref. ECU00001950

[109] ECU Ref. ECU00005060

[110] SNH (2016) Assessing connectivity with Special Protection Areas (SPAs).

[111] NatureScot (2025a) Recommended bird survey methods to inform impact assessment of onshore windfarms.

[112] NatureScot (2025b) Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

[113] Directive 2009/147/EC of the European Parliament and of the Council. Available at: https://www.legislation.gov.uk/eudr/2009/147/contents

[114] Scottish Government (1981). Wildlife and Countryside Act 1981. Available at: https://www.legislation.gov.uk/ukpga/1981/69

[115] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds, 114, pp. 723-747

[116] Stanbury, A. J., Burns, F., Aebischer, N. J., Baker, H., Balmer, D. E., Brown, A., Dunn, T., Lindley, P., Murphy, M., Noble, D. G., Owens, R., and Quinn, L. (2024) The status of the UK's breeding seabirds: an addendum to the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds, 117, pp. 471-487.

[117] https://sitelink.nature.scot/home

The study area for existing ornithological information has comprised out to 20 km from the Area of Interest for statutory designated sites with ornithological interests, 2 km for species listed on Annex 1 of NatureScot guidance (2025c112), extended to 6 km for eagle species.

Ornithological field surveys were undertaken over a single year between September 2023 and August 2024 as listed below. All field surveys completed followed methodologies recommended by NatureScot (2025a[111]) using the most recent version at the time of surveys, with reference to species-specific survey methodologies as set out in Hardey *et al.* (2013[118]) and Gilbert *et al*. (1998[119]). Viewsheds and survey areas are illustrated on **Figure 7.1** and **Figure 7.2**.

- Flight activity surveys (2023/2024 non-breeding season and 2024 breeding season, from three Vantage Points (VPs);
- Winter walkover surveys (2023/2024 non-breeding season);
- Breeding wader surveys (2024 breeding season);
- Scarce[120] breeding bird surveys (2024 breeding season); and,
- Black grouse surveys (2024 breeding season).

On the basis of existing knowledge and ornithological records obtained, the requirement for any further species-specific surveys was not identified.

Further details on survey methods, survey areas and conditions, can be provided to NatureScot on request. A summary of total flight activity survey hours completed is provided in **Table D-1**.

Table D-1: Summary of total hours of valid survey per VP in each season completed

Period	VP1	VP4	VP5
2023/2024 non-breeding season	36	36	36
2024 breeding season	36	36	36

D.2 Summary of Key Site-Specific Ornithological Features

D.2.1 Flight Activity

Flight activity surveys undertaken recorded five target species (**Table D-2**; greylag goose, hen harrier, osprey, peregrine falcon and red kite) with an overall low level of flight activity recorded (38 flights). **Table D-2** also presents the flight activity data recorded during baseline surveys for Breezy Hill and North Kyle Wind Farms. Overall flight levels are similar between the Area of Interest and Breezy Hill (although with some small variation in the species recorded). Flight activity at North Kyle is overall higher (and a wider species list) although it should be noted that some of this is likely the result of the number of vantage points surveys were undertaken from (up to three for both Chalmerston and Breezy Hill as opposed to up to 12 for North Kyle) and whilst there was a wider range of species recorded during the North Kyle surveys, for most species this was of less than five flights over the two year survey period.

[118] Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013) Raptors: a field guide to survey and monitoring (3rd Edition). The Stationery Office, Edinburgh.

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

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

For both Breezy Hill and North Kyle, collision risk was concluded to be negligible in the respective assessments; **Table D-2** presents the mean annual collisions presented in these assessments, note that 'n/a' is used to denote that a species was not recorded during those flight activity surveys and '0' is used to denote a species that were recorded but that were concluded to not be 'at-risk'[121] of collision. Given the comparative low levels of flight activity recorded, it is considered very unlikely that potentially significant collision mortality risks to the above target species would be predicted from any subsequently proposed turbine layout within the Area of Interest. However, flight activity will be reviewed over the design process to inform turbine locations and reduce the likelihood of mortality risks to species recorded.

As such, one year of flight activity surveys for the Area of Interest is considered to be sufficiently representative to allow a robust assessment with regards to collision modelling.

