

Green Knowes Windfarm Repowering

EIA Scoping Report

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Abbreviations

AILV	Abnormal Indivisible Load Vehicle
ANSP	Air Navigation Service Provider
AOD	Above Ordnance Datum
ATC	Air Traffic Control
ATCs	Automatic Traffic Counts
ATS	Air Traffic Service
AWI	Ancient Woodland Inventory
BESS	Battery Energy Storage System
BoCC5	Birds of Conservation Concern 5
BRISC	Biological Recording in Scotland
BWEA	British Wind Energy Association
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAR	Controlled Activities Regulations
CDDNI	Conservation Detection Dogs Northern Ireland
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CNS	Communications, Navigation and Surveillance
CoPA	Control of Pollution Act
CO ₂	Carbon Dioxide
CRA	Collision Risk Analyses
CTMP	Construction Traffic Management Plan
dB	decibels
DBW	Daytime Bat Walkover
DECC	Department of Energy and Climate Change
DfT	Department for Transport
DIO	Defence Infrastructure Organisation
DWPA	Drinking Water Protected Areas
ECow	Ecological Clerk of Works
ECU	Energy Consent Unit
EHO	Environmental Health Officers
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETSU	Energy Technical Support Unit
EU	European Union
FWPM	freshwater pearl mussel
GDL	Gardens and Designed Landscapes
GIS	Geographic Information System
GLVIA3	Guidelines for Landscape and Visual Impact Assessment. Third Edition
GPG	Good Practice Guide
GW	Gigawatt
GWDE	Ground Water Dependent Terrestrial Ecosystem
GWh	Gigawatt Hours
ha	hectares
HEPS	Historic Environment Policy for Scotland
HER	Historic Environment Records
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicle
HSE	Health and Safety Executive
ICAO	International Civil Aviation Organisation
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedure
IoA	Institute of Acoustics
JRC	Joint Radio Company



km	Kilometre
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LDP2	Perth and Kinross Local Development Plan
LDP3	Perth and Kinross Local Development Plan 3
LFA	Low Flying Area
LGV	Light Goods Vehicle
LI	Landscape Institute
LLA	Local Landscape Area
LNCS	Local Nature Conservation Sites
LVIA	Landscape and Visual Impact Assessment
MAGIC	Multi Agency Geographic Information for the Countryside
MAVRIC	Mapping Application for Visualising Road Injury Casualties
MoD	Ministry of Defence
MW	Megawatt
m	Metre
NATS	National Air Traffic Services
NBN	National Biodiversity Network
NCAP	National Collection of Aerial Photography
NERL	NATS En Route plc
NHZ	Natural Heritage Zone
NPF4	National Planning Framework 4
NRHE	National Record of the Historic Environment
NRTF	National Road Traffic Forecasts
NS	NatureScot
NSA	National Scenic Area
NSR	Noise Sensitive Receptor
NTDS	National Traffic Data System
NTS	Non-Technical Summary
NVC	National Vegetation Classification
OD	Ordnance Survey
PAN	Planning Advice Note
PKC	Perth and Kinross Council
PSR	Primary Surveillance Radar
PWS	Private Water Supply
RSPB	Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
SAC	Special Area of Conservation
SC	Stirling Council
SEPA	Scottish Environment Protection Agency
SLA	Special Landscape Areas
SPA	Special Protection Area
SPG	Supplementary Planning Guidance
SPP	Species Protection Plan
SPR	ScottishPower Renewables (UK) Limited
SR	Scottish Renewables
SRTM	Shuttle Radar Topography Mission
SSSI	Sites of Special Scientific Interest
SuDS	Sustainable drainage systems
TS	Transport Scotland
WFD	Water Framework Directive
WLA	Wild Land Area
ZTV	Zone of Theoretical Visibility

1. Introduction

1.1. Background and Context

This Scoping Report has been prepared by SLR Consulting on behalf of ScottishPower Renewables (UK) Ltd (herein referred to as 'the Applicant') in anticipation of an application for permission for a repowering of Green Knowes Windfarm, located approximately 4.1 km south of Auchterarder within Perthshire, Scotland (the 'Site') (**Figure 1.1**).

The operational Green Knowes Windfarm received planning permission in June 2006 (reference: GMT1/47931.25) for the construction and operation of 18, 95 m turbines, with a capacity of 27 megawatts (MW). Green Knowes Windfarm has been operation since 2008. In December 2015, a planning application was submitted by the Applicant for the construction and operation of five additional turbines of up to 111 m, constituting an extension to the Green Knowes Windfarm. Each turbine would have had a maximum output of up to 2 MW giving a total additional installed capacity of up to 10 MW. However, this application was subsequently withdrawn in March 2017.

The proposed repowering of Green Knowes Windfarm (herein referred to as the "Proposed Development") will comprise decommissioning and removal of the operational Green Knowes Windfarm turbines and installation of approximately 14 new turbines with a tip height of between 180 m and 200 m, and an installed generating capacity exceeding 50 MW but less than 100 MW. The associated infrastructure will include site access and internal access tracks, turbine hardstandings and laydown areas, underground cabling, an on-site substation, transformers, temporary construction compound, and potential excavations/borrow pit workings.

1.2. The Purpose of this EIA Scoping Report

The purpose of this Environmental Impact Assessment (EIA) Scoping Report is to request a Scoping Opinion as per Regulation 12 (1) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations'), setting out the information that ought to be provided by the EIA and included in the EIA Report. The Scoping Opinion is to be adopted following discussion with consultee bodies.

The Applicant recognises the value of the scoping approach, and the purpose of this report is to ensure that relevant issues are identified and to confirm that the assessment process described will meet legislative requirements.

This Scoping Report utilises the existing available information in respect of the Site and data gathered to date in relation to the operational Green Knowes Windfarm and the application for the withdrawn extension, to focus on key areas and likely significant effects in agreement with consultees. Potential minor and non-significant issues are proposed to be 'scoped out'.

As a result of the extensive existing data available for the Site, this Scoping Report provides an in-depth understanding of the baseline position and provides evidence to enable consultees to focus on key areas, likely significant effects and to 'scope out' minor and not significant issues.



Whilst this Scoping Report will inevitably require more engagement from key consultees at an early stage, the eventual EIA Report submitted should be more streamlined and focus on only likely significant effects.

The Applicant will ensure that regular and continued liaisons with key stakeholders (including the community) are carried out and documented to agree the assessment baseline, methodology and therefore ensuring the EIA process and final EIA Report documents will be more efficient and streamlined.

Consultees will note that the Scoping Report contains a number of questions, for which it would be useful to receive feedback. Not all questions will be relevant to all consultees, therefore we request that consultees provide feedback only on those questions appropriate to them. The questions should not be considered an exhaustive list, and consequently feedback is welcome on any issue considered relevant to the Proposed Development. If consultees elect not to respond, the Applicant will assume that consultees are satisfied with the approach adopted or proposed. Further consultation will take place with relevant stakeholders throughout the EIA and application process, including with local communities.

This Scoping Report has had regard to the recently published Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms¹, published by Scottish Renewables in September 2025, as was a commitment of the onshore wind sector deal.

1.3. Environmental Impact Assessment

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 EIA Report as part of a Section 36 application and has not requested an EIA Screening Opinion.

EIA is the systematic process of compiling, assessing, presenting and mitigating all the significant environmental effects of a Proposed Development. The assessment is designed to inform the decision-making process by way of setting out the likely environmental profile of a project. Identification of potentially significant environmental effects then leads to the incorporation of appropriate mitigation measures into both the design of the scheme and the way in which it is constructed and operated.

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

- Volume 1 – Written Statement

¹Scottish Renewables (2025). Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms. Available at: https://www.scottishrenewables.com/assets/000/005/061/Streamlining_EIA_Guidance_September_2025_original.pdf?1758009802

- Volume 2 – Figures
- Volume 3 – Visualisations
- Volume 4 – Technical Appendices
- Volume 5 – Confidential Appendices (if required)

A Non-Technical Summary (NTS) will also be provided.

Chapters 1 to 4 of Volume 1 will comprise:

- An introduction;
- A description of the Proposed Development;
- A description of the Site selection and design iteration process; and
- Information on the approach to EIA and determination of significance of effects.

The remainder of Volume 1 will present an assessment of a range of environmental topics. Based on the available baseline environment information and the details of the Proposed Development, the environmental topics have been scoped on the basis of the potential for significant environmental effects. This has determined the need to undertake impact assessment to investigate each potential effect. Each of the scoped in topics will be reported as a chapter of Volume 1. Technical reports, including reports for topics that have been scoped out of the EIA process, which will be provided as appendices.

Potential effects will be assessed based on the sensitivity of identified receptors, and the magnitude of potential impacts arising from the construction and operation of the Proposed Development. Clear criteria for the determination of receptor sensitivity and impact magnitude will be set out in the EIA Report, together with criteria for determining the resultant significance of effect.

The EIA Report will also include a schedule of mitigation measures and a summary of residual effects.

A standalone Planning Statement will be provided, assessing the Proposed Development against all relevant planning and energy policy. Furthermore, a standalone Socioeconomic report will also be provided in accordance with the Streamlining Environmental Impact Assessment for Onshore Wind Farms guidance.

1.4. Consultation

1.4.1. Community Consultation

The Applicant welcomes community engagement, encouraging collaboration and due consideration of the local community's views and feedback through all stages of the project life. Having operated the Green Knowes Windfarm since 2008, the Applicant has an established understanding of the local area and community and is committed to positive engagement throughout the repowering application process and beyond.

As part of the iterative design process and best practice, the Applicant will engage with local communities close to the Proposed Development to gather their views, so these can, where possible, inform the Proposed Development design process.



Liaison with key stakeholders and local communities will be undertaken at appropriate milestones throughout the EIA process. The engagement strategy is expected to include a range of communication methods and feedback mechanisms, including face-to-face meetings and exhibitions, online information and feedback gathering, newsletters and press releases.

1.4.2. Other Stakeholder Consultation

Consultation with statutory and non-statutory consultees will be an integral part of the iterative EIA process. The Applicant recognises the benefit of carrying out early consultation with all relevant parties. The consultation will progress with the circulation of this Scoping Report and will continue for the duration of the EIA process.



2. The Applicant

The Applicant, ScottishPower Renewables (UK) Limited (SPR), is part of the ScottishPower group of companies operating in the UK under the Iberdrola Group, one of the world's largest integrated utility companies and a world leader in wind energy.

ScottishPower now only produces 100% green electricity – focusing on wind energy, smart grids and driving the change to a cleaner, electric future. The company has committed to investing over £18 million every working day to make this happen and is committed to speeding up the transition to cleaner electric transport and improving air quality to deliver a better future, quicker for everyone.

SPR is at the forefront of the development of the renewables industry through pioneering ideas, forward thinking and outstanding innovation, and already has over 40 operational wind farms managed from its world-leading Control Centre at Whitelee Windfarm, near Glasgow – where Iberdrola's Saint Brieuc Wind farm in France and Wikinger Wind farm in Germany are also monitored from.

SPR stands as a distinguished innovator, industry leader, and environmental investor. As one of the largest privately funded peatland restoration entities in the UK, SPR has successfully restored over 1,000 hectares (ha) of peatland, with the capacity to sequester approximately 3.6 million tonnes of carbon dioxide. Repowering allows SPR to reuse existing site infrastructure and take advantage of new technologies resulting in increased electricity generation and ultimately, increased security of supply. It can create jobs and supply chain opportunities, unlocks more community benefit funding and further investment in ecology and the local environment. Old assets can also become sustainable resources for research and training, recycling and restoration.

3. The Proposed Development

3.1. Site Description

The Site's red line boundary is located approximately 4.1 km south of Auchterarder and 11.4 km north-west of Kinross in the Perth and Kinross Council (PKC) area centred at British national grid NN 96708 06867 (**Figure 1.1**). The Site lies entirely on the Ochil Hills which are characterised by rounded grassy tops divided by steep, dramatic glens with elevations ranging from approximately 480 m above Ordnance Datum (AOD) in the north to a low point of 230 m AOD in the south. The land comprises many steep slopes and ridges with a sharp descent from the hills to the River Devon which runs through Glen Devon to the south of the Site. The Site becomes more level when nearing the highest levels of this part of the Ochil Hills at approximately 450-480 m AOD.

The Site is located north of the A823, a road that connects Gleneagles Village and Auchterarder with Yetts o'Muckhart and eventually Dunfermline. The access to the operational Green Knowes Windfarm is directly off the A823.

The Site comprises an area of approximately 1,200 hectares (ha) and encompasses the entire footprint of the operational Green Knowes Windfarm as well as land to the east and west. The Site is privately owned by a number of landowners and predominantly constitutes grassy hillsides with varying degrees of steepness. There are also areas of semi-improved pasture and upland heathland. There are a number of scattered residential properties and small villages in the wider area surrounding the Site (**Figure 1.1**).

As stated in **Section 1.1**, the operational Green Knowes Windfarm has been operational since 2008. It currently consists of 18 turbines with a tip height of 95 m. The as-built operational Green Knowes Windfarm is shown in **Figure 1.2** within the proposed Site boundary.

The Proposed Development Site boundary has been devised to include land to the east and west of the operational Green Knowes Windfarm to allow flexibility in the location, while taking into account key constraints, of the proposed repower turbines, tracks and other infrastructure, as well as areas for habitat management and biodiversity enhancement. The turbine layout is expected to evolve post-scoping as a result of design iteration. However, it is not expected that the Site boundary will materially change.

3.2. Proposed Development Description

3.2.1. Decommissioning of the Existing Green Knowes Windfarm

The decommissioning and restoration of the extant Green Knowes Windfarm is not part of the Proposed Development. It will be managed by the consenting process for the original development however, it is anticipated that there maybe some overlap with the decommissioning and restoration of the existing Windfarm and the Construction of the Proposed Development. This will be assessed accordingly in the EIA Report.

3.2.2. Green Knowes Windfarm Repowering

The Proposed Development has already undergone a number of design iterations during the initial feasibility stage and will continue to evolve as the EIA progresses. Details of the design iteration process that has been undertaken to date are summarised in **Section 3.3**.

At time of writing this EIA Scoping Report, the Proposed Development comprises:

- 14 turbines with a tip height of between 180 and 200 m;
- Turbine foundations and hardstandings;
- External transformer housings;
- Crane pads;
- Access tracks (utilising existing tracks where possible);
- A substation;
- Underground electricity cables;
- Temporary borrow pits;
- Temporary construction and storage compounds and ancillary infrastructure; and
- Storage building and control building (utilising the existing buildings where possible).

An indicative turbine layout is provided in **Figure 3.1**.

The Proposed Development location has a good wind resource, as evident by the operational Wind farm and consequently the proposed repowering project would significantly contribute to the UK and the Scottish Government's renewable energy targets. As far as possible, the Proposed Development will utilise and upgrade existing tracks, which would further minimise potential effects on the local environment.

Access to the Proposed Development is expected to remain as existing, from the A823 to the south. The existing access into the Site is considered to be suitable for re-use, although upgrading of the access track may be necessary to facilitate the delivery of larger turbine components.

It is anticipated that the Proposed Development would have a combined total installed capacity in excess of 50 MW but less than 100 MW. The precise capacity will be determined once the final layout and design has been confirmed, and a turbine model selected.

3.2.3. Proposed Development Life and Decommissioning

Consent will be sought for an operational life of at least 40 years from the date of commissioning, after which the Proposed Development would be appropriately decommissioned. If, after the operational lifespan of the Proposed Development has expired, there is potential for repowering, this would be subject to a new and separate application. The EIA Report will consider the effects arising during the construction and operation phases. The effects of decommissioning the Proposed Development would be similar or less than those arising from construction. As such, it is proposed that any assessment of the decommissioning of the Proposed Development are scoped out of the EIA.

3.3. Project Design

The current proposed design, as presented in this Scoping Report, is preliminary and indicative. Further design iterations will be undertaken throughout the EIA process, as updated baseline data is gathered and assessments progress.

In September 2025, SLR Consulting was commissioned by the Applicant to consider an 18 turbine initial feasibility layout and produce a revised layout to be taken forward for this EIA Scoping Report. The current indicative design of the Proposed Development (the Scoping layout) is a result of maximising the potential wind resource on site whilst recognising the Site-specific and broader constraints, as they are understood at the date of submitting this Scoping Report.

Key considerations in determining the Scoping layout include:

- Available development area within the redline boundary considering known environmental constraints;
- A principal aim of maximising energy yield through adequate spacing of the turbines;
- Relationship to the surrounding landscape and visual receptors, in particular avoiding plateau edges to reduce visual impact on surrounding glens, villages and road;
- Proximity to residential properties; and
- Technical and environmental constraints (considered in more detail in each of the technical sections of this report and briefly summarised here):
 - Views from Gleneagles – ensuring that no turbines are placed on the northern escarpment;
 - Limiting views from key cultural heritage assets – such as Kinross House and Glendevon Castle;
 - Consideration of the Proposed Layout with cumulative developments (e.g. Consented Craighead Wind Farm, Proposed Brunt Hill Wind Farm, approved Rhodders Wind Farm, operational Burnfoot Wind Farm etc.);
 - Minimising number of turbines within the western portion of the site to reduce impacts on ornithological receptors;
 - Avoiding steep gradients especially around Borland Glen; and
 - Ensuring a 50m watercourse buffer throughout the Site.

These considerations reduced the 18 turbine feasibility layout to the 14 turbine Scoping Layout.

The Scoping layout is expected to be further refined during the EIA process and through further consultation with consultees and stakeholders. Should any changes occur that are likely to result in a significant or unknown effect on an important feature, or on an impact that was previously scoped out, then this will be scoped back into the EIA process and the appropriate scope agreed with the Energy Consent Unit (ECU) and relevant statutory consultees. The iterative design process will be detailed within the EIA Report.