Table D-2: Flight activity comparison between the Area of Interest and Breezy Hill/North Kyle Wind Farms

Species	Chalmerston (Area of Interest)	North Kyle Wind Farm (EIA, 2019)			Breezy Hill Wind Farm (EIA, 2025)		
	No. flights recorded	No. flights recorded	Mean annual collision	Equivalent to one bird every X years	No. flights recorded	Mean annual collision	Equivalent to one bird every X years
Barn owl	0	1	0.0022	464	0	n/a	n/a
Black grouse	0	4	0.0007	1,377	0	n/a	n/a
Curlew	4	6	0.0004	2,461	4	0.0195	51.3
Dotterel	0	1	0	0	0	n/a	n/a
Golden eagle	0	1	0.0013	799	0	n/a	n/a
Golden plover	0	31	2.5682	0.39	4	0.0373	26.8
Goldeneye	0	3	0	0	0	n/a	n/a
Goshawk	0	31	0.1055	9.48	16	0.0416	24.0
Greylag goose	2	6	0.0303	32.95	0	n/a	n/a
Hen harrier	2	7	0.0035	284	2	0.0018	561
Herring gull	0	64	0.4264	2.35	3	0.0001	13,550
Hobby	0	0	n/a	n/a	1	0.0021	478
Lapwing	0	8	0	0	0	n/a	n/a
Merlin	0	6	0.0028	362	1	0.0004	2,670
Osprey	1	4	0.0136	74	4	0.0028	361
Peregrine falcon	28	25	0.0335	29.84	4	0.0030	335

[121] 'at-risk' is defined as flights that were identified to be within the Collision Risk Analysis Area (CRAA) and associated viewshed and flying within the rotor swept area.

Species	Chalmerston (Area of Interest)	North Kyle Wind Farm (EIA, 2019)			Breezy Hill Wind Farm (EIA, 2025)		
	No. flights recorded	No. flights recorded	Mean annual collision	Equivalent to one bird every X years	No. flights recorded	Mean annual collision	Equivalent to one bird every X years
Pink-footed goose	0	12	0.4025	2.48	0	n/a	n/a
Red kite	5	1	0.0073	138	0	n/a	n/a
Ringed plover	0	26	0.0190	53	0	n/a	n/a
Ruff	0	2	0	0	0	n/a	n/a
Short-eared owl	0	3	0	0	0	n/a	n/a
Whooper swan	0	1	0	0	1	0	0
Woodcock	0	1	0	0	0	n/a	n/a
Total number of flights recorded	42	244	-	-	40	-	-

D.2.2 Target Raptors and Owls

One known peregrine falcon breeding territory (PE_2) and one red kite breeding location (KT_1) were identified during scarce breeding bird surveys in 2023 (**Table D-3**, **Confidential Figure 7.4**) with raptor activity across surveys predominately of these two species alongside one record of an osprey flight in April 2024. Consultation with the DGRSG provided historic data for PE_2 (which is one of two locations of a known peregrine falcon territory) and also a second known territory approximately 1km from the Area of Interest (**Table D-3**), although it has not been known to be active in recent years. Surveys for the adjacent North Kyle Wind Farm also identified confirmed breeding activity at PE_2 in 2017 and 2018, with two other confirmed nest sites (PE_3 and PE_4; **Table D-3**, **North Kyle Wind Farm EIA Confidential Figure 8.2.1**) identified by North Kyle baseline surveys (although it should be noted that both these locations were situated within the active opencast mine workings and are no longer suitable breeding locations).

Surveys also identified two potential barn owl roosts/nests (internal access was not taken; **Table D-3**, **Confidential Figure 7.4**). Osprey are also known to be nesting to the north of North Kyle Wind Farm with a nest platform built during the 2023/2024 non-breeding season that was then successfully used in 2024 (**Table D-3**, **Breezy Hill Wind Farm EIA Confidential Figure 7.2.1**).

Winter surveys did not identify any activity of roosting hen harrier or red kite and the DGRSG did not indicate any known roosts within 2 km of the Area of Interest.

Table E-3: Schedule 1 Raptor and Owl Territories

Territory	Source	Distance to the Site
PE_2	SLR/DGRSG	Adjacent to the Site
PE_A	DGRSG	1 km

Territory	Source	Distance to the Site
PE_3	SLR	8.1 km
PE_4	SLR	6.2 km
KT_1	SLR	600 m
BO_1	SLR	300 m
BO_2	SLR	600 m
OP_1	SLR	3.6 km

In summary, baseline ornithological field surveys and desk-based studies have identified red kite and breeding peregrine falcon as the key ornithological features that are considered to represent the main considerations for the design and assessment of the Area of Interest as part of the Proposed Development.

Black Grouse

Surveys undertaken in April and May 2025 did not find any evidence of lekking black grouse within the 1.5 km survey area, nor were black grouse recorded on any other surveys between September 2023 and August 2024.

Baseline surveys for North Kyle Wind Farm did identify five leks within their survey area, of which three are within the black grouse survey area for the Area of Interest (**North Kyle Wind Farm EIA Figure 8.1.29**). It should be noted that the surveyors undertaking the surveys in 2020, 2021 and 2024 for Breezy Hill and then Chalmerston ensured to monitor these areas during black grouse surveys, however 2020 was the last year any evidence of black grouse activity was recorded (**Table D-4**).

Overall, black grouse activity has been consistently low over the past five years of surveys, likely as a result of wide scale habitat fragmentation as a result of extensive commercial forestry in the region.

It is known that there are historical lek sites within the Proposed Development, however as surveys within recent years have not identified any black grouse in attendance at these leks during recent surveys, no specific design constraints have been applied. Brockwell is committed to identifying opportunities to deliver beneficial habitat management to ensure suitable lekking habitat continues to be available for black grouse alongside identifying other opportunities to make wider habitat improvements that would benefit breeding and foraging black grouse. The Habitat Management Plan for the adjacent (under construction) North Kyle Wind Farm included prescriptions related to black grouse habitat management/enhancement and Brockwell propose to expand on these with the habitat management and enhancement measures that will be proposed for the Proposed Development. Furthermore, Brockwell are also interested to look at identifying other suitable areas nearby where off-site black grouse habitat management would be beneficial, and any specific suggestions NatureScot may have in relation to this would be welcomed.

Table D-4: Black grouse activity

Lek ID	2017	2018	2020	2021	2024
1	1 male	1 male	Outwith survey area	Outwith survey area	Outwith survey area
2	No grouse recorded	1 male	Outwith survey area	Outwith survey area	Outwith survey area
3	No grouse recorded	1 male	2 males	No grouse recorded	No grouse recorded

Lek ID	2017	2018	2020	2021	2024
4	No grouse recorded	1 male	1 male	No grouse recorded	No grouse recorded
5	No grouse recorded	1 male	Outwith survey area	Outwith survey area	Outwith survey area

Waders

Wader activity was moderate with common sandpiper (three territories), curlew (one territory), lapwing (4-5 territories), oystercatcher (four territories), ringed plover (1-3 territories) and snipe (3-5 territories) recorded and all considered to be breeding.

Surveys for Breezy Hill and North Kyle also identified breeding ringed plover with activity associated with the remnant bare ground habitat and pools from the opencast mining and the habitat management plans for both sites presented proposals to maintain suitable areas as wader scrapes for ringed plover. North Kyle surveys also identified similar numbers of lapwing and curlew along the southern access track route which is situated within the Area of Interest (it made use of an existing coal haul route that was within the Chalmerston mine area).