The layout presented for scoping is considered, at this point, to be the most optimal following an iterative design process which has taken all known constraints (at the time of preparing the Scoping Report) and wind yield analysis into consideration, refer to **Figure 3.1**.

A micro siting allowance of 50 m is proposed which would allow flexibility to deploy the most efficient layout possible and to minimise environmental effects.

3.4. Wind Turbines, Foundations, Transformers and Crane Pads

The specific turbine model has not yet been selected but it is expected to be a horizontal axis machine with three rotor blades. Current models have approximately 6 MW generating capacity and by the time the project is constructed, such wind turbine models may be capable of generating more. Any turbines selected are also likely to have external transformers placed adjacent to each turbine. A relevant candidate turbine model will be selected for assessment within the EIA Report.

The turbines would be fixed to reinforced concrete foundations, formed in excavations approximately 3.5 m deep, depending on ground conditions. Detailed design specifications for each foundation would depend on ground conditions, the specific turbine used and various other engineering considerations.

Crane pads would be left in-situ following erection of turbines to allow for maintenance and replacement of parts as necessary during the lifetime of the project.

Coordinates for the current, indicative proposed turbine locations are given in **Table 3-1**.

Table 3-1: Proposed Turbine Coordinates

TURBINE	EASTING	NORTHING
1	298773	706159
2	298735	706618
3	299092	707310
4	298403	706968
5	298030	706539
6	297804	706971
7	297546	707395
8	296950	707450
9	297203	706915
10	297120	706478
11	296651	706955
12	296368	707326

13	295872	707216
14	296078	706736

3.5. Access Tracks

As a repowering of an existing wind farm site, the requirement for new site tracks will be less than would be the case for a new greenfield development. However, given that the Proposed Development's turbines will be larger than the current operational turbines and greater spacing being required between turbines leads to a greater development area compared to the existing Wind farm. The access track layout would need to be appropriately designed to support the delivery of large turbine blades and other components. It would therefore be necessary to upgrade existing tracks in some areas and construct new tracks in other areas, especially in the area west of the existing turbines.

The routes for the tracks will be chosen to minimise potential impacts on the environment (e.g. landscape & visual, ecology etc), while taking account of other site-specific constraints (e.g. topography). The EIA Report will include a rationale for their final location.

The construction of the Site tracks falls under two main categories, as follows:

- 'Cut' track – superficial layers are removed, along with soft subsoils until reaching a competent bearing layer, which can be used as a formation level using methods including blasting of rock.
- 'Floating' track – superficial layers and subsoils are left in-situ with the track built off the existing ground level, utilising geotextiles, and geogrids to reinforce the track materials. This technique is generally used where there are deep soft underlying materials e.g. peat or soft clays.

Watercourse crossings would be minimised as far as possible and where these cannot be avoided then suitable water crossings will be identified and assessed within the EIA Report.

3.6. Substation, External Transformer and Grid Connection

It is expected that all 33 kV cables from the turbines would be routed underground along the access track routes to the substation. The substation for the Proposed Development would most likely be an upgraded version of the operational Green Knowes Windfarm's substation, located approximately 230m north-east of the Site access from the A823. Export of electricity onto the National Grid would likely be from the substation via the existing connection, however this will be confirmed as the project progresses via the Distribution Network Operator.

3.7. Borrow Pits

The Proposed Development would require crushed stone to construct the new tracks, improve the existing tracks, the formation of crane hardstanding areas and the laying of the turbine foundations. It is the intention that suitable stone and aggregate would be sourced from onsite borrow pits to reduce the potential effects on the environment and transport network, associated with transporting stone to the Site. Borrow pit areas of search will be identified within the EIA Report. These would be temporary in nature and restored following use.

3.8. Temporary Construction and Storage Compounds, and Ancillary Infrastructure

To provide a secure area for Site office facilities and storage of materials and components, temporary compounds may be required and would be located strategically across the Site, likely adjacent to the Site access track. They would be surrounded by a security fence and locked gates which would be removed at the end of the construction phase with the hardcore base retained but allowed to re-vegetate.

Infrastructure ancillary to the construction and operation of the Proposed Development, for example drainage and surface water management infrastructure, will be required. This would be constructed in accordance with best practice and relevant guidelines, to minimise environmental impact.

3.9. 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, consented and in planning. 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 Guidance 'Assessing Cumulative Landscape and Visual Impact of Onshore Wind Energy Developments'². 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 PKC 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

3.10. Outline Construction Environmental Management Plan

An outline Construction Environmental Management Plan (CEMP) would be prepared as part of the Section 36 application. It is expected that should consent be granted, a suspensive condition would be attached to the consent requiring the submission of a final CEMP and that this would be agreed with PKC prior to construction commencing. The outline CEMP would set out the method statements for constructing Site infrastructure, measures that would be undertaken by contractors to ensure good Site practice with regards to construction practices and environmental management. Such measures would include, for example, the transport and storage of potentially polluting substances such as oils and lubricants as well as waste management.

² NatureScot (2021). *Assessing 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>:



It is expected that no development would commence until the role, responsibilities, and operations to be overseen by an appropriately competent Ecological Clerk of Works (ECoW) have been submitted to and approved in writing by PKC. The appointed person would undertake all activities, and works shall be carried out in accordance with the approved management plans. The ECoW will ensure that during construction, impacts to ecological features and anthropogenic receptors are minimised through best practice, including ensuring water quality is maintained (including for any private water supplies), construction run-off is managed and the potential for disturbance or risk of injury/death is minimised for protected species which may be using the Site on an occasional basis.

3.11. Scoping Question to Consultees

The following questions are directed to consultees:

Question 3.1: Do consultees agree a micro-siting allowance of 50 m to allow flexibility within the project design?

Question 3.2: Do consultees agree that it is appropriate to scope out assessment of decommissioning effects?

4. Legislation, Planning Policy and Guidance

In accordance with the recently published Scottish Renewables “Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farm”, it is not proposed to include a dedicated chapter on planning and energy policies in the EIA Report. Instead, it is proposed that a separate Planning Statement will be submitted in support of the Section 36 application. The Planning Statement will provide an assessment of the Proposed Development in relation to relevant energy and planning policies and other relevant considerations, before weighing up the planning case for the proposal and providing a conclusion on the compliance with policy. Whilst the Planning Statement will not form part of the EIA Report, it will be informed by the conclusions of the EIA Report in assessing the Proposed Development against the provisions of the Development Plan and other relevant material considerations.

Appendix AX of this report sets out the planning and energy policies and other relevant considerations that should be considered by the Applicant in the EIA process.

4.1. Scoping Questions to Consultees

Q4.1: Are consultees in agreement that National and Development Plan policies and other purely planning considerations should be identified and assessed in a standalone Planning Statement and that there is consequently no need to include a dedicated chapter on planning policy in the EIA Report?

5. Landscape and Visual

5.1. Introduction

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

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

In this (Landscape and Visual) section of the Scoping Report, where distances are referenced in relation to the Proposed Development, these refer to the distance from the nearest turbine, based upon current positions shown on **Figure 3.1**.

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

- **Figure 5.1:** LVIA Study Area;
- **Figure 5.2:** Cumulative Wind Farms;
- **Figure 5.3:** Blade Tip ZTV with LVIA Viewpoints;
- **Figure 5.4a-b:** Blade Tip ZTV with Landscape Character;
- **Figure 5.5a-b:** Blade Tip ZTV with Landscape Planning Designations and Wild Land;
- **Figure 5.6:** Blade Tip ZTV with Visual Receptors; and
- **Figure 5.7:** Comparative ZTV.

5.1.1. Legislation, Policy and Guidance

The following policy and guidance documents will be considered in carrying out the assessment:

- National Planning Framework 4 (NPF4) (2023);
- PKC (2019). Perth and Kinross Local Development Plan 2;
- Landscape Institute and IEMA (2013). Guidelines for Landscape and Visual Impact Assessment. Third Edition ('GLVIA3');
- Landscape Institute (2024). Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA3);



- NatureScot (October 2025) NatureScot pre-application guidance for onshore wind farms;
- NatureScot (2017). Visual Representation of Wind Farms. Version 2.2;
- NatureScot (2021). Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments;
- NatureScot (2017). Siting and Designing of Windfarms in the Landscape: Version 3a;
- Landscape Institute (2019). Technical Guidance Note 2/19 Residential Visual Amenity Assessment;
- NatureScot (2024). Guidance on Aviation Lighting Impact Assessment;
- Landscape Institute (2011). Advice Note 01/11 Photography and Photomontage in Landscape and Visual Impact Assessment; and
- Landscape Institute (2019). Visual representation of development proposals. Technical Guidance Note 06/19.

5.1.2. Approach to the LVIA for Repowering Projects

The Proposed Development is a repowering project, and the Proposed Development Site is currently occupied by the operational Green Knowes Windfarm. The operational wind farm is therefore a part of the current baseline situation on the Site. However, the Proposed Development will not in reality be seen in direct relation to the operational Green Knowes Windfarm as it is likely that the turbines would have been removed prior to the construction and operation of the Proposed Development. Following the recently published 'NatureScot Pre-application guidance for onshore wind farms' the Proposed Development will therefore be assessed with two different baseline scenarios:

- Firstly, the **comparative baseline** scenario: this scenario assumes the presence of Green Knowes Windfarm (including turbines and associated infrastructure) as a baseline feature, as it currently occupies the Proposed Development Site. Green Knowes Windfarm is therefore a physical element of the landscape that is seen in views, and which contributes to the perception of the landscape character. In this scenario, the assessment of effects on each landscape and visual receptor considers a comparison between the effects of the operational Green Knowes Windfarm and the Proposed Development.
- Secondly, the **restored baseline** scenario: this scenario assumes that Green Knowes Windfarm has been decommissioned, and the Site restored. In this context the Proposed Development will be added to the Site without consideration of the baseline presence of the Green Knowes Windfarm turbines (although the majority of the access track infrastructure will remain in place as it is to be upgraded and reused for the Proposed Development). In this scenario, the assessment of effects on each landscape and visual receptor considers the effects arising from the addition of the Proposed Development, including upgraded access tracks, to an undeveloped baseline on the Proposed Development Site and does not consider any comparison with the effects of the Green Knowes Windfarm turbines.

As part of the EIA, both of these scenarios will be considered throughout the detailed assessment of effects on landscape receptors, viewpoints and visual receptors as described in this Chapter. It is intended that as part of the supporting graphic information, two detailed

baseline scenario plans will be produced to clearly set out the different parameters of each scenario assessed for the Proposed Development. On this basis reference to the 'Proposed Development' encompasses both these scenarios, without specifically stating this.

Specific to repowering projects, on certain aspects of the LVIA methodology, the recently published NatureScot 2025 guidance contains an updated position, in particular the content and presentation of visualisations which will be taken account of in the detailed LVIA methodology.

5.2. Baseline Description

5.2.1. Proposed Study Area

In accordance with good practice guidance³, the study area for the LVIA of the Proposed Development is planned to cover a radius of 45 km from the nearest turbine, as shown on **Figure 5.1**. Following NatureScot guidance this distance is generally considered to be the maximum radius within which a significant landscape and/or visual effect could arise given the height of the turbines that are being considered (above 150 m blade tip height). Furthermore, it is considered that any significant landscape and visual effects arising from other components of the Proposed Development would be more contained and, as such, the 45 km radius would ensure that these are also captured in the LVIA.

Following a review of the predicted patterns of bare ground theoretical visibility informed by Zone of Theoretical Visibility (ZTV) modelling (**Figure 5.3**) for the Proposed Development, it is considered that a detailed assessment study area with a reduced radius of 20 km will be appropriate to identify any potential significant landscape effects. Further justification for this reduced radius is provided later in this section of the Scoping Report.

5.2.2. Site Context

The core of the 45 km Study Area is characterised by the juxtaposition of the Ochil Hills and the surrounding lowlands. The Ochil Hills extend east to west across a distance of approximately 30 km in this part of central Scotland, surrounded by moderately settled lowlands including the Leven basin to the south and Strathallan and Strathearn to the north (refer to **Figure 5.1**). Beyond these immediate lowlands, the landscape character transitions into:

- the more elevated upland landscapes of highland Perth and Kinross and Stirlingshire to the north and west,
- fertile agricultural lowlands to the north-east associated with the Firth of Tay carselands;
- more diverse agricultural landscapes of Fife beyond the Lomond Hills to the east, and
- the more settled landscapes around the Firth of Forth to the south.

The majority of the land within 10-15 km of the Proposed Development is rural in nature, generally comprising medium to large scale hills associated with the Ochils Hills, and at lower levels containing a pattern of small-scale settlements and associated road networks occurring around the edges of the hills. At distances between approximately 15-25 km, the urban

³ NatureScot. (2017) *Visual Representation of Wind Farms. Version 2.2*



character of the notable cities and towns of Stirling, Perth, Dunfermline, Glenrothes and Crieff define large areas, but the wider landscape is still predominantly rural in nature. At greater distances, the pattern of development broadly contrasts between the north and south of the Study Area. A greater concentration of larger settlements, such as Edinburgh and Grangemouth are located to the south of the Firth of Forth, and Dundee to the north east of the Firth of Tay, which markedly contrast with the absence of medium to large scale settlements in the more elevated and rugged terrain to the north and west of the Study Area.

The M90 dual carriageway traverses the landscape from south to north, connecting Edinburgh and Perth, with its closest sections situated approximately 12 km south-east of the Proposed Development, while the M9/A9 road arcs around the Ochil Hills and the Firth of Forth at minimum distances of 4 km to the north-west of the Proposed Development, also connecting Edinburgh and Perth via Stirling (refer to **Figure 5.6**). Further afield, in the south of the 45 km Study Area, the M80 connects Stirling and Glasgow with the closest sections located over 33 km from the Proposed Development. At the local level, there are few roads that pass through or over the Ochils, with the A823 road the most popular, passing the Site in Glen Devon at relatively close distances of approximately 1 km, while the A91 and A977 follow similar south-west to north-east routes close to the foot of the southern edge of the Ochil Hills.

There are several railway lines in the Study Area, including the main line that runs across the Study Area from Dunblane to Perth, where it splits with separate tracks heading to the north and east, and the main line that runs north from Edinburgh. The Dunblane to Perth line, which runs along roughly the same route as the A9 to the north-west of the Proposed Development is the closest at a minimum of approximately 4 km away. A number of national cycle routes also traverse the Study Area across the lowlands to the south-west, south and east of the Proposed Development (refer to **Figure 5.6**). Long distance walking routes are all situated at greater distances, typically beyond 20 km from the Proposed Development and as a consequence have a limited association with the Site.

The pattern of operational wind farm development across the 45 km Study Area strongly reflects the broad strategic patterns of topography and landscape character across this part of the Central Scotland, avoiding the more valued mountain massif to the north and west, but optimising the more elevated hills where the wind resource is greater (refer to **Figure 5.2**). In Perth and Kinross, Stirling and Clackmannanshire, relatively larger but more infrequent wind farm development is associated with the more upland areas, such as the Ochils, Craigvinean Forest, and the Gargunnock Hills, while across Fife, Falkirk and West Lothian, there are a relatively greater number of smaller wind farms and wind turbine clusters with a sporadic pattern associated with local topography and land use.

5.2.3. Landscape Character

The majority of the Site is located within The Ochils sub-area of the Lowland Hill Ranges Landscape Character Type (LCT) (LCT 382) (refer to **Figure 5.4a**), as defined by Scotland's Landscape Character Assessment (2019) (managed by NatureScot and referred to here as the LCA 2019).

Of this LCT the frequent scarp slopes, located along its edge, and the relatively marked contrast in elevation between the Ochils Hills and the overriding horizontal landform of the surrounding carselands, contribute to the LCT's perceived larger scale. As a result of this juxtaposition, the LCT forms a prominent backdrop to neighbouring lowland areas, such as the Leven basin. However, within the interior of the LCT, there is a stronger expression of upland



character, which is dominated by moorland and forestry covered hills that are occasionally punctuated by large glens.

The LCA 2019 describes the broader characteristics of the Lowland Hill Ranges LCT as follows:

- *“The Sidlaw and Ochil Hills comprise hard volcanic rocks which appear as relatively uniform ridgelines orientated southwest to northeast, contributing to the much wider strategic grain of landscape character defined by the Highland Boundary Fault geology.*
- *Recognisable shapes, peaks and slopes, and ridge profiles, the presence of which is emphasised by their location set within low lying agricultural landscape to the north and south.*
- *Short burns and rivers flowing from dramatic, short steep glens.*
- *Several large glens through the hills.*
- *Often distinctive and conspicuous scarp and dipslopes.*
- *Generally open medium scale landscapes of almost conical summits dominated by grass moorland and upland pasture.*
- *Sweeping patchwork of regular but not geometric patterns on the dipslopes.*
- *Some areas of extensive forestry.*
- *Occasional vertical features such as navigational and telecom masts, follies, and wind turbines which appear prominent in these elevated locations.*
- *Popular use for informal recreation by nearby large centres of population.*
- *A sense of relative tranquillity.*
- *Importance as a backdrop to many settlements in the surrounding low lying agricultural landscapes.*
- *Views within, across and up to this character type.”*

NatureScot provides the following relevant analysis in relation to The Ochils sub-area:

“The hills are drained by a large number of short burns and small rivers, flowing northwards into Strathearn and Strathallan and southwards into the Loch Leven Basin. Most glens are short and steep, some forming river gorges..”

“Though there are areas of improved pasture and even some cultivation within the more sheltered glens, the land is generally of low fertility and the bulk of the agricultural land takes the form of unimproved rough grazing. The Ochils also have a considerable amount of coniferous forestry...the most extensive woodlands are located in the heart of the eastern Ochils, particularly on Innerdowny Hill where a large expanse of Sitka spruce covers a series of upper catchments. The effect is to transform the sparse open landscape of the Ochil summits and to create a sense of enclosure which is absent elsewhere on the hills...”

“In Glen Devon the abandoned field boundaries are visible as a series of low grassy banks. At Blaeberry Hill, high above the Dunning Burn, are the upstanding remains of deserted buildings including a longhouse; the settlement is mentioned in a late medieval charter. More recent settlement is limited to a scatter of farmsteads, concentrated in the less steep eastern part of



the Ochils and often located high on the slopes. Where gradients ease still further, to the east, small hamlets and groups of buildings occur. The hills are popular for informal recreation, but otherwise land use is limited to agriculture and forestry, with limited access. Glen Devon now accommodates a range of tourism and recreation facilities while some of the more prominent hilltops are crowned with telecommunications masts."

Existing operational wind farm developments have been identified as one of the broad characteristics in this LCT and including Green Knowes, Lochelbank, and Binn Eco Park.

The Site occupies a group of moorland hills within the LCT, which are located between Glen Devon to the south and Steele's Knowe and Green Law to the north. Given the topography of the surrounding landscape, it is anticipated that significant effects on landscape character are likely to be contained to parts of the Ochils and the lowlands immediately surrounding the hills, where there is a stronger association between the uplands of the Site within the wider Ochils Hills range, and also their function as an important backdrop to the closer lower lying more settled landscapes to the immediate north and south. At greater distance from the Ochil Hills (and the Proposed Development Site), the levels and geographical extent of effects on landscape character (in particular across the more lower-lying settled areas) are predicted to reduce, the intervening distance weakening the association with the uplands of the Ochils Hills, replaced by closer association with and containment afforded by, the southern hills and northern mountains in the wider study area.. On this basis the LVIA will therefore include an assessment of the effects of the Proposed Development on the LCTs within a 20 km detailed study area.

5.2.4. Landscape Designations

The Site is not subject to any national landscape designations intended to protect landscape quality or scenery, but it is located within the locally designated Ochil Hills Local Landscape Area (LLA). A number of other areas within 45 km of the Proposed Development have been attributed a landscape planning designation. **Figure 5.5a-b** shows these landscape designations with the blade tip ZTV overlain. The designations include nationally important National Scenic Areas (NSAs), Wild Land Areas (WLAs), and Gardens and Designed Landscapes (GDLs) that have been designated by Historic Environment Scotland (HES). There are also a number of locally important LLAs and Special Landscape Areas (SLAs) that have been designated through each relevant Council's Local Development Plan.

In the preliminary appraisal set out in **Table 5-1**, the potential effects of the Proposed Development are considered in respect of all landscape designations, with the exception of GDLs. While the contribution of each GDL will be considered in the evaluation of the sensitivity of landscape character, including its scenic value to visitors, a detailed assessment of effects upon GDLs will be provided in the Cultural Heritage Chapter 9.

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

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

DESIGNATION (Figure 5.5a identification number (ID))	DISTANCE TO NEAREST TURBINE (KM)	NEEDS DETAILED ASSESSMENT WITHIN THE LVIA
Ochil Hills LLA (Figure 5.5a LLA ID 26)	0.0	Yes – the Proposed Development is located in this LLA and there is relatively widespread theoretical visibility across large parts of the designated area at short distances, and as a result there is potential for significant effects to occur.
Ochils SLA (Figure 5.5a SLA ID 21)	3.6	Yes – while there are only some limited areas predicted to receive theoretical visibility of the Proposed Development, they include some popular hill summits, including Ben Cleuch (the highest hill in the Ochils). Given the relatively close distance of these hills to the Proposed Development, there is potential for significant effects to occur.
Cleish Hills LLA (Figure 5.5a LLA ID 7)	9.6	Yes – while the larger forested areas of the LLA experience a strong degree of enclosure, there is theoretical visibility predicted across some open, elevated hill slopes and summits, such as Saline Hill, Easter Cairn, and Knock Hill. Given the uninterrupted views experienced from these hills, there is potential for significant effects, including cumulative effects arising from other operational and consented wind farms, to arise across these areas.
Western Ochils LLA (Figure 5.5a LLA ID 36)	10.5	No - very limited theoretical visibility predicted along the eastern edge of the LLA at distances of over 11 km from the Proposed Development. Significant effects are therefore unlikely to arise upon the character of the LLA.
Forest SLA (Figure 5.5a SLA ID 20)	12.2	No – although some small shards of theoretical visibility predicted, there is no potential for significant effects to arise upon the special qualities of this SLA due to the enclosure of the forestry that encompasses potentially affected areas, and the absence of theoretical visibility across more open parts of the SLA, such as Gartmorn Dam Country Park.
Loch Leven and Lomond Hills LLA (Figure 5.5a LLA ID 24)	13.1	Yes – there is widespread theoretical visibility predicted across Loch Leven, its shores, and the west and north facing slopes of its surrounding hills. Given the open landscape and uninterrupted views that can be experienced from these areas at distances of between 13-20 km, there is potential for significant effects to arise upon the special qualities of this LLA.
Upper Strathearn LLA (Figure 5.5a LLA ID 30)	13.3	Yes , there is widespread theoretical visibility across large parts of the LLA, and the special qualities of this LLA in particular in the more southerly extents are potentially more susceptible to wind farm development in the Ochils, (by contrast with the northern extent of the LLA which has a potentially stronger association with the immediate strath landscape and the surrounding Perthshire highlands.
Lomond Hills LLA (Figure 5.5a LLA ID 17)	16.3	Yes – theoretical visibility is generally limited to west facing slopes across the closest, western edges of the LLA, including the summit of the West (and East) Lomond. Given the open views available towards the Site from the West Lomond, and the short distance between the hill and the nearest parts of the Ochils, there is potential for significant effects to arise upon the LLA's special qualities.

DESIGNATION (Figure 5.5a identification number (ID))	DISTANCE TO NEAREST TURBINE (KM)	NEEDS DETAILED ASSESSMENT WITHIN THE LVIA
Loch Ore and Benarty LLA (Figure 5.5a LLA ID 16)	18.2	No - the Proposed Development would not significantly impact upon the relatively localised setting of the Loch Ore and Benarty LLA in Fife, due to intervening development associated with the settlement of Kelty significantly reducing the susceptibility of potentially affected parts of the SLA.
Sidlaw Hills LLA (Figure 5.5a LLA ID 27)	18.4	No - there is some scattered theoretical visibility predicted across areas of the LLA. Given the intervening distance and the strong association of southern parts of the designation with the Tay Valley and Strathearn, susceptibility to more distant wind farm development would be relatively low. As a result, there would be very limited potential for effects on this LLA.
Keir LLA (Figure 5.5a LLA ID 32)	18.9	No - there is no theoretical visibility predicted across this designated landscape and there is therefore no potential for significant effects.
Upper Forth LLA (Figure 5.5a LLA ID 21)	19.7	No - there is only very limited theoretical visibility predicted across the LLA. Furthermore, due to the stronger association of these landscapes with the Firth of Forth, they are less susceptible to distant wind farm development located to the north. There is therefore very limited potential for effects to arise on the LLA.

Table 5-2 lists the SLAs and LLAs within 45 km of the proposed turbines which would have a limited level of influence to limited, restricted or distant visibility of the Proposed Development, such that there is no potential for significant effects. These LLAs do not need to be assessed within the LVIA. The LLAs are presented in order of distance to the Proposed Development.

Table 5-2: SLAs and LLAs with Limited, Restricted or Distant Visibility of the Proposed Development

• Sma' Glen and Glen Almond LLA (20.9 km); • South West Dunfermline LLA (21.0 km); • Southern Hills LLA (23.0 km); • River Earn (Comrie to St Fillans) NSA (23.5 km); • Tay Coast LLA (24.7 km); • Cullaloe Hills and Coast LLA (24.9 km); • South Bo'ness SLA (25.0 km); • Animath Hill SLA (26.8 km); • Uamh Bheag LLA (27.0 km); • Letham Hill LLA (27.2km); • Forth Coast SLA (27.3 km); • Glen Quaich LLA (27.8 km); • Ferry Hills LLA (27.9 km); • Bathgate Hills SLA (29.1 km); • Slamannan Plateau/Avon Valley SLA (29.2 km); • Southern Forth Coast SLA (30.4 km); • Inchcolm LLA (30.9 km); • River Tay (Dunkeld) NSA (31.4 km); • Dundas SLA (31.5 km); • Wemyss Coast LLA (33.3 km); • Craigie Hill SLA (33.4 km); • Lower Almond SLA (35.1 km);	• Rednock LLA (36.2km); • Almond and Linhouse Valleys SLA (37.0km); • Upper Almond SLA (37.0km); • Blackridge Heights SLA (37.2km); • Corstorphine Hill SLA (37.3km); • Gogar SLA (37.8km); • Ratho Hills SLA (37.9 km); • Campsie Fells LLA (38.2 km); • The Trossachs NSA (38.6 km); • Inverleith SLA (39.8 km); • Water of Leith, New Town SLA (40.6 km); • Dura Den LLA (41.6 km); • Castle Rock SLA (41.8km); • Calton Hill SLA (42.0 km); • Largo Law LLA (42.1 km); • Water of Leith - West SLA (42.4 km); • Holyrood, Duddingston and Prestonfield SLA (42.6 km); • Pentland Hills SLA (42.6 km); • Craiglockhart SLA (42.8 km); • Pentlands SLA (42.9 km); • Loch Rannoch and Glen Lyon NSA (43.8 km);
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• Creag Gharbh LLA (35.5 km); • Cammo SLA (35.9 km); • Tarvit and Ceres LLA (36.2km);	• Braids, Liberton, Mortonhall SLA (44.0 km); • East Neuk LLA (44.2 km); and • Tay Coast LLA (44.5 km).
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Table 5-3 lists the SLAs and LLAs within 45 km of the proposed turbines which would have no theoretical visibility of the Proposed Development and are therefore not required to be assessed within the LVIA.

Table 5-3: SLAs and LLAs With No Theoretical Visibility of the Proposed Development

• Denny Hill SLA (26.9 km); • Kilsyth Hills SLA (31.9 km); • Inchkeith LLA (38.1 km); • Loch Tay LLA (38.4 km); • Bar Hill LLA (38.5km); • Strath Tay LLA (40.8 km); • Princes Street Gardens SLA (41.6 km); and • Glazert Valley LLA (41.8 km).

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

- Ochil Hills LLA;
- Ochils SLA;
- Cleish Hills LLA;
- Loch Leven and Lomond Hills LLA;
- Upper Strathearn LLA: and
- Lomond Hills LLA.

The detailed assessment in the LVIA will consider the special qualities of these local landscape designations.

Wild Land

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

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

- will support meeting renewable energy targets; or,*



- ii. *is for small scale development directly linked to a rural business orcroft, or is required to support a fragile community in a rural area.*

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

The Proposed Development is not located within a WLA. Within the wider 45 km study area here are only two WLAs, as shown in conjunction with the scoping layout ZTV in **Figure 5.5a**. Ben More - Ben Ledi WLA (WLA 07) and Ben Lawers WLA (WLA 12) are located 37 km and 44 km from the Proposed Development respectively. Consequently, it is considered that due to the large separation distances and very limited extent of predicted visibility illustrated, there are unlikely to be significant effects of the Proposed Development on the perception of defined wildness qualities. On this basis it is proposed that WLAs are scoped out of detailed assessment in the LVIA.

5.2.5. Visual Receptors and Visual Amenity

The LVIA will undertake an assessment of the likely visual effects of the Proposed Development by considering its wider effects on visual amenity, particularly in relation to principal visual receptors (shown on **Figure 5.6**), including settlements, roads, railway lines, national cycling routes, walking routes, and a selection of viewpoints (shown on **Figure 5.3** and listed in **Table 5-4**). In accordance with the EIA Regulations, this assessment will focus on identifying those visual receptors that have the potential to be significantly impacted by the Proposed Development.

5.2.6. Proposed LVIA Viewpoints

A preliminary representative viewpoint list is presented in **Table 5-4**. The locations of the viewpoints and the blade tip ZTV are shown on **Figure 5.3**.

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

Table 5-4: Preliminary Viewpoints

ID	Viewpoint Name	Grid Ref. (Preliminary)		Distance To Nearest Turbine (km)	Visual Receptors Represented
1	A823, near Wind farm Access	297770	705294	1.3	Road users
2	A823, near Hunthall	296184	705353	1.4	Road users and residents

3	Castlehill Reservoir	299680	703260	3.0	Road users and recreational walkers
4	Innerdownie Hill	296664	703138	3.4	Recreational hill walkers
5	Beld Hill	298903	711144	3.8	Recreational hill walkers
6	Innerdouny Hill	303218	707319	4.1	Recreational hill walkers
7	Victoria Road, Auchterarder	294305	712389	5.4	Residents
8	Gleneagles – Halfway House	290230	710905	6.7	Golfers
9	A823, north of Merryhills (Rumbling Bridge)	301425	699946	6.8	Road users
10	A824, Aberuthven	297273	715074	7.6	Residents and road users
11	Ben Cleuch	290295	700639	8.4	Recreational hill walkers
12	A823, south of Powmill	302375	697258	9.6	Road users
13	B8062, Innerpeffray Wood	291651	718405	12.0	Road users
14	Minor road, north of Braco	284002	710448	12.3	Road users
15	A9 / B934 junction	303267	719018	12.4	Road users
16	M90, near Cleish	312933	698032	16.3	Road users
17	A85 Layby	295651	724029	16.6	Road users
18	Knock of Crieff	286775	722908	18.1	Recreational walkers
19	Loch Leven Visitor Centre, Vane Farm	315978	699118	18.6	Recreational walkers/ visitors
20	A911, near Kinnesswood	318100	702158	19.7	Road users and residents
21	West Lomond Viewpoint	319729	706641	20.6	Recreational hill walkers
22	Kinnoull Hill	313656	722710	21.2	Recreational walkers

Visualisations and figures will be produced to NatureScot's standards, as set out in both the 'Visual Representation of Wind farms: Version 2.2' (February 2017) and the more recent position set out in 'NatureScot pre-application guidance for onshore wind farms' (2025). In line with NatureScot guidance, photomontages illustrating the proposed turbines will be prepared for viewpoints within a 20 km radius of the outermost turbines associated with the Proposed Development.

5.2.7. Residential Properties

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

5.2.8. Aviation Lighting

Turbines at or greater than 150m in height are likely to require visible red, medium intensity (2,000 candela) lights fitted to the turbine nacelles in accordance with International Civil Aviation Organisation (ICAO) and Civil Aviation Authority (CAA) guidance, to ensure civil aviation safety at night. The details of the lighting requirements for the Proposed Development are currently being defined along with potential mitigation measures (Refer to **Section 13**). Relevant details of the confirmed visible aviation lighting scheme and any proposed mitigation agreed with the CAA will be provided in the LVIA.



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

SLR has undertaken Aviation Lighting Impact Assessments and visualisations for several other wind farm projects in the UK, and together with the recently published guidance produced by NatureScot, this will inform the approach to assessment of turbine lighting and the basis of our professional judgement about the level of effect arising from the proposed lighting. This assessment will include an appraisal of effects for each relevant receptor, including baseline landscape character within 20 km and all viewpoints in the 45 km study area where there is potential for significant effects to be experienced.

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

- Viewpoint 7: Victoria Road, Auchterarder;
- Viewpoint 9: A823, north of Merryhills (Rumbling Bridge); and
- Viewpoint 16: M90, near Cleish.

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

5.2.9. Cumulative Development

The assessment of cumulative effects describes the effects arising from the addition of the Proposed Development to a cumulative baseline of operational, under construction, consented and application stage wind farms. As a part of the repowering Proposed Development, the assessment of cumulative effects will be undertaken for both the comparative and restored baseline scenarios. This assessment will include supporting graphics such as cumulative ZTVs and cumulative wirelines.

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



cumulative effects assessment focusing on the contribution of the Proposed Development to effects arising, in addition to consented and application stage projects.

In accordance with NatureScot and Scottish Government guidance it is not usual to assess scoping stage sites unless they are of particular relevance to the Proposed Development (e.g. by geographical location), where sufficient detail is available to inform the assessment, and where they are likely to come forward to application in the timescales set for the LVIA of the Proposed Development.

5.3. Proposed Scope of Assessment

The following key sensitivities will form the focus of the LVIA (considering the two baseline scenarios):

- potential impacts on the landscape of the Site;
- potential effects on landscape character, in particular LCT units within a 20 km radius of the Proposed Development;
- potential effects on the special qualities of the Ochil Hills LLA; Ochils SLA; Cleish Hills LLA; Loch Leven and Lomond Hills LLA; Upper Strathearn LLA; and Lomond Hills LLA.
- potential effects on the principal visual receptors within the study area, including those experienced by receptors located at settlements, roads, recreational routes, including Core Paths, and on popular hills within the immediate context of the Proposed Development;
- potential cumulative landscape and visual effects, in particular those that would arise with other wind farm developments located in the Ochil Hills;
- the visual amenity experienced at residential properties up to 2 km of the Proposed Development; and
- potential effects associated with the visibility of the Proposed Development at night due to visible aviation lighting, the assessment of which will run through LVIA (reflecting NatureScot guidance), as opposed to being a stand-alone section.

5.4. Assessment Methodology

5.4.1. Assessment Approach

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

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

The geographic extent over which the landscape and visual effects will be experienced is also assessed, which is distinct from the size or scale of effect. This evaluation is not combined in the assessment of the level of magnitude but instead is used in determining the extent over which effects are experienced and informing judgements on significance. The geographic extent of the effects will vary depending on the specific nature of the Proposed Development



and is principally assessed through analysis of the geographical extent of visibility of the Proposed Development across the landscape or principal visual receptor.

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

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

SLR generally adopts a precautionary approach which assumes that significant landscape and visual effects from commercial wind energy development will typically introduce adverse effects, although positive or neutral effects may arise in certain situations.

5.4.2. Baseline Survey Methodology

Desk Study

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

The desk study also utilises Geographic Information System (GIS) and Resoft Windfarm software to explore the potential visibility of the Proposed Development. The resultant ZTV diagrams and wirelines provide an indication of where there is greater visibility predicted and in turn which landscape and visual receptors should form the focus of the impact assessment.

Field Survey

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

- A preliminary familiarisation around the study area in order to visit the aspects of the landscape and visual resource that have been identified through the desk study and verify the extent to which their established characteristics are expressed and patterns of predicted theoretical visibility, to inform judgements of importance. Important features and characteristics that could be susceptible to change from the Proposed Development that have not become apparent through the desk study are also identified, and particularly sensitive receptors are noted in order to inform the design process.
- A visit to the Site and its surrounding landscape, in order to inform judgements on the potential of the Site for the Proposed Development and to identify the most suitable areas

for development in landscape and visual terms, along with any constraints that may restrict the developable area.

- Further field survey around the wider study area, concurrent with the design process for the Proposed Development, to identify those receptors that are likely to be particularly important to inform the design iteration (including consideration of turbine heights and numbers), and in the subsequent impact assessment of the Proposed Development.
- The identification of representative viewpoints to include in the landscape and visual assessment, including a wide range of receptors, landscape character, and directions and distances from the Proposed Development (and includes the identification of viewpoints from which a full assessment of aviation lighting will be carried out).

5.4.3. Methodology for the Assessment of Effects

The LVIA will follow SLR's methodology devised specifically for the assessment of wind farm developments which has been adapted to take account of the Proposed Development repowering parameters, and which generally accords with 'Guidelines for Landscape and Visual Impact Assessment: Third Edition'⁴ ('GLVIA3'), the key source of guidance for LVIA. The methodology will be provided in full in the LVIA and will include consideration of recent NatureScot Guidance on LVIA for repowering proposals. The assessment of potential effects from the introduction of aviation lighting will run through the LVIA, again reflecting NatureScot guidance (2024).

The sensitivity of the landscape or visual receptor and the magnitude of change that will result as a consequence of the addition of the Proposed Development (encompassing both comparative and restored baseline scenarios) are informed by various factors.

Sensitivity of Receptors

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

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

Resource / Receptor Value

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

Susceptibility to Change

⁴ Landscape Institute and Institute of Environmental Management and Assessment. (2013) *Guidelines for Landscape and Visual Impact Assessment: Third Edition*

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

For visual receptors the assessment of susceptibility takes into consideration the occupation or activity, of people experiencing the view, and the extent to which their attention or interest may therefore be focused on the view and appreciation of wider visual amenity.

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

Magnitude of Change

This assesses the type and amount of change predicted to occur in relation to the landscape or visual receptor. Factors influencing the magnitude of change include the size, scale and nature of change. As explained above SLR assess the; geographical extent; and duration and reversibility of effect separate to this assessment of magnitude, and in relation to wider judgements on the level of change identified and whether or not this change is significant.

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

Significance of Effect

The assessments of sensitivity of the landscape and visual receptors, and the magnitude of change that will result from the addition of the Proposed Development, will be used in addition to professional judgement, to inform and predict the level of effects arising and likely significance of the effects.

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

Table 5-5: Preliminary Viewpoints

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

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

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

5.5. Proposed Mitigation & Enhancement

The design iteration of the layout of the Proposed Development, turbines, aviation lighting and associated infrastructure, is a vital part of the EIA process, which can make the biggest contribution to mitigate potential landscape and visual effects. A key design objective will be creating a wind farm which is appropriate for the existing landscape character and visual features of the area. Siting and design objectives identified for the Green Knowes Windfarm will be appraised, their relevance to the siting and design of the Proposed Development (considering an updated policy context and changes to the receptor baseline) identified. The design of the Proposed Development will evolve as part of an iterative process which aims to provide an optimal design in environmental terms, as well as technical and economic terms, and the identification of updated design objectives and mitigation of landscape and visual effects will be a central consideration in this process.

5.6. Potential Impacts

The LVIA will consider the potential effects of the Proposed Development (and the two baseline scenarios for repowering), during the following development stages:

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

Landscape and visual receptors may or may not be affected at each development stage.

5.6.1. Categories of Effects

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

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

5.7. Receptors & Impacts Scoped In or Out of Assessment

The LVIA will include an assessment of effects on the landscape and visual receptors that are summarised in **Section 5.3**, during the Proposed Development's construction and operational



stages. Based on the current layout, it is proposed that all other landscape and visual receptors are scoped out of the LVIA.

5.8. Scoping Questions to Consultees

Q5.1: Do you have any comments on the proposed methodology, in particular in relation to the LVIA of the repowering of the Site?

Q5.2: Are you in agreement with the proposed study areas?

Q5.3: Are you in agreement that the assessment of effects on landscape character should focus on those LCTs located within 20 km of the Proposed Development?

Q5.4: Are you in agreement that the assessment of the effects on landscape designations should focus on those areas highlighted as being relevant to the LVIA in **Table 5-1**?

Q5.5: Are you in agreement that Wild Land Areas in the 45 km study area can be scoped out of the LVIA?

Q5.6: Do you have any comments or suggestions in relation to the preliminary viewpoint locations listed in **Table 5-4**?

Q5.7 : Do you have wind energy datasets which contain operational and consented aviation lighting specifications to inform the baseline and cumulative assessments?

6. Ornithology

6.1. Introduction

This section of the Scoping Report will set out how the Ornithology chapter of the EIA Report will set out the desk study and survey work undertaken to define the baseline of the Proposed Development and the surrounding area. The results of this work would be summarised (with details presented in full in Technical Appendices accompanying the EIA Report) and would provide the basis for the determination of potential effects on any ornithological features that are considered to be important.

6.2. Study Area

For the purposes of this report, the 'Site' of the Proposed Development has been defined as the area encompassed by the red line boundary in which the proposed turbine locations and associated infrastructure are located.

6.2.1. Data Sources

A desk study would be (and in some cases has already been) undertaken to identify records of protected species, habitats and designated sites to inform the assessment:

- A 10 km search buffer was used to identify, and consider connectivity, to European Sites; this was extended to 20 km for Special Protection Areas (SPAs) designated for pink-footed *Anser brachyrhynchus* and greylag goose *Anser anser* due to their ranging distances.
- Data requests from:
 - Tayside & Fife Raptor Study Group, including records of Schedule 1 raptors within 2 km (extending to 6 km for white-tailed *Haliaeetus albicilla* and golden eagle *Aquila chrysaetos*) during the last 10 years
 - The Royal Society for the Protection of Birds (RSPB) for records of bird species of elevated conservation importance e.g., those species red listed within Birds of Conservation Concern 5 (BoCC5)⁵ and Schedule 1 species, within 2 km of the Site during the last 10 years.
- Any other relevant Environmental Statements/EIA Reports or technical reports from other developments or Proposed Developments in the local area, including:
 - Green Knowes Windfarm Extension ES Technical Appendix A9.1, Ornithology Survey Report⁶;

⁵Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, 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: 723-747.

⁶ Green Knowes Windfarm Extension Technical Appendix A9.1 Ornithology Survey Report Natural Research Projects Ltd. October 2015

- Green Knowes Windfarm Extension, black grouse *Lyrurus tetrix* monitoring survey 2023⁷.

6.2.2. Field Surveys

NatureScot guidance⁸ recommends a default baseline survey programme of two years to ensure any interannual variation is recorded to allow for a robust assessment of effects on ornithology. In their wind farm repowering guidance⁹, NatureScot note that: *'For clarity, 'repowering' in the context used here refers to those proposals entirely contained within the envelope of the existing turbines and access tracks; any extension to the spatial extent (or 'footprint') of development should be treated as a new site and considered for survey accordingly'*

As the Proposed Development includes extensions outwith the footprint of the operational turbines, survey guidelines for new developments have been followed. However, it is proposed that one year of survey is sufficient to inform assessment of the Proposed Development. This is because previous findings from surveys for the Green Knowes Windfarm Extension broadly align with findings from the ongoing 2025 surveys for the Proposed Development, and the 2025 surveys indicate relatively low activity for most species within or near the Site.

Based on initial scoping of the Proposed Development Site and surrounding area and previous surveys undertaken for the existing Green Knowes Windfarm is likely that this area supports protected and/or notable species including breeding Schedule 1 species such merlin, osprey and goshawk. The Site may also support European Union (EU) Birds Directive Annex I species (e.g. golden plover and short-eared owl). Surveys were therefore aimed at detecting such species (referred to as 'target species') and followed the methodologies detailed in the guidance below. **Table 6-1** provides details of updated bird surveys undertaken across the 2025 breeding season, and those which are underway in the 2025/26 non-breeding season.

Distribution and Abundance surveys require only one year of fresh surveys (Nature Scot 2014). Scarce Breeding Bird Surveys and Moorland Breeding Bird Surveys were undertaken by WSP over the 2025 breeding season (April 2025 – August 2025 inclusive), broadly following the methods outlined in Brown and Shepherd (1993)¹⁰ and Hardey *et al.* (2013)¹¹.

Flight activity surveys conducted from two vantage points (VPs) following NatureScot guidance will be used to assess collision risk. Surveys began in April 2025 and will continue until February 2026. Surveys began in April due to late commission of the works. However, survey effort was caught up via additional watches in May 2025 to achieve the required 36 hours per VP in the breeding season. The absence of data for March is not considered a limitation and the remaining coverage across five months is considered sufficient for a good understanding of breeding season flight activity over and near the Site. Data to inform assessment of the Proposed Development will be supplemented by flight activity survey results for the proposed extension of the operational Green Knowes Windfarm in 2012-2014.

⁷ Green Knowes Windfarm, Black grouse survey 2023, JKecology, July 2023.

⁸ Recommended bird survey methods to inform impact assessment of onshore windfarms. Nature Scot. March 2025.

⁹ Repowering onshore wind farms: bird survey requirements. Nature Scot. November 2014.

¹⁰ Brown, A. F., and Shepherd, K. B. (1993). A method for censusing upland breeding waders. *Bird Study*, 40: 189-195.

¹¹ Hardey, J., Crick, H.Q.P., Wernham, C.V., Riley, H., Etheridge, B. and Thompson, D.B.A. (2013). *Raptors. A field Guide for Surveys and Monitoring*. SNH, Inverness. (2013). *Raptors: A Field Guide for Surveys and Monitoring*. SNH, Inverness.

Table 6-1: Summary of Ornithology Surveys

Survey Type	Breeding Season 2025	Non-breeding Season 2025/26
Vantage Point (VP) survey	36 hrs per VP April to September	36 hrs per VP October to February
Schedule 1 breeding raptor survey	Four surveys of the Site plus 2 km buffer April to July	-
Moorland breeding bird survey	Four surveys of the Site plus 500 m buffer April to July	-

6.3. Baseline Description

6.3.1. Designated Sites

There are three National Network Sites within 20 km of the Site, these include the following sites which have geese as a designated feature (**Table 6-2**).

Table 6-2: Designated Site Information

Designated Site	Distance From Site	Relevant Qualifying Interests
South Tayside Goose Roosts SPA	5.28 km west	• Greylag goose, non-breeding; • Pink footed goose, non-breeding; and • Waterfowl assemblage, non-breeding
Loch Leven SPA	12.04 km south-east	Pink-footed goose, non-breeding ¹²
Firth of Forth SPA	14.93 km south-west	Pink-footed goose, non-breeding ¹³

There are no other internationally designated ornithological sites (SPAs or Ramsar sites) within 20 km of the Proposed Development, nor other Sites of Special Scientific Interest (SSSIs) within 10 km citing bird interests.

Given the habitats present, and the Site's upland location, it is considered highly unlikely that the breeding wigeon and non-breeding waterfowl assemblage would make regular use of the Site. However, non-breeding pink-footed goose and greylag goose associated with South Tayside Goose Roosts SPA, Loch Level SPA and Firth of Forth SPA could feasibly commute through the Site and be functionally linked.

The Site does not represent suitable lowland agricultural habitat for goose foraging. Flight activity surveys from 2012-2014 for the proposed extension of the operational Green Knowes Windfarm identified 47 flights by 2,286 pink-footed geese and two flights totalling 47 birds of

¹² Qualifying species also include cormorant, gadwall, goldeneye, pochard, shoveler, teal, tufted duck, whooper swan and waterfowl assemblage (non-breeding)

¹³ Qualifying species also include bar-tailed godwit, common scoter, cormorant, curlew, dunlin, eider, golden plover, goldeneye, great crested grebe, grey plover, knot, lapwing, long-tailed duck, mallard, oystercatcher, red-breasted merganser, red-throated diver, redshank, ringed plover, scaup, shelduck, Slavonian grebe, turnstone, velvet scoter, wigeon and waterfowl assemblage (non-breeding), along with sandwich tern (passage)

greylag goose. Flight activity surveys in the 2025/26 non-breeding season have thus far recorded two flights by 66 individuals of pink-footed goose and no greylag goose flights. It is anticipated that there will be a relatively low number of goose flights based on previous survey results. Further, those flights are anticipated to mainly be above collision risk height. I.e., considering the lack of suitable foraging habitat, it is considered unlikely that significant numbers of pink-footed geese and greylag geese will cross the Site on regular commuting flights at heights that put them at risk of collision with turbines.

Habitats Regulation Assessment Screening will be undertaken to allow the competent authority to determine if the Proposed Development could result in Likely Significant Effects on the internationally designated sites and their qualifying interests.

6.3.2. Protected and Notable Species

Records for protected and notable species were taken from the 2015 Green Knowes Windfarm extension EIA, ongoing black grouse surveys as part of Green Knowes Black Grouse Management Plan and the 2025 breeding-season surveys undertaken as part of the proposed repowering. T&FRSG have not responded to an August 2025 data request and the RSPB had no relevant data that matched the search criteria.

6.3.3. 2015 Green Knowes Windfarm Extension Environmental Statement

Flight activity surveys undertaken between the 2012 breeding season and the 2013/14 non-breeding season recorded eleven target species: pink-footed goose, greylag goose, white-tailed eagle, red kite *Milvus milvus*, osprey *Pandion haliaetus*, hen harrier *Circus cyaneus*, merlin *Falco columbarius*, peregrine *Falco peregrinus*, short-eared owl *Asio flammeus*, golden plover *Pluvialis apricaria* and curlew *Numenius arquata*. Of these, pink footed goose (47 flights by 2,286 birds), hen harrier (17 flights of individual birds) and short-eared owl (45 flights by 50 birds) were recorded more than ten times.

The only record of breeding Schedule or Annex I raptors was a 2012 breeding attempt by short-eared owl. There were no breeding attempts in 2013.

Five curlew and ten snipe *Gallinago gallinago* territories were recorded during the 2012 breeding season. None of the curlew territories and only one of the snipe territories was within the 500m assessment buffer. The remainder were north of the Development.

6.3.4. Historic Black Grouse Data

The latest black grouse monitoring report for 2023 shows that the only observation of a black grouse was a single male observed in flight approximately 1.5 km from the Site. Surveys in 2020 recorded two individual flights of a male and a female black grouse.

6.3.5. Field Surveys (April 2025 – Present)

No Schedule 1 raptor species were recorded breeding within the Site, although goshawk, red kite, short-eared owl, osprey, white-tailed eagle, peregrine, hen harrier and merlin were all recorded during the targeted scarce and moorland breeding bird surveys. Observations indicated that osprey and short-eared owl were holding territory towards the maximum survey extent of 2 km beyond the Site. Goshawk and red kite were also likely to be breeding in the wider area beyond the Site.



Only two wader observations were recorded during SBBS surveys across the breeding season: a snipe was observed displaying ('drumming') on the northern boundary of the Site in April and a Curlew was heard calling from the survey buffer to the north-west of the Site in May.

Flight activity surveys in the 2025 breeding season recorded six target species in-flight within 500m of the Site: golden eagle, red kite, merlin, hen harrier, herring gull *Larus argentatus* and lesser black-backed gull *Larus fuscus*. Only two species were recorded more than four times across the surveys: lesser black-backed gull (recorded 20 times) and red kite (recorded 18 times).

Flight activity surveys in the 2025/26 non-breeding season are ongoing, having commenced in September 2025. Three target species have been recorded to date: red kite, pink-footed goose and golden plover.

There have been some changes to the local bird assemblage since the Green Knowes Windfarm Extension in 2015, notably an increase in red kite flights and a reduction in curlew and snipe breeding territories.

Existing baseline data will be supplemented with the completion of the 2025/26 non-breeding season flight activity surveys that will conclude in February 2026.

6.4. Proposed Scope & Methodology of Assessment

The assessment reported in the EIA Report would be defined by the outcome of the on-going bird surveys that would continue as the EIA progresses. However, based on the desk study appraisal, survey results to date and professional judgment, the following features are likely to be taken forward for detailed assessment:

- Red kite; and
- Pink-footed goose..

Other species recorded from surveys to date are likely to be scoped out based on factors such as low rate of occurrence and distance of activity from the Site:

- Golden eagle;
- White-tailed eagle;
- Osprey;
- Merlin;
- Hen harrier;
- Goshawk;
- Short-eared owl;
- Curlew;
- Snipe; and
- Herring gull.

Should any additional sensitive receptors be identified during surveys and consultation, these would be included within the assessment as appropriate. The likelihood and significance of



effects upon important ornithological features because of the Proposed Development would be considered.

The assessment would be undertaken in accordance with best practice guidance including the following:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine¹⁴;
- The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations);
- The Wildlife & Countryside Act 1981 (as amended);
- The Nature Conservation (Scotland) Act (2004);
- The Wildlife and Natural Environment (Scotland) Act 2011;
- Recommended bird survey methods to inform impact assessment of onshore wind farms¹⁵;
- Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas¹⁶;
- Wind Farm impacts on birds - Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model¹⁷; and
- Assessing the cumulative impacts of onshore wind farms on birds¹⁸.

The ornithology EIA Report chapter would also contain:

- Collision Risk Analyses (CRA) based on NatureScot guidance (2025) where required;
- Cumulative assessment would be carried out in accordance with recent guidance¹⁹, which states that such assessments are required at the Natural Heritage Zone (NHZ) scale;
- Consideration of national and local planning policies, the outcome of consultation; and
- Details of any mitigation identified.

An Ornithology EIA Report chapter would summarise the findings of the desk study, surveys and consultation. This would form the baseline against which the potential impacts of the Proposed Development, alone and cumulatively with other wind farm developments, would be assessed (based on the nature and magnitude of the changes because of the Proposed Development and the importance of the ornithological features). Any mitigation necessary would be identified, and residual effects with this in place would be determined.

¹⁴ Chartered Institute of Ecology and Environmental Management. . Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. 2022;

¹⁵ Recommended bird survey methods to inform impact assessment of onshore windfarms. Nature Scot. March 2025.

¹⁶ Guidance note - Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas. Nature Scot. March 2025

¹⁷ Wind farm impacts on birds - Use of Avoidance Rates in the NatureScot Wind Farm Collision Risk Model. Nature Scot. September 2025 v4

¹⁸ Guidance - Assessing the cumulative impacts of onshore wind farms on birds. Nature Scot. March 2025

¹⁹ Guidance note - Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas. NatureScot March 2025.



It is important to note that the assessment would not only consider the overarching nature conservation importance of a species recorded but also take into consideration the importance of the Site for that species. This would be judged based on the habitats present and the level of use. To illustrate the rationale of this approach, the value of a site where a single individual of high nature conservation importance was rarely recorded would be extremely limited.

Adverse effects would be assessed as being significant if the favourable conservation status of an ornithological feature would be lost due to the Proposed Development. Beneficial effects would be assessed as those where a resulting change from baseline improves the quality of the environment (e.g. increases species diversity, increases the extent of a particular habitat etc., or halts or slows an existing decline).

The decision as to whether the conservation status of an ornithological feature would be affected would be made using professional judgement. This would draw on the information produced through the desk study, field survey and assessment of how each feature is likely to be affected by the Proposed Development. A similar procedure would be used where designated sites may be affected by the Proposed Development, except that the focus would be on the effects on the integrity of each site.

In line with the EIA Regulations, the ornithological impact assessment would only consider those effects that are likely to be significant.

6.5. Proposed Mitigation & Enhancement

Construction mitigation and environmental protection measures would be implemented via a CEMP.

A Schedule of Mitigation will be provided in the EIA Report to summarise all mitigation measures identified that are considered necessary to protect the environment prior to and during construction and operation of the Proposed Development.

The evolving design of the Proposed Development will also take account of survey results to date e.g., by designing in avoidance of areas with high activity from sensitive receptors where possible.

As a condition of planning for the operational Green Knowes Windfarm, a Habitat Improvement Area (HIA) for black grouse has been created. Monitoring of the HIA to determine its attractiveness to black grouse has been undertaken. The results of the last two monitoring surveys in 2020 and 2023 indicate no usage of the HIA and limited observations of black grouse in a wider survey area extending to 1.5km beyond the HIA. In 2020, there were only two observations of black grouse and no evidence of lekking, and in 2023 one male seen in flight north of the survey area.

Records from monitoring indicate a declining population within the survey area. In 2017, there were several records of birds utilising the HIA, most were feeding/loafing and one bird was observed lekking. However, as a precaution, a standoff of 750m from the HIA will be maintained



for new turbine locations following guidance on the predicted maximum disturbance distance for lekking black grouse²⁰.

6.6. Potential Impacts

The potential impacts on important ornithological features from the construction and operation of the Proposed Development on ornithological receptors, will be considered in detail within the EIA for each of the receptors. Potential effects broadly include the following:

- Temporary disturbance during construction;
- Collision risk;
- Operational displacement; and
- Barrier effects causing disruption of flight lines due to the increased height or altered location of turbines.

6.7. Scoping Questions to Consultees

Q6.1: Do consultees agree with the proposed ornithological survey scope and methodology?

²⁰ 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.

7. Ecology

7.1. Introduction

This section of the EIA Scoping Report considers the scope of work required to assess potential significant effects associated with ecology (habitats and non-avian animal species), during the construction and operational phases of the Proposed Development. Ornithological effects are considered separately (refer to **Section 6**).

7.2. Baseline Description

An initial desk-based study was undertaken in September 2025. The Study Area considered statutory designated sites within 10 km, non-statutory designated sites within 2 km, protected / notable species records within 2 km and bat records within 10 km of the Site boundary. Desk study data was obtained from those sources considered to provide relevant ecological data and included:

- NatureScot SiteLink (NatureScot, 2025);
- National Biodiversity Network Atlas (NBN Atlas, 2025) – records permitted for commercial use (Excluding records under Creative Commons with attribution non-commercial (CC-BY-NC));
- Ancient Woodland Inventory (AWI) of Scotland (NatureScot, 2000);
- Carbon and Peatland 2016 Map of Scotland (Scotland's Environment, 2016); and
- Multi Agency Geographic Information for the Countryside (MAGIC, 2025).

In addition, a review of ecological data associated with available planning documents for the below developments was undertaken:

- Green Knowes Repowering Feasibility Report (ERM, 2025);
- Green Knowes Windfarm Extension Environmental Statement (ES) Chapter 8.0: Ecology (Arcus, 2015) (now withdrawn);
- Craighead Wind Farm Environmental Impact Assessment (EIA) Report Chapter 9: Ecology (Greencat Renewables, 2024);
- Appendix 9.1: Habitats & National Vegetation Classification (NVC) Survey (IMTECO, 2024);
- Appendix 9.2: Protected Species Report (IMTECO, 2024); and
- Appendix 9.3: Bat Survey Report (IMTECO, 2024).

7.3. Designated Sites

The data search for sites of terrestrial ecology conservation interest returned one site of international importance (Special Area of Conservation (SAC)) and eleven sites of national importance (SSSI) within 10 km of the Site Boundary. These are detailed in **Table 7-1** and shown on **Figure 7.1**.

Table 7-1: Statutory Designated Nature Conservation Sites within 10 km

Site Name	Designation	Qualifying/Notified Ecological Features	Distance and Direction from Proposed Development Boundary
Glen Queich	SSSI	- lowland neutral grassland; and - rocky slopes	2.3 km southeast
Kincardine Castle Wood	SSSI	lowland mixed broadleaved woodland	2.3 km north
Bog Wood and Meadow	SSSI	- fen meadow; and - scrub	2.8 km northwest
Gleneagles Mire	SSSI	basin fen	4.3 km northwest
Dollar Glen	SSSI	- beetle <i>Stenus glacialis</i>; - subalpine calcareous grassland; and - subalpine flushes	4.5 km south
Back Burn Wood and Meadows	SSSI	- lowland acid grassland; and - upland mixed ash woodland	5.5 km south
Devon Gorge	SSSI	upland mixed ash woodland	6.4 km south
Carsebreck and Rhynd Lochs	SSSI	- hydromorphological mire range; and - raised bog	6.8 km northwest
Gartwhinzean Meadow	SSSI	lowland neutral grassland	7.8 km south
Shelforkie Moss	SAC	- active raised bog; and - degraded raised bog	8.0 km northwest
Damhead Wood	SSSI	wet woodland	8.2 km south
Wether Hill	SSSI	- blanket bog; - lowland calcareous grassland; and - upland oak woodland	9.9 km southeast

7.4. Non-statutory Designated Sites

Four Local Nature Conservation Sites (LNCS) occur within 2 km of the Site boundary (shown on **Figure 7.2**):

- Glen Devon Woods;
- Glenquey Moss;
- Glenquey; and
- Tonguey Faults.

The Ancient Woodland Inventory (AWI) showed no stands of ancient woodland occurring within the Site Boundary. Eight stands of ancient woodland occurred within 2 km of the Site Boundary. These are detailed in **Table 7-2** and shown on **Figure 7.2**.

Table 7-2: Ancient Woodland Inventory Sites within 2 km

Wood Name (where available)	AWI ID	Area (ha)	Antiquity	Distance and Direction from Proposed Development Boundary
-	18,024	5.95	Long-Established (of plantation origin)	150 m south
Glen Wood	18,023	5.38		200 m west
	18,021	18.05		250 m west
-	18,025	2.97		400 m south
-	18,022	9.51		400 m west
-	18,017	7.74		1,300 m north
-	18,016	4.3		1,700 m north
-	18,019	7.85		2,000 m northwest

7.5. Habitats

The Carbon and Peatland 2016 Map of Scotland²¹ show that the central area of the Proposed Development was indicated to contain 'Class 1' and 'Class 2' soils, most notably throughout the area of the existing development extending westwards to Westrig Burn. 'Class 1' indicates nationally important carbon-rich soils, deep peat and priority peatland habitat, likely to be of high conservation value. 'Class 2' also indicates nationally important carbon-rich soils and priority peatland which have potentially high conservation value and restoration potential.

However, a phase 1 peat depth survey was undertaken across the developable area in October 2025, the results of which confirmed that peat is largely absent across the Site, and no continuous peat bodies are present across the Site (refer to **Section 8** and **Figure 8.1** for more information).

An NVC survey of the proposed Craighead Wind Farm, approximately 2.5 km east of the existing Green Knowes Windfarm, identified communities which correlate with the following Annex I habitats²²:

- 7130 Blanket bog;
- 4010 Northern Atlantic wet heaths with *Erica tetralix*; and
- 7230 Alkaline fens.

It can be reasonably assumed that these communities have the potential to occur within the area of the Proposed Development, based on review of aerial imagery and the Carbon and Peatland Map indicating likely comparable soil conditions between the Green Knowes and Craighead sites.

7.6. Protected and Notable Species

The NBN Atlas data search returned numerous records of protected and notable species records within 2 km of the Proposed Development (extended to 10 km for records of bats) recorded over the last 15 years (2011-2025). Records relating to protected and notable species of bird have not been discussed within this section of the Scoping Report (refer to **Section 6**).

²¹ Carbon and peatland 2016 map, Scotland's Soils available at: <https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map>

²² <https://sac.jncc.gov.uk/habitat/>

7.6.1. Bats

A total of 60 records of bats comprising four individual species, as well as 13 records unidentified to species level:

- Daubenton's bat *Myotis daubentonii*;
- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *Pipistrellus pygmaeus*; and
- Brown long-eared bat *Plecotus auritus*.

A review of relevant ecological data for the developments listed in **Section 7.2** returned the following records:

- Common pipistrelle;
- Soprano pipistrelle;
- *Myotis species*;
- Brown long-eared bat; and
- *Nyctalus species*.

A programme of bat surveys was undertaken across the existing Green Knowes Windfarm and the area of the Proposed Development by WSP UK Ltd (WSP) in 2025 including:

- A desk study whereby the Central Scotland Bat Group were contacted for records of bats relevant to the Site;
- A remote assessment of foraging, commuting and roosting suitability using aerial mapping;
- A programme of automated detector surveys, whereby detectors were deployed for a minimum of 30 nights of data collection per active bat season (Spring, Summer and Autumn) (as per SPR guidelines), at ten turbine locations plus a third of potential turbine locations; and
- Carcass search surveys undertaken by Conservation Detection Dogs Northern Ireland (CDDNI) underneath the existing turbines.

The results of the desk study identified no records of bats of relevance to the Site. The Site was assessed as having low suitability for foraging and commuting bats due to its elevation and lack of tall vegetation. The Site was assessed as having no suitable habitat for roosting beyond the existing Green Knowes Windfarm control room building.

The bat activity surveys identified at least seven species (or genera) of bats across the Site: soprano pipistrelle, common pipistrelle, Nathusius' pipistrelle, *Pipistrellus* species, noctule bat, Leisler's bat, brown long-eared bat and *Myotis* species.

The Ecobat²³ trends of bat activity were generally 'Low' for the geographical location of the Site for soprano pipistrelle, common pipistrelle and *Myotis* species. Brown long-eared bat

²³ <https://mammal.org.uk/current-research/bat-survey-tools>

median activity was generally assessed as 'Moderate', often increasing to 'High' during periods of peak activity. *Nyctalus* species and *Nathusius pipistrelle* were only very rarely recorded.

The collision risk of common pipistrelle and soprano pipistrelle were assessed as being 'Low' during median bat activity and 'Medium' during peak activity. Three pipistrelle carcasses were identified across the Site. A single Natterer's bat carcass was also found.

The Ecobat assessment of recorded bat calls occurring prior to, or within, the typical emergence period of the recorded species identified the potential for roosts of soprano pipistrelle, common pipistrelle, *Myotis* species and brown long-eared bat to occur within close proximity to several of the automated detector locations.

7.6.2. Terrestrial Mammals

The NBN data search returned 104 records of red squirrel *Sciurus vulgaris* within 2 km of the Site. There were no records of any other protected terrestrial mammals.

A review of the relevant ecological data for developments listed in Sections 7.2 returned the following records or evidence of presence:

- Red squirrel (along the B934, approximately 1 km east of the Proposed Development);
- Badger *Meles meles* (approximately 4 km east of the Proposed Development); and
- Pine marten *Martes martes* (approximately 1.6 km east of the Proposed Development).

7.6.3. Riparian Mammals

The NBN data search returned no records of otter *Lutra lutra* or water vole *Arvicola terrestris*.

A review of the relevant ecological data for developments listed in Section 7.2 returned the following records or evidence of presence:

- Otter (along Lamb Burn and Creich Burn in the east/northeast of the Proposed Development, along Cloon Burn approximately 3.3 km east of the Proposed Development, and along Lee Burn approximately 3.8 km east of the Proposed Development).
- Water vole (along South Queich/Glenross Burn, approximately 1.5 km east of the Proposed Development).

7.6.4. Fish

The NBN Atlas data search returned no records of protected or notable fish species.

A fish and aquatic habitat survey was conducted in 2014 as part of the proposed (now withdrawn) Green Knowes Windfarm Extension and found only limited potential for salmonids and eel *Anguilla Anguilla*. No requirement for further assessment (i.e. electrofishing surveys) was deemed required at that time.

7.6.5. Beaver

The Site is located within the known range of beaver *Castor fiber* in Scotland (NatureScot, 2024); the nearest records on the NBN Atlas are along Ruthven Water near Gleneagles, which is likely to have hydrological connectivity with the Site). No beaver surveys have previously been undertaken across the Site or other nearby developments.

Beavers are in a period of rapid expansion following their reintroduction to the UK and their true distribution is not fully documented. Beavers prefer still or slow-moving water with stable depths of at least 60 cm (Gurnell et al, 2009)²⁴, which is likely to occur across the south of the Site, where the Site's burns drain into the River Devon. The majority of woodland within the Site also occurs here. The upland habitats which comprise most of the Site are unlikely to support beaver due to a limited foraging resource.

7.6.6. Other Protected/Notable Species

Other notable terrestrial species records returned by the NBN data search included one record of hedgehog *Erinaceus europaeus* and two records of brown hare *Lepus europaeus*.

No records of reptiles or amphibians were returned by the data search. The requirement for reptile and great crested newt surveys was scoped out of assessment for the previously proposed (now withdrawn) Green Knowes Windfarm Extension following consultation with NatureScot. Presence of common species of reptile and amphibian is however presumed on the Site. No incidental sightings of reptiles were noted during protected species surveys conducted in 2024 across the nearby proposed Craighead Wind Farm.

7.7. Potential Sources of Impact

7.7.1. Construction

During construction of the Proposed Development, in the absence of appropriate mitigation, it is anticipated that impacts may arise from:

- Habitat loss or damage (permanent or temporary), or fragmentation due to construction of new wind farm infrastructure, including drainage impacts to bog habitats;
- Possible changes to groundwater flows affecting ground water dependent terrestrial ecosystems (GWDTE);
- Inadvertent killing or injuring of fauna during construction;
- Disturbance or displacement of protected or notable fauna due to increased vehicular traffic, plant and the presence of construction workers; and
- Sedimentation or other pollution of watercourses from construction activities and vehicular traffic.

7.8. Operation

In the absence of appropriate mitigation, it is anticipated that the following impacts may arise during operation of the Proposed Development:

- Disturbance, displacement, injury or mortality of fauna due to vehicular traffic and presence of Site operatives;
- Environmental incidents and accidents (e.g. spillages); and

²⁴ Gurnell, A.M., Demeritt, D., Lurz, P.W.W, Shirley, M.D.F., Rushton, S.P., Faulkes, C.G., Nobert, S. & Hare, E.J. 2009. The feasibility and acceptability of reintroducing the European beaver to England Report prepared for: Natural England and the People's Trust for Endangered Species. Natural England 2009.

- Moving turbine blades leading to mortality due to collision or barotrauma (bats only).

7.9. Assessment

7.9.1. Field Surveys

To inform the ecological impact assessment within the EIA, the following field surveys will be completed in 2026:

- UK Habitat Classification (UKHab) and NVC survey;
- Protected mammals survey;
- Daytime Bat Walkover (DBW); and;
- Fish habitat assessment.

7.10. Field Survey Methodologies

7.10.1. UKHab and NVC

Habitat surveys will be undertaken within the Site plus, where accessible, a 250 m buffer. Classification of habitats should be undertaken using the UKHab system²⁵ to a minimum detail of Level 3.

NVC surveys will also be completed in conjunction with the UKHab surveys to map in detail potentially important semi-natural vegetation communities within the Proposed Development and allow identification of potential GWDTE and Annex I habitats. The methodology would follow the NVC users' handbook²⁶.

7.10.2. Protected Mammals

A combined protected mammals walkover survey for badger, beaver, pine marten, red squirrel, otter and water vole is recommended across the Proposed Development and a 100 m buffer, extended up to 250 m along watercourses for otter, and beaver, using standard methodologies^{27,28,29,30,31}.

7.10.3. Bat Surveys

A Daytime Bat Walkover (DBW), following standard guidance³², will be completed to ground truth the Site and confirm the previous remote assessment of low suitability for roosting bats

²⁵ UKHab Ltd (2023). UK Habitat Classification Version 2.0 (at <http://www.ukhab.org>)

²⁶ Rodwell, JS (2006) National Vegetation Classification: Users' Handbook. JNCC, Peterborough

²⁷ Scottish Badgers (2018). Surveying for Badger Good Practice Guidelines. Version 01

²⁸ Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trehwella, W.J., Wells, D. and Wray, S. (2012). UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. The Mammal Society, Southampton.

²⁹ Chanin P (2003a) Ecology of the European Otter. Conserving Natura 2000 Rivers, Ecology Series No. 10. English Nature, Peterborough

³⁰ Chanin P (2003b) Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough

³¹ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

³² Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6

that was made based on aerial imagery. The DBW would focus on confirming presence or likely absence of habitat which could potentially support roosts, within 200 m plus rotor radius of the Proposed Development, as per NatureScot standard guidelines³³. The DBW can be undertaken at any time of year. Recommendations for further survey or mitigation would be made as necessary.

7.10.4. Aquatic Surveys

A fish habitat survey is recommended to be carried out in line with relevant good practice guidance³⁴.

All freshwater habitats with the potential to be significantly affected either directly (e.g. watercourse crossings) or indirectly (e.g. sediment runoff) would be assessed for fish utilisation potential and salmonid spawning potential. The fish habitat assessment should also include assessment of aquatic habitats present to support European eel and freshwater pearl mussel (FWPM).

Habitat assessment for FWPM would be undertaken in tandem with fish habitat assessments and identify areas of optimal and sub-optimal habitat in line with known species preferences as outlined in Skinner *et al* (2003)³⁵. Surveyors would also conduct a brief search of the riparian area/bankside for the presence of FWPM shells.

The results of the fish habitat surveys will inform the requirement for electrofishing surveys or in-stream FWPM surveys.

The fish habitat survey can be undertaken at any time of year, however, should electrofishing/ in-stream FWPM surveys be required, these can only be undertaken between July and September inclusive.

7.11. Ecological Impact Assessment

The EIA will be based on current Chartered Institute of Ecology and Environmental Management (CIEEM guidance)³⁶ and will draw on other, more specific guidance as appropriate.

The impact assessment process will involve the following steps:

- Identifying important ecological features, i.e. features of sufficient value and/or features subject to legal protection, for which detailed assessment is necessary;
- Identifying and characterising potential impacts on important ecological features;

³³ NatureScot (2021) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. (<https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation#5.1%C2%A0+Roost+surveys>)

³⁴ Scottish Fisheries Coordination Centre (SFCC) methods (<https://www.sfcc.co.uk/resources/habitat-surveying.html>) – a generally accepted refined method using Hendry and Cragg-Hine methods - Hendry, K. & Cragg-Hine, D. 1997. Restoration of Riverine salmon habitats. Fisheries Technical Manual 4, Environment Agency, Bristol.

³⁵ Skinner, A., Young, M. & Hastie, L. (2003). Ecology of the Freshwater Peral Mussel. Conserving Natura 2000 Rivers Ecology Series No. 2. English Nature, Peterborough.

³⁶ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3*. Chartered Institute of Ecology and Environmental Management, Winchester.



- Assessment of the significance of effects based on the assumption that standard mitigation measures, in line with standard wind farm construction good practice, would be embedded as part of the Proposed Development;
- Incorporating additional measures to avoid and mitigate (reduce) potentially significant effects (if required);
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects (if required);
- Identifying opportunities for ecological enhancement; and
- Cumulative impact assessment along with other wind farm developments (operational and planned).

7.12. Cumulative Effects

The potential for cumulative impacts with other wind farm proposals would be assessed. For (non-avian) ecological receptors potential cumulative impacts are only likely to be significant for other developments within the same hydrological catchments or located within the regular range of more mobile species, e.g. bats. As such the cumulative assessment would be restricted to other developments within the same hydrological catchment and/or other wind farms within approximately 10 km. At a minimum, this would include the proposed Craighead Wind Farm and proposed Brunt Hill Wind Farm, the approved Rhodders Wind Farm and the operational Burnfoot Wind Farm.

7.12.1. Consultation

The following stakeholders will be engaged in relation to the assessment:

- Perth and Kinross Council Biodiversity Officer;
- NatureScot;
- Scottish Environment Protection Agency (SEPA);
- Biological Recording in Scotland (BRISC);
- Forth Rivers Trust;
- Forth District Salmon Fishery Board;
- Scottish Wildlife Trust; and
- Marine Scotland.

7.13. Receptors Scoped Out of Assessment

7.13.1. Designated Sites

Due to the distances between the Site and the designated sites, detailed in **Section 7.3**, lack of connectivity and reasons for their designations, it is considered unlikely that the Proposed Development would result in any significant adverse effect on the qualifying interests of any statutory designated ecological sites within 10 km.

7.13.2. Bat Activity Surveys at Height

No at height bat monitoring surveys are proposed, given the location and altitude of the Proposed Development and the habitats present (limited mature tree cover) it is considered that bat data collected from ground level monitoring will be sufficient as per NatureScot guidance (NatureScot *et al*, 2021).

7.13.3. Reptile Surveys

Reptile surveys are not recommended to be undertaken, rather, the presence of suitable habitat will be noted during the protected species surveys. If reptiles are deemed likely to be present on site then they will be included within the ecological impact assessment within the EIA based on assumed presence.

7.13.4. Great Crested Newt

No great crested newt surveys are proposed given no potentially suitable habitats (i.e. ponds) are understood to be present. On this basis, this species will be scoped out of the assessment.

7.13.5. Deer

Wild deer are not considered to be present in significant numbers and therefore impacts on deer have been scoped out of assessment. A draft Deer Management Statement is not considered to be required.

7.14. Approach to Mitigation, Compensation and Enhancement

Mitigation, compensation and enhancements will be developed in consultation with key stakeholders, drawing on evidence from other schemes as appropriate. Mitigation is likely to take the form of design mitigation, construction mitigation and habitat restoration & management during wind farm operation. Design mitigation, where possible, would be incorporated by the involvement of the lead ecologist in the repowering design process. This may involve, for example, the avoidance of areas of currently undisturbed, high-quality habitat or instigation of buffer zones around GWDTEs etc. Construction mitigation may involve restrictions on the timing of construction work in certain areas, suitable suite of pre-construction surveys and subsequent Species Protection Plans (SPPs) and the appointment of an ECoW.

Compensation and enhancement during the operational phase are expected to be secured through the development and agreement of an Outline Biodiversity Enhancement and Management Plan (OBEMP). Measures will be incorporated into an OBEMP (to be submitted as part of the EIA Report) that will seek to not only compensate but effectively restore habitats and enhance levels of biodiversity across the Site significantly from the baseline conditions. This will seek to take account of the NPF4 Policy 3 on biodiversity enhancement.

The OBEMP will be designed to take into account those habitats and features that are most likely to result in maximising the overall benefit to biodiversity. This can be demonstrated either quantitatively or qualitatively. In order to ensure the best possible outcomes for biodiversity, detailed consultation will be undertaken with the landowner and other stakeholders. Post-construction monitoring will be incorporated in the final BEMP (i.e. surveys which are required



to measure specific outcomes against agreed targets and/or assist in determining condition) to assess the success of management measures and inform the need for any changes that might be required to improve the target outcomes.

All terrestrial ecological mitigation will be incorporated into a Construction Environmental Management Plan (CEMP). The CEMP will outline all required mitigation and provide details on timelines to be undertaken. The CEMP will also outline a timetable of actions and form part of the contract documents to ensure delivery of mitigation specified in the EIA Report. In addition, the CEMP will incorporate the provision of the ECoW to oversee the implementation of mitigation. The specific scope of an OBEMP and any required SPPs will be defined once the baseline surveys are fully completed and the EIA has been undertaken.

7.15. Questions to Consultees

The following are questions to consultees:

Q7.1: Do consultees agree that the suite of field surveys planned are sufficient to inform a robust ecological impact assessment?

Q7.2: Do consultees agree that the methodology and scope of assessment is appropriate?

Q7.3: Do consultees agree with the features and statutory designated sites proposed to be scoped out of further assessment?

Q7.4: Are there any other relevant consultees who should be consulted, or other sources of information that should be considered?

8. Geology, Peat, Hydrology & Hydrogeology

8.1. Introduction

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

Much information is available from the application for the operational Green Knowes Windfarm and the withdrawn application for the Green Knowes Windfarm extension. Information from these applications has been used to inform the Site baseline. However, due to the time since the applications were submitted, updated surveys will be undertaken during the EIA to verify any data used.

8.2. Study Area

The Study area will include the area within the Site boundary and extend beyond this to a 500 m study area for consultation and assessment of hydrology and hydrogeology, including water abstractions for private and public supply and flood risk. The effects on geological and peat receptors will be assessed within the Site boundary.

The environmental impact assessment will consider potential cumulative effects, or in-combination effects associated with other developments in the same hydrological catchments and within 5 km of the Proposed Development.

8.3. Baseline Description

8.3.1. Bedrock Geology

British Geological Survey (BGS) Onshore GeoIndex 1:50,000 scale mapping indicates that the underlying bedrock geology of the Site is predominantly Early Devonian age igneous eruptions of silica-poor magma of the Ochil Volcanic Formation; silica-rich magma of the Midland Valley Siluro-Devonian Felsic Intrusion Suite is mapped across the middle of the Site, with sedimentary bedrock of the Ochil Volcanic Formation present across the south of the Site.

A metamorphic aureole is mapped across the eastern area of the Site, associated with igneous intrusions.

8.3.2. Superficial Geology

BGS Onshore GeoIndex mapping indicates that superficial deposits are absent across much of the Site, with bedrock likely at or close to surface. Where present, superficial deposits generally comprise Devensian stage Till deposits, which are prevalent across lower areas of the Site where watercourse corridors are mapped. Isolated pockets of peat are mapped along the northern boundary of the Site. Land to the south of the Site, following the course of the River Devon is shown to comprise Alluvium deposits and River Terrace deposits.

8.3.3. Soils and Peat

Desk Based

The National Soil Map of Scotland indicates that the soils underlying the Site comprise primarily brown earths, with noncalcareous gleys across land to the north and west and peaty gleyed podzols to the northwest and northeast of the Site.

NatureScot's Priority peatland mapping, Carbon and Peatland Map 2016, indicates that the Site primarily comprises mineral soils across steeper slopes. Areas of Class 1 and Class 2 peatland is mapped across the north and west of the Site, with areas of Class 3, Class 4 and Class 5 peatland also indicated to be present across the Site. Class 5 peatlands are defined as having no peatland habitats recorded but may include areas of bare soil, carbon-rich soils and deep peat. Class 4 peatlands are areas unlikely to be associated with peatland habitats and/or include carbon-rich soils. Class 3 peatlands exhibit dominant vegetation cover and are not priority peatland habitats, although they are associated with wet and acidic soil environments where "*occasional peatland habitats can be found*". Class 1 and 2 peatlands are areas of "*nationally important carbon-rich soils, deep peat and priority peatland habitat*".

Field Survey

To ground truth published mapping which indicates potential for peat deposits on the Site, a phase 1 peat depth survey was undertaken in October 2025, in accordance with best practice guidance. This survey was completed on a 100 m grid across the developable area, avoiding significant slopes unsuitable for development, or incapable of sustaining peat deposits. Results, detailed in **Table 8-1**, confirmed that peat is largely absent across the Site; of the 647 probes taken, only 2.8 % of the recorded exceed 0.5 m (depth threshold for peat) (**Figure 8.1**). The maximum recorded probe depth was 1.6 m, which has been entirely avoided by design. Instances of probe depths exceeding 0.5 m were generally associated with local watercourses or isolated depressions. The results confirm that no continuous peat bodies are present across the Site.

Table 8-1: Probe Depth Summary

Probe Depth Interval (m)	No. of Probes	% of all Probes Undertaken
0 – 0.5	629	97.2
0.51 – 1.0	17	2.6
1.01 – 1.6	1	0.2
Total	647	100

8.3.4. Hydrogeology

The Site is indicated to be situated upon the Ochils groundwater body, with the Path of Condrie groundwater body immediately adjacent to the north of the Site. The shallower Devon Sand and Gravel aquifer is shown to follow the course of the River Devon. All groundwater bodies



are monitored under the Water Framework Directive (WFD) and have a current overall classification of 'Good'.

Generally, bedrock geology beneath the Site is characterised as a low productivity aquifer; the sedimentary Ochil Volcanic Formation (Basalt) to the east of the Site is characterised as a moderately productive aquifer. In both cases, flow is virtually all through fractures and other discontinuities.

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

8.3.5. Groundwater Dependent Terrestrial Ecosystems (GWDTE)

The application submitted for the operational Green Knowes Windfarm found that the predominant habitat at the Site was acid grassland, with areas of other habitats such as bracken, marshy grassland, semi-improved grassland and wet heath/acid grassland mosaic also present. With the exception of wet heath, the previously identified habitats at the Site are unlikely to be groundwater dependent.

As part of the EIA ecology assessment, an updated National Vegetation Classification (NVC) survey will be undertaken to identify potential GWDTE.

8.3.6. Local Hydrology

The Site is predominantly located within the headwaters of the River Devon. The northern boundary of the Site generally follows the watershed of the River Earn catchment, with land to the northwest of the Site within the surface water catchment of Ruthven Water and land to the northeast of the Site within the surface water catchment of Pairney Burn. The very east of the Site located within the headwaters of the River Leven (Fife) catchment, and the nested surface water catchment of South Queich River.

The application submitted for the operational Green Knowes Windfarm reported that the headwater source areas across the Site are characterised by waterlogged shallow bowls on the flatter high ground. From these upper boggy areas, watercourses establish and become defined within the steeper ground. The watercourses are characterised by the narrow steep sided valleys, fed by a number of small tributaries. Within the upper reaches the watercourses are straight, narrow, and fast flowing becoming more meandering and wider in the lower flatter reaches. Substrates are generally gravelly or rocky, with some watercourses being underlain by boulder clay. The larger watercourses downstream of the Site are monitored under the WFD, with their current classifications provided in **Table 8-2**. The smaller watercourses on the Site are not monitored under the WFD.

Table 8-2: Hydrological Features

Catchment	Waterbody (SEPA ID)	Overall Classification (2023)
River Devon	River Devon (Source to Gairney Burn confluence) (4501)	Moderate ecological potential
River Earn	Ruthven Water (6806)	Moderate

Catchment	Waterbody (SEPA ID)	Overall Classification (2023)
River Earn	Pairney Burn (6807)	Good
River Leven (Fife)	South Queich River (6302)	Poor ecological potential

8.3.7. Water Abstractions

The River Devon and its catchment is designated as a DWPA (ID 4501). None of the other surface water catchments which drain the Site are designated as a DWPA. From the application for the operational Green Knowes Windfarm, it is understood that Castlehill Reservoir downstream of the Site is operated by Scottish Water. The reservoir is fed by the River Devon which connects the Upper and Lower Glendevon Reservoirs (upstream of the Site) to Castlehill Reservoir.

Information contained within the application for the operational Green Knowes Windfarm indicates that there are seven Private Water Supplies (PWS) within the study area. Consultation with Perth and Kinross Council will be carried out during the EIA to account for any new PWS or changes to existing PWS.

There are no authorised abstractions recorded under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR)³⁷ within the study area. However, there is a CAR licence for surface water abstraction for fish production approximately 1 km downstream of the Site on Ruthven Water.

8.3.8. Flooding

The Site is located inland with minimum elevations of approximately 230 m above Ordnance Datum (m AOD). None of the watercourse on the Site nor the River Devon are tidally influenced. The Site is therefore, not at risk of coastal flooding.

Scottish Environment Protection Agency (SEPA) flood mapping confirms that a majority of the Site is not at risk of fluvial flooding. Land to the south of the Site, immediately adjacent to the River Devon, and Hillkitty Burn, a tributary of the River Devon located onsite, are shown to be at increased risk of fluvial flooding. Flood risk associated with Hillkitty Burn is shown to be confined to the watercourse corridor and immediate floodplain.

SEPA's surface water and small watercourse flood maps indicate that smaller watercourses across the Site are at increased risk of flooding. Indicated flood extents are shown to be confined to the watercourse corridors and does not impact wider areas of the Site.

8.3.9. Designated Sites

Review of NatureScot's SiteLink indicates that there are no statutory designated sites within the study area, nor are there any water dependent designated sites downstream of the Site.

³⁷ CAR is now replaced by the Environmental Authorisation (Scotland) Regulation 2018, as of 1st November 2025

8.4. Carbon Balance

A Carbon Balance Assessment will be undertaken to assess the potential CO₂ savings that can be made. This assessment will be based on assessing the electricity generation mix that the Proposed Development is displacing at any given time, and the carbon released due to the construction of the Proposed Development. This will take into considering alterations to peatland hydrology and changes in carbon due to habitat improvement and site restoration. The assessment will involve the following steps:

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

The Scottish Government online Carbon Calculator incorporates the methods described in the following guidance:

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

8.5. Proposed Scope & Methodology of Assessment

8.5.1. 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 (OD) maps, aerial photographs, and site-specific data such as site investigation data and survey data from previous developments, geological and hydrogeological reports, digital terrain models (slope plans), LiDAR 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.

8.5.2. Field Surveys

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

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

- verify the information collected during the desk and baseline study;
- undertake a visual assessment of the main surface waters and identify PWS;



- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;
- visit any identified GWDTEs (in consultation with the project ecologists);
- visit PWS and DWPA sources 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; and
- assess the Site geomorphology.

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

8.5.3. Assessment of Effects

Once the desk study is completed and sensitive soil and peat, geological and water features are confirmed, an impact assessment will be undertaken to assess the potential effects on soils and peat, geology, and the water environment resulting from the construction and operation of the Proposed Development.

The purpose of this assessment will be to:

- assist in the micro-siting of turbines and tracks to the least geologically and hydrologically sensitive areas by applying buffer zones around watercourses and other sensitive features;
- assess potential effects on soils, peat and geology;
- determine what the likely effects of the Proposed Development are on the hydrological regime, including water quality, flow, and drainage;
- allow an assessment of potential effects on identified licensed and PWS;
- assess potential effects on water (including groundwater) dependent habitats;
- determine suitable mitigation measures to prevent significant hydrological and hydrogeological effects; and
- develop an acceptable code for working on the Site that will adopt best practice procedures, effective management, and control of onsite activities to reduce or offset any detrimental effects on the geological, hydrogeological and hydrological environment.

It is anticipated that the impact assessment will include the following technical appendices:

- Watercourse Crossings Schedule;
- Drinking Water Protected Area and Private Water Supply Risk Assessment;
- GWDTE Risk Assessment;
- Borrow Pit Appraisal (subject to design requirements); and
- Carbon Calculator.



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

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 impact without perceptible change) and the magnitude of impacts will each be considered through a set of pre-defined criteria.

The sensitivity of the receiving environment together with the magnitude of the impact defines the significance of the effect, which will be categorised into level of significance.

A review of previous assessments of the Site and other existing and proposed developments near the Proposed Development will be undertaken and potential impacts on hydrology, hydrogeology and geology will be assessed to identify cumulative impacts. 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.

8.6. Proposed Mitigation & Enhancement

8.6.1. Mitigation

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

It is expected that the following embedded mitigation and standard good-practice measures will be included in the design of the Proposed Development:

- a buffer of 50 m will be applied to watercourses;
- site-specific peat probing has been undertaken which has confirmed peat to be almost entirely absent, with only limited, localised areas of peat (>0.5 m) deposits at the Site. Micro-siting of the Proposed Development will avoid areas of peat (>0.5 m) where practicable; and
- impacts on PWS sources and areas of GWDTE will be avoided.

There is established best practice guidance available to assist developers in minimising the risks associated with wind farm and other energy infrastructure 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 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.

8.7. Potential Impacts

Without mitigation or adherence to best practice, effects on soils and peat, geology, hydrology, and hydrogeology could occur during the construction and operation of the Proposed Development. However, application of embedded mitigation (i.e. mitigation by design) and standard good practice, as outlined in **Section 8.6**, is anticipated to ensure that significant effects on hydrology, hydrogeology, geology and soils can be avoided.

Although considered unlikely to be assessed as 'significant' when taking account of embedded and standard mitigation, a summary of the potential effects on ground conditions and the water environment resulting from the decommissioning of the operational Green Knowes Windfarm, and the construction and operation of the Proposed Development is provided below. These will be considered in the EIA Report.

8.7.1. Potential Effects During Construction

The following are potential effects that could arise from the construction of the Proposed Development:

- disturbance and loss of carbon-rich soils and peat deposits and peatland habitat;
- effects on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances;
- discharge of sediment-laden runoff to drainage system and watercourses;
- increased flood risk to areas downstream of the Site during construction through increased surface run-off;
- 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 pollution impacts to public and private water supplies, including DWPAs; and
- disturbance and or pollution resulting from borrow pit formation and use.

8.7.2. Potential Effects During Operation

The following potential effects could arise during operation of the Proposed Development:

- increased runoff rates and flood risks, resulting from increases in areas of tracks and hardstanding at turbines;
- changes in natural surface water drainage patterns (which may affect water contribution to areas of carbon-rich soils and GWDTE);
- changes to groundwater levels and groundwater movement;
- longer term impacts on abstraction for water supplies, particularly any supplies dependent on groundwater; and
- pollution effects on surface water quality from maintenance work and increased vehicular access across the wider repowering Site.

8.8. Receptors & Impacts Scoped Out of Assessment

8.8.1. Receptors & Effects Scoped Out

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

- It is proposed to scope out effects on designated sites as there are no geologically designated sites within the Site Boundary, nor are there any hydrologically connected designated sites within 1 km of the Site. It is therefore considered that there are no designated sites which could be impacted by the Proposed Development.
- It is proposed to scope out effects on geology. Effects on geology during both the construction and operation phases of the Proposed Development are not anticipated. While there will be effects arising from rock extraction for borrow pits, and for turbine and crane pad areas, these are limited in area and do not extend beyond the immediate development footprint. No particularly sensitive geological features have been identified within the Study Area.
- It is proposed to scope out effects on peat and carbon-rich soils. Desk-based information identifying potential peat deposits has been superseded by low resolution (100 m grid) surveys that demonstrate that peat is almost entirely absent across the developable area. Where probes exceed 0.5 m, deposits are associated with local watercourses or isolated depressions; there are no continuous peat bodies present across the Site. The Site survey has been used to inform the layout of the Proposed Development, with all indicative turbine locations avoiding peat (>0.5 m), in line with the first stage of the mitigation hierarchy: Avoid. Subject to the final design layout avoiding isolated peat locations, we anticipate that there will be no requirement for an outline Peat Management Plan, Peatland Condition Assessment and Peat Landslide Hazard and Risk Assessment.
- Flood Risk Assessment is proposed to be scoped out, as flood mapping confirms that flooding is mostly confined to watercourse channels and is not widespread across the Site. Suitable 50 m watercourse buffers are proposed to be implemented as part of embedded mitigation, and any infrastructure within the buffered areas will have a watercourse crossing which will be designed to accommodate potential flood risk and appropriately convey flows. A simple screening of flood risk will be included within the EIA Report.
- Detailed Drainage Design is proposed to be scoped out, as a description of the design standards and appropriate sustainable drainage measures which would be used to control and manage incident rainfall would be specified in the EIA Report. The engineering design of the Site drainage would be prepared as part of the detailed site design (post planning) and would form part of the final CEMP. This would be submitted to SEPA for approval at that stage and would be secured by a pre-development planning condition.
- Water Quality Monitoring as part of the baseline assessment is proposed to be scoped out, as classification data is available from SEPA for the watercourses downstream of the Site and there are no known sources of potential water pollution at the Site that might give rise to the need for water quality monitoring.
- Detailed borrow pit designs is proposed to be scoped out. A Borrow Pit Site Management Plan describing pollution prevention measures 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.

8.9. Scoping Questions to Consultees

Q8.1: Do the consultees agree that the impacts described in Section 8.8 can be scoped out?

Q8.2: Published mapping confirms that whilst parts of the Site are at risk of flooding from rivers and smaller watercourses, flood extents are largely confined to the watercourse channels. It is proposed, therefore, that a simple screening of potential flooding sources (fluvial, coastal, pluvial, groundwater etc.) is presented in the EIA Report, is this acceptable?

Q8.3: Site investigations, including peat depth surveys undertaken to date, GWDTE and private water survey, will inform the proposed assessment. Should any additional investigation be considered when assessing baseline conditions?

Q8.4: Please advise if there is any specific information or methodology that should be used/ followed as part of the Private Water Supply risk assessment.

Q8.5: 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. Is this acceptable?

Q8.6: Do consultees agree that the scope of the proposed assessment, including proposed field surveys, assessment methodology and study areas, is appropriate?

Q8.7: Do consultees agree that given the known baseline peat information, and subject to the provision of appropriate information demonstrating that the proposed infrastructure (including tracks, hardstandings, etc.) avoids peat, that the potential effects on peat can be scoped out of further assessment. This includes the requirement for phase 2 (high resolution) peat depth survey, and technical appendices, including an outline peat management plan, peat landslide hazard and risk assessment and peatland condition assessment.

9. Cultural Heritage

9.1. Introduction

This section of the EIA Scoping Report outlines the proposed scope and methodological approach for the archaeology and cultural heritage chapter of the EIA Report. The chapter will assess the potential effects resulting from the Proposed Development on archaeology and cultural heritage assets. Designated and non-designated assets are considered, including the potential for effects on:

- 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 wind farm development proposals).

This section is supported by the following:

- Appendix B – Cultural Heritage Appraisal;
- Figure 9.1 – Cultural Heritage Designations.

9.2. Study Area

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



For potential setting effects, a Study Area (**Figure 9.1**) 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 ZTV and the scale of the development, and will be refined to a point of agreement between stakeholders during consultation.

In line with the methodology proposed for landscape and visual assessment and the February 2024 guidance from NatureScot and HES's response to the Hare Hill Wind farm Repowering (ECU00004967) Scoping Report, the potential for operational impacts of the Proposed Development would be assessed against two different baseline scenarios.

- A 'comparative baseline' would assume the presence of the existing Wind farm (including turbines and other infrastructure) as a baseline feature.
- A 'restored baseline' would assume the decommissioning of the existing Wind farm and site restoration, assuming that the Proposed Development will be added to the Site without considering the presence of the existing turbines.

9.3. Baseline Description

A high-level review of the baseline conditions has been undertaken with reference to the available historic environment data, the Site boundary and the turbine layout. This may be subject to change according to subsequent design iterations.

9.3.1. Assets within the Site Boundary

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

There is a Category B Listed Building, Glendevon Castle, located within the southern extent of the Site (LBI1826). Whilst no construction activities are currently proposed near the asset, a protective buffer of 20m will be implemented throughout the design to prevent any potential or any construction activities from taking place proximate to the asset which could have potential direct or indirect impacts.

There are 56 non-designated heritage assets recorded within the Site. The majority of these are medieval to post-medieval in date and comprise agricultural remains, such as farmsteads, sheepfolds, enclosures, lazy beds and rig and furrow.

There is also a prehistoric stone circle with four stones within the east of the Site, dating from the Neolithic to Bronze Age (MPK13219). A protective buffer has been implemented to prevent any direct impacts within 20m of the standing stones, and the layout has been designed in consideration of this. During the Site survey, the stone circle will be visited to assess for potential setting effects and whether it requires assessment of potential setting effects in full. Its National Record of the Historic Environment (NRHE) description states its views are only appreciable from the asset's immediate vicinity along the Borland Glen, and north, east and west views are limited by topography. Prehistoric remains have potential for further archaeological remains of low to high significance.

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.

9.3.2. Assets Outwith the Site Boundary

All nationally significant designated assets within the 10 km Study Area has been 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 EIA Report.

Within 10 km of the proposed turbines, there are 54 Scheduled Monuments, 6 Category A Listed Buildings, 4 Garden and Designed Landscapes, and within 5 km there are 20 Category B Listed Buildings.

There are no Conservation Areas within 5 km of the proposed turbines, and there are no Battlefields or World Heritage Sites within 10 km of the proposed turbines.

9.4. Proposed Scope & Methodology of Assessment

9.4.1. Proposed Sources

The sources to be consulted in the production of the EIA Report chapter include, but are not limited to, those outlined in **Table 9-1**.

Table 9-1: Proposed Sources

Subject	Author Summary	Source
Designated Cultural Heritage Assets	The database of HES	HES digital data download.
Conservation Areas	Clackmannanshire Council, PKC and HES	HES digital data download, Conservation Area Appraisal from the relevant Council.
Non-designated cultural heritage assets (Local HER)	Data held by Perth and Kinross Heritage Trust	Digital data purchased and downloaded from PKC HER
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

An assessment will be undertaken separately for direct and indirect physical impact and setting impacts. The assessments 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). The 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 visual changes, resulting from the development, may impact aspects of the asset's setting from which it derives its cultural 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*³⁸.

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

9.4.2. Legislation, Policy and Guidance

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.

Planning Policy

The UK Government, Scottish Government, 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);

³⁸ *Historic Environment Scotland, 2020. Managing Change in the Historic Environment: Setting.*

- NPF4 (Scottish Government, 2023);
- Historic Environment Policy for Scotland (HEPS 2019); and
- Perth & Kinross Local Development Plan (2019).

Guidance and Standards

Relevant guidance and technical standard documents comprise:

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

Cultural Heritage Significance

The categories of cultural heritage significance to be referred to are presented in **Table 9-2** 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 assessing 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 9-2: 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:

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

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

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

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

The key criteria used for establishing an asset's relative sensitivity to changes to its setting is detailed in **Table 9-3**. This table has been developed based on SLR's professional judgement and experience of assessing setting impacts. It has been developed in line with relevant policy and guidance.

Table 9-3: Sensitivity of Setting

Relative Sensitivity	Explanatory Criteria
Very High	An asset, the setting of which is crucial to an understanding, appreciation, and experience of it, should be regarded as having very high sensitivity to changes to its setting. This is particularly relevant where setting, or elements of, make a crucial and essential direct contribution to significance.
High	An asset, the setting of which is major to an understanding, appreciation, and experience of it, should be regarded as having high sensitivity to changes to its setting.

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

The determination of an asset's relative sensitivity to changes to its setting is first and foremost reliant upon the determination of its setting and how setting aligns with other key characteristics which contribute to cultural significance. While cultural significance is defined by the criteria set out in **Table 9-2**, 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.

SLR adheres to Chartered Institute for Archaeologists (CIfA) standards, thus guaranteeing that appropriately qualified and sufficiently experienced heritage consultants will be undertaking all parts of the assessment.

Magnitude of Impact

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

Taking into account all embedded mitigation measures, which will be developed throughout the design process, the magnitude of impact will be assessed using professional judgement, with reference to the criteria set out in **Table 9-4**.

Table 9-4: Magnitude of Impact

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

Very Low Adverse	The Proposed Development would erode, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would not be considered to affect the integrity of the asset's setting.
Low Adverse	The Proposed Development would erode, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would rarely be considered to affect the integrity of the asset's setting.
Medium Adverse	The Proposed Development would erode, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact might be considered to affect the integrity of the asset's setting.
High Adverse	The Proposed Development would considerably erode the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect impact would probably be considered to affect the integrity of the asset's setting.

Significance of Effect

Table 9-5 provides a matrix that relates the cultural significance of the asset to the magnitude of impact on its cultural significance, to produce an overall anticipated level of effect (significance of effect). Effects may be beneficial or adverse, and may be short term, long term or permanent.

Table 9-5: Significance of Effect Matrix

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

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

With reference to the matrix presented in **Table 9-5**:

- any effects identified as 'major' would most likely 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', 'very minor' or 'negligible' are unlikely to be considered 'significant,' though again, professional judgement will be exercised.

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

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.

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, including the existing Green Knowes Windfarm.

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 15 km of an asset which have been submitted and have a decision pending; and
- wind farm planning applications within 15 km 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 EIA Report.

Residual Effects

Residual effects are those that remain even after the implementation of suitable mitigation measures. Residual effects will be identified, and the significance of those residual effects defined with reference to **Table 9-5**.

Consultation

Based on the results of the baseline study, constraint mapping, using GIS software, shows mapped heritage assets in relation to a ZTV (**Figure 9.1**). 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.

Perth and Kinross Heritage Trust 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.

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.

Zone of Theoretical Visibility

The setting impact assessment will be assisted by the ZTV³⁹ as presented on **Figure 9.1**. The ZTV is based upon the maximum level of theoretical visibility, i.e. the maximum height of the turbine blade tips.

9.5. Proposed Mitigation & Enhancement

Where adverse effects on cultural heritage assets are possible, the magnitude of impact can be reduced through measures to prevent, reduce and/or, where possible, offset these impacts. Suitable measures for reducing or removing any direct and indirect impacts will be

³⁹ A ZTV shows the predicted degree of visibility of a proposed development from all points within a proportionate, defined study area around the site, as would be seen from an average observer's eye level (2m above ground level)



embedded into the design of the Proposed Development where possible, will be outlined within the EIA Report. Where avoidance of impacts through embedded measures is not possible, a programme of archaeological works will be designed and agreed with the relevant authorities and implemented.

Suitable measures for minimising impacts through ground disturbance might include:

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

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

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

Opportunities to enhance the ability to understand, experience and appreciate Cultural Heritage assets will be recommended.

9.6. Potential Impacts

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 (NatureScot 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.

9.6.1. Potential Sources of Impact within the Site Boundary

There is a Category B Listed Building located within the south of the Site (Glendevon Castle (LB11823)), and a number of listed buildings proximate to the south Site boundary along the A823 within Gleneagles. Any potential direct or indirect impacts upon these assets will be avoided where possible through design.

Of the non-designated cultural heritage assets within the Site, whilst positioned outside of the current placement of the turbines, these assets may be susceptible to a high level of direct or indirect impact as a result of the construction of the associated infrastructure (e.g. 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 as of yet unrecorded cultural heritage assets within the Site as a result of the construction process. A targeted site walkover is proposed, in order to visit the locations of the proposed turbines and other associated infrastructure and inspect for any visible unrecorded assets. The potential for impact on unrecorded cultural heritage assets will be assessed within the EIA Report.

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

9.6.2. Potential Sources of Impact Outwith the Site Boundary

Impacts to an assets setting are most likely to occur as part of the operational phase of development.

To provide this preliminary list of assets that will be subject to a detailed assessment, designated assets that are within the scope of assessment and within 10 km of each proposed turbine of Scoping Layout were subject to an initial appraisal (**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 appraisals are intended to create a proportionate scope for the assessment and each asset will be subject to repeated appraisals throughout the EIA process, subject to changes to the proposed turbine layout. Assets that have been scoped in may be scoped out and vice versa, dependent on the final layout and as a result of consultee comments.

All designated cultural heritage assets within 10 km of the proposed turbines, along with the ZTV indicating their visibility of the proposed turbines, are depicted on **Figure 9.1**.

Following the appraisal of assets set out in **Appendix B**, six designated cultural heritage assets have been identified as requiring a detailed setting assessment within the EIA Report, 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 EIA Report after the initial heritage appraisal are outlined in **Table 9-6**. Furthermore, the locations of visualisations, are proposed in **Table 9-6**. In the event that any viewpoints cannot be accessed and photos cannot be taken, wirelines will be produced. These visualisation locations are approximate, and final locations will depend on access and visibility of the final layout of the Proposed Development. Any changes in visualisation locations will be communicated to the appropriate consultees. The provided visualisations will include the developments considered for cumulative assessment.

Table 9-6: Assets Scoped In for Further Assessment due to Potential for Settings Impacts

Asset Reference	Asset Name	Type of Asset	Proposed Visualisation Location
GDL00360 LB4570	Gleneagles Hotel and Gold Courses (GDL) including Gleneagles Hotel (LB)	Garden and Designed Landscape and Listed Building	NN 91672 11446 NN 92172 11101
GDL00247 LB11200	Kinross House (GDL) and associated listed buildings	Garden and Designed Landscape and its Listed Buildings	NO 12608 02056
SM7629	John's Hill, enclosure 1.22 km SW of Corb	Scheduled Monument	NO 00139 08104
SM7627	Down Hill, fort, Glen Devon (SM7627)	Scheduled Monument	NO 00081 03649
SM3133	Ben Effray, fort	Scheduled Monument	NN 98007 11554
LB11823	Glendevon Castle	Listed Building	NN 97727 05323

9.7. Receptors & Impacts Scoped In or Out of Assessment

9.7.1. Matters Scoped In

Cultural heritage assets both within the Site and outwith the Site (within the 1 km and 10 km study areas with the exception of Kinross House) will be considered for potential direct, indirect, settings and cumulative impacts as a result of the Proposed Development.

In regard to direct and indirect impacts, their mitigation will be embedded into the design in order to avoid impact on known assets, and potentially unknown assets. If warranted, further mitigation will be agreed with Perth and Kinross Heritage Trust.

A high-level appraisal has been undertaken of the designated heritage assets within 10 km of the proposed turbines. This appraisal can be found in **Appendix B**. As a result of the appraisals, the assets outlined in **Table 9-6** are to be fully assessed within the EIA Report chapter. Furthermore, the potential for cumulative effects as a result of the Proposed Development on any sensitive heritage receptors will be considered.

9.7.2. 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 5 km 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.

9.8. Scoping Questions to Consultees

Q9.1: Do consultees agree with the methodology set out?

Q9.2: Do consultees agree with assets and matters scoped out?

Q9.3: Are there any assets, not listed in the appraisal, that key consideration should be given to?

Q9.4: Do consultees have any specifications on further visualisations and their locations?

10. Access, Traffic & Transport

10.1. Introduction

This section 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^{40,41}. 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 Transport Scotland's document Transport Assessment Guidance⁴² and the Scottish Government's document Planning Advice Note (PAN): PAN 75 - Planning for Transport⁴³.

10.2. 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 the assessment, but it is likely to comprise the following sections of road:

- The A823 between the existing access to the operational Green Knowes Windfarm and the A9 at Loaninghead;
- The sections of the A9 on each side of its junction with the A823 at Loaninghead;
- The A823 between the existing access to the operational Green Knowes Windfarm and the A91 at Yetts o'Muckhart; and
- The sections of the A91 on each side of its junctions with the A823 at Yetts o'Muckhart.

⁴⁰ The IEMA was renamed as The Institute of Sustainability and Environmental Professionals (ISEP) in July 2025

⁴¹ 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

⁴² Transport Scotland (2012). Transport Assessment Guidance. Glasgow: Transport Scotland.

⁴³ Scottish Government (2005) Planning Advice Note: PAN 75 - Planning For Transport. Edinburgh: The Scottish Government.



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.

10.3. Baseline Description

The operational Green Knowes Windfarm is accessed from the A823 and, as described in **Section 3**, it is anticipated that this access would also be used for the Proposed Development. The A823 is a single carriageway road with one lane in each direction. It is subject to a 40mph speed limit in the vicinity of the access and a speed limit of 30mph through the settlement of Glendevon to the south. The remainder of it is subject to a 60mph speed limit, with lower limits applying for some vehicle types⁴⁴.

The A823 is generally bordered by open farmland and wooded areas with fields, homes and other developments taking access from it. Several homes front the A823 directly as it passes through Glendevon. It has a footway on its western side from Glendevon northwards for around 1.8 km to Glendevon Residential Park. Several Core Paths meet the section of the A823 between the A9 and the A91.

The A823 meets the A9 at a grade-separated junction at Loaninghead around 8 km to the north of the access to the operational Green Knowes Windfarm. The A9 is a trunk road (hence managed by Transport Scotland (TS)) and links the M90 at Perth with the M9 at Dunblane. In the vicinity of the A823 junction, the A9 is dual-carriageway with two lanes in each direction and subject to a 70mph speed limit.

The A823 meets the A91 at an at-grade junction at Yetts o'Muckhart around 5 km to the south of the access to the operational Green Knowes Windfarm. The A91 provides a route between the M90 to the east and Stirling and the M9 to the west.

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

- People at home;
- People at work;
- Sensitive and/or vulnerable groups (including young age, older age, income, health status, social disadvantage and access and geographic factors);
- Locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools);
- Retail areas;
- Recreational areas;
- Tourist attractions;
- Collision clusters and routes with road safety concerns; and

⁴⁴ [Speed limits - GOV.UK](https://www.gov.uk/government/topics/speed-limits)

- Junctions and highway links at (or over) capacity.

Vehicle movement data will be collected for the A823 and A91 by undertaking week-long Automatic Traffic Counts (ATCs). These will give data on vehicle volumes, types and speeds. Vehicle movement data for the A9 will be collated from TS's National Traffic Data System (NTDS) for the following two sites:

- JTC00009 A9 - Southwest of Auchterarder; and
- 104150 A9 Blackford.

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). The presence of Core Paths in the study area will be established from mapping from Perth and Kinross Council (PKC) and Stirling Council (SC).

10.4. Proposed Scope & Methodology of Assessment

10.4.1. Effects Scoped-In

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

The Applicant and their engineering advisors will provide estimates of the typical daily construction-related vehicles that will be generated during each week or month of the construction phase. These estimates will reflect the activities that would take place during the various parts of the construction phase and the amount of materials and number of items of equipment that would need to be delivered to or removed from the Proposed Development.

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 judgment will be applied to estimate the routes taken by vehicles travelling to and from the Proposed Development. It is likely, for example, that most LGVs and HGVs accessing the Proposed Development would do so via the A9 and A823 to the north of the Proposed Development. Vehicle routeing estimates will, however, be reviewed further in consultation with the Applicant.

The delivery of the turbine components during construction would require abnormal invisible load vehicle (AILV) movements as some of the vehicles carrying the components would have at least one dimension that does not comply with the maxima in The Road Vehicles (Construction and Use) Regulations 1986⁴⁵. A Route Survey Report has been prepared which

⁴⁵ The Road Vehicles (Construction and Use) Regulations (1986). 1986 No. 1078. HMSO: London



identifies potential routes for ALLVs from Port of Rosyth and Port of Dundee. This report will be included as a Technical Appendix to the EIA Report and the effects of the passage of these ALLVs will be considered in the assessment.

10.4.2. Effects Scoped-Out

The Applicant has an operations team based at the operational Green Knowes Windfarm and this team would be expected to remain at the Proposed Development. The number of vehicle movements during operation is expected to be similar to that of the operational Green Knowes Windfarm and would be much lower than that which would be generated by the construction of the Proposed Development. It is proposed, therefore, that the transport impacts of the Proposed Development once it is fully operational are scoped out of the assessment.

10.4.3. Assessment Method

The additional traffic expected to be generated by 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.”

It is proposed that sections of road will be identified as being of ‘high sensitivity’ (i.e. 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 10.3** will have established which sections of road within the study area could be classified as being of ‘high sensitivity’. All other sections of road would be subject to the threshold in Rule 1.

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 would be considered to be low and not significant in EIA terms. No further assessment work would be undertaken on such sections.

10.5. Proposed Mitigation & Enhancement

Primary mitigation could be provided by reusing as many materials as possible from the operational Green Knowes Windfarm. Examples of such mitigation would be reusing access track materials in the construction of the access tracks. Other examples of primary mitigation would be using on-site borrow pits and batching plants. These examples are primary mitigation as they would generate fewer vehicle movements on the public road network than would be generated if all materials were imported. The options to embed primary mitigation in the design will be considered throughout the design process.

Secondary mitigation measures will be suggested to avoid any potential significant effects. An example of such a measure would be stipulating that HGVs to and from the Proposed Development should avoid a specific route or specific times of day. The need for such mitigation will be identified through the assessment and summarised in a Construction Traffic Management Plan (CTMP). The EIA Report will include a summary of measures that could be included in a CTMP and the submission of a full CTMP could be made a condition of any consent granted for the Proposed Development.

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

10.6. Potential Impacts

10.6.1. Potential 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 would 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.
- Hazardous/Large Loads.

All potential effects will be assessed in accordance to accepted best practice and comply with all relevant IEMA guidelines and guidance.

10.6.2. 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. Developments that are either subject to valid planning applications or have received consent but are not yet implemented will be considered in the cumulative assessment. The significance of predicted cumulative effects will be assessed using the same process as described above.

10.7. Receptors & Impacts Scoped In or Out of Assessment

Receptors scoped into the assessment would be those users of the road network in the study area who could be affected by an increase in vehicle movements during the construction of the Proposed Development. Impacts arising from the effects listed in **Section 10.6** would be considered.



Impacts arising from the operation of the Proposed Development would be scoped out of the assessment.

10.8. Scoping Questions to Consultees

Q10.1: Is the proposed methodology acceptable?

Q10.2: Are there any key locations on the road network within the study area that consultees would wish to see considered as sensitive receptors?

Q10.3: Are there any locations on the road network within the study area with atypically high accident rates?

Q10.4: Are there any particular committed developments that consultees would wish to see included in the cumulative assessment?

11. Socio-Economic, Tourism, Recreation & Land Use

11.1. Introduction

BiGGAR Economics has been commissioned to undertake a socio-economic assessment of the Proposed Development. Socio-economic assessments of onshore wind farms over the last decade have found no significant adverse effects in terms of the EIA Regulations and there is no reason to expect significant effects for the Proposed Development. It is therefore proposed to scope socio-economics out of the EIA, in line with guidance produced by Scottish Renewables.

Nevertheless, it will be necessary to determine whether the Proposed Development is likely to comply with Policy 11 of Scotland's fourth National Planning Framework (NPF4, released in 2023), specifically paragraph (c), 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 report on socio-economics will be provided and submitted alongside the EIA, in line with Scottish Renewables' Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms and the wider Sector Deal commitments.

The socio-economics report will be undertaken in line with guidance published by Scottish Renewables. The socio-economics report will include consideration of employment generation and any indirect or induced effects from the Proposed Development.

To maintain consistency with previous assessments and ensure the report meets the needs of all stakeholders the report will also consider potential effects on tourism.

11.2. Study Area

The study areas of the assessment will be selected to meet the interest of key stakeholders and will be made of predefined geographies. The baseline assessment will include a description of the current socio-economic, recreation and tourism baseline within the local area.

The baseline descriptions will cover and compares the study areas of:

- The local area (defined as the electoral wards of Strathallan and Kinross-shire);
- Perth and Kinross; and
- Scotland.

The economic impacts will be quantified for Perth and Kinross and Scotland.

11.3. Baseline Description

11.3.1. Population Estimation

Current data on mid-year population for 2023 (published by the Scottish government in 2024) indicates that the local area has a population of 27,140, which accounts for 17.8% of the population of Perth and Kinross (**Table 11.1**).

The local area has an older population, with 24.2% of the population aged 65 or over, compared to 20.3% across the whole of Scotland.

Table 11-1: Population Estimates by Age, 2023

	Local Area	Perth and Kinross	Scotland
Total	27,140	152,560	5,490,100
Under 16	16.3%	15.7%	16.3%
Aged 16-64	59.5%	59.3%	63.4%
Aged 65+	24.2%	25.0%	20.3%

11.3.2. Industrial Structure

According to the Business Register and Employment Survey 2023 (published by the Office for National Statistics (ONS) in 2024) there are an estimated 8,860 jobs within the Local Area across multiple sectors of the economy. As shown in **Table 11-2** the accommodation and food services sector is particularly important to the Local Area, accounting for 28.8% of all jobs and partly reflecting the importance of tourism. This is higher than the equivalent figures for Perth and Kinross (13.4%) and Scotland (8.6%).

The second largest sector of employment in the local area is manufacturing (11.9%), compared to 7.0% and 6.7% in Perth and Kinross and Scotland. This reflects high levels of employment in beverages and food product manufacturing, in particular the whisky sector and the soft drinks manufacturer Highland Spring.

The economic opportunities from the development, construction and operation of the Proposed Development are likely to be within specific sectors. This includes the construction sector, which employs 7.3% in the local area, compared to 6.0% in Perth and Kinross and 5.1% in Scotland.

Table 11-2: Industrial Structure, 2023

Industry	Local Area	Perth and Kinross	Scotland
Accommodation and food services	28.8%	13.4%	8.6%
Manufacturing	11.9%	7.0%	6.7%
Human health and social work activities	11.3%	11.3%	15.6%
Wholesale and retail trade	9.3%	14.1%	13.2%
Education	7.9%	7.0%	8.2%
Construction	7.3%	6.0%	5.1%

Industry	Local Area	Perth and Kinross	Scotland
Professional, Scientific and Technical Services	7.1%	5.3%	7.2%
Administrative and support service activities	3.7%	3.9%	6.8%
Arts, entertainment and recreation	2.5%	2.8%	2.7%
Transportation and storage	2.1%	3.3%	4.5%
Real estate activities	2.0%	1.9%	1.5%
Agriculture, forestry and fishing	1.8%	8.4%	3.4%
Information and communication	1.4%	1.1%	3.1%
Other service activities	1.4%	1.6%	1.7%
Public administration and defence; compulsory social security	0.8%	5.3%	6.2%
Financial and insurance activities	0.4%	2.5%	3.2%
Electricity, gas, steam and air conditioning supply	0.2%	3.5%	0.7%
Total	8,860	71,030	2,655,000

11.3.3. Education

According to the Annual Population Survey 2023 (published by ONS in 2024), in Perth and Kinross, 62.7% of the population have achieved a qualification at Regulated Qualifications Framework (RQF) Level 4 or above **Table 11-3**, which is equivalent to a higher education certificate. This compares with 54.5% across Scotland. The proportion of people qualified to RQF Level 3 or above is also higher at 81.7% than Scotland as a whole, at 72.5%.

Table 11-3: Education Levels, 2023

	Perth and Kinross	Scotland
% with RQF4+	62.7%	54.5%
% with RQF 3+	81.7%	72.5%
% with RQF2+	91.5%	87.4%
% with RQF1+	93.8%	88.6%
% with other qualifications (RQF)	2.2%	3.4%
% with no qualifications (RQF)	4.0%	8.0%

11.4. Proposed Scope & Methodology

It is anticipated that the contents of the standalone report will include:

- introduction, including scope of assessment and methodology;
- economic development and tourism strategic context;

- baseline socio-economic context;
- baseline tourism and recreation context;
- proposed actions to maximise local supply chain impacts;
- proposed actions to increase the local skills base;
- proposed actions to empower the community;
- proposed measures to protect and enhance the environment;
- socio-economic assessment;
- tourism and recreation impact assessment; and
- summary of findings and conclusion.

This will primarily be a desk-based study with consultation undertaken by the Applicant with the local community to further inform the socio-economic, recreation and tourism baseline and inform any opportunities from the Proposed Development which arise therein.

Government and industry reports will be used to determine the expected capital and operational expenditure associated with the Proposed Development, as well as the breakdown of expenditure by different contracts (e.g. turbine, balance of plant). An assumption will then be made based on the share of each type of contract that can be secured regionally and nationally. This increase in turnover will then be used to estimate the economic impact associated with the Proposed Development.

The method to assess the socio-economic effects will be based on industry best practice and will consider the share of contracts that can be secured in each study area, and the level of employment that can be supported as a result.

In order to assess effects on tourism and recreation assets, the features that make them distinctive and attractive, such as how they display local heritage, will be identified. The potential impact of the Proposed Development on those key features will then be assessed, with consideration of the existing Green Knowes Windfarm and, where relevant chapters of the EIA Report determine the magnitude of change.

11.5. Proposed Mitigation & Enhancement

Proposed mitigation measures will depend on the findings of the assessment. Proposed measures that will be adopted to enhance the socio-economic impacts include:

- engaging early with the local community and local businesses;
- providing clear information on technical requirements that can allow businesses to prepare; and
- incentivising Tier 1 suppliers to engage with local businesses.

Other measures will be identified as part of the standalone socio-economic and tourism assessment.

11.6. Potential Impacts

The impacts that will be considered in this assessment will include the potential socio-economic, tourism and recreation impacts associated with the Proposed Development.

An economic impact analysis