Wintering Birds

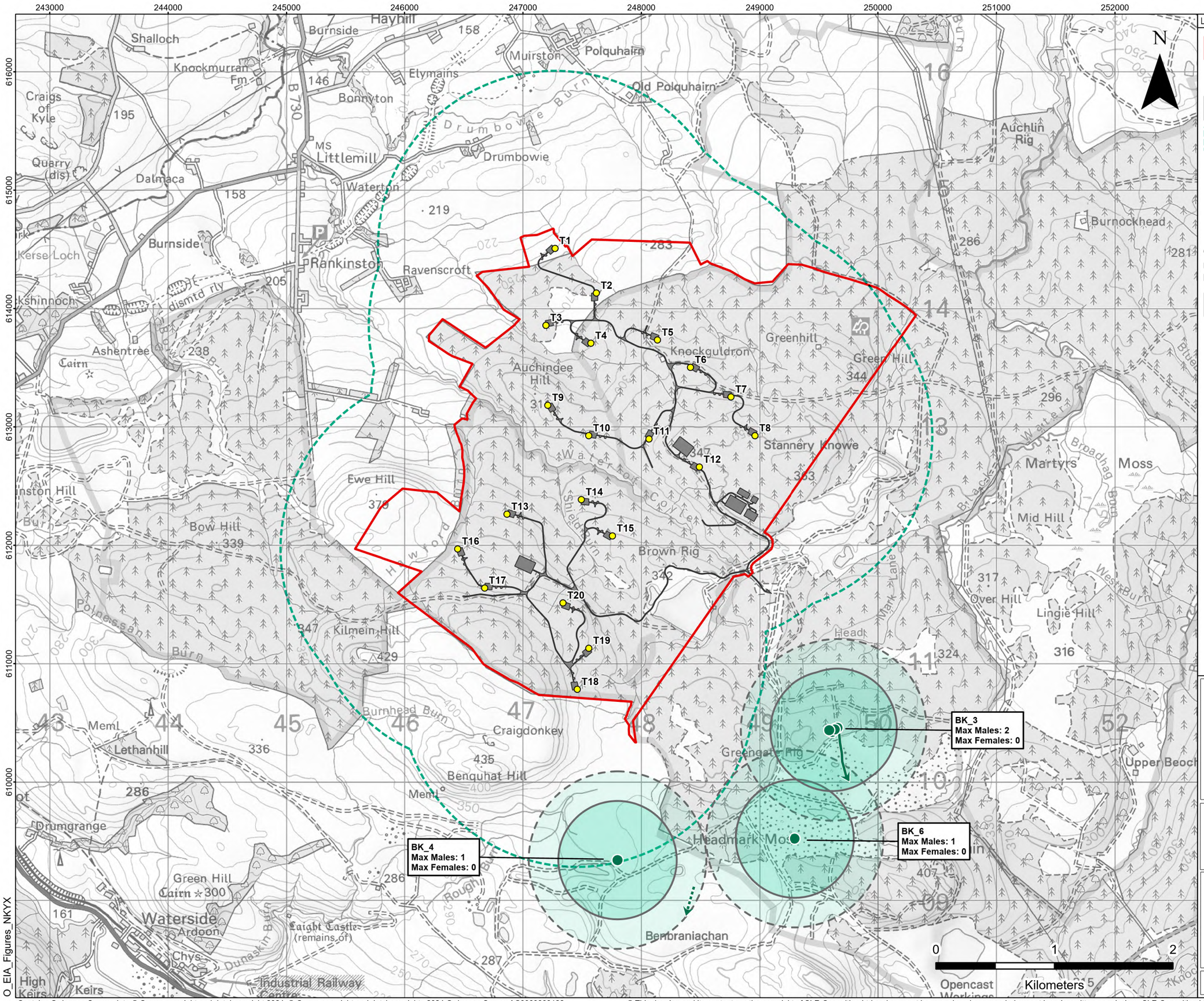
Wintering activity of target bird species was very low with a single record of a flock of 13 greylag goose overflying the Area of Interest and a single record of a red kite. There was no evidence of wildfowl/waterfowl foraging/roosting on or around the Area of Interest, nor was there any evidence of roosting hen harrier or red kite.

D.3 Conclusion

It is understood to be NatureScot's general advice (2025a[111]) that a minimum of two years of ornithological surveys should be collected to inform the design and assessment of onshore wind farm developments. It is however, also understood that it is NatureScot's general advice (2025a[111]) that such data may not need to be specifically collected, where there is existing site-specific data, and/or where it can be demonstrated that a shorter period of survey is sufficient e.g. where extensive data exists for the local area.

Ornithological field surveys have established a relatively narrow range of sensitivities and overall low levels of activity. With ornithological data collected consistently over several years in the locale for similar wind farm developments, ornithological activity is somewhat predictable, and the levels recorded for the Area of Interest are consistent with these observations.

In review of this existing ornithological information from key sources, a relatively narrow range of target species and overall low levels of activity recorded, it is considered that a single year of ornithology surveys carried out in accordance with NatureScot guidance (2025a[111]) is sufficient to inform the robust design and assessment of the Proposed Development within the Site. It is considered that the approach to baseline ornithological studies is robust and in accordance with NatureScot guidance (2025a[111]).



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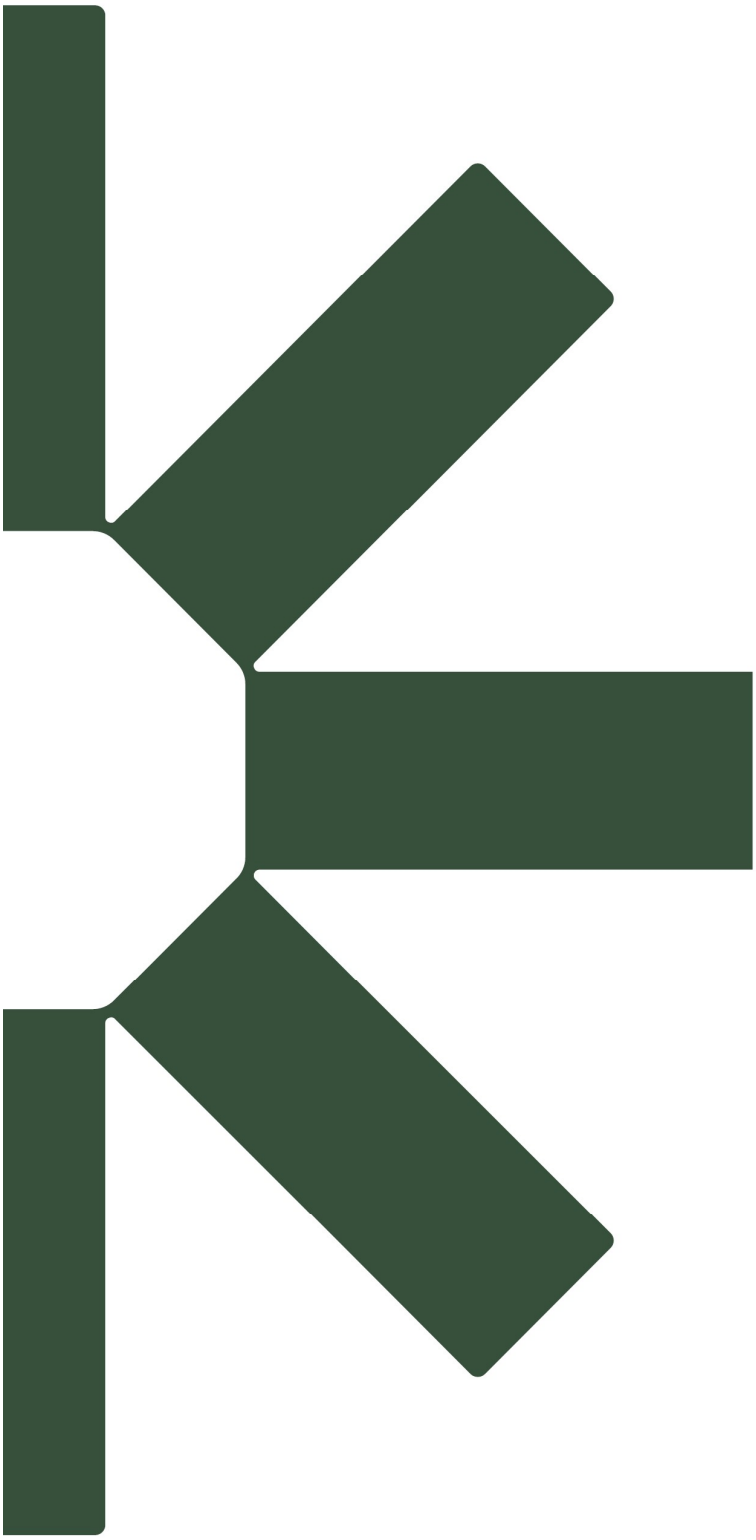
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FIGURE 7.7

Black Grouse Lek Locations and Activity: 2020, 2021 and 2024

Scale	Date
1:30,000 @ A3	APRIL 2025

O_EIA_Figures_NKYX



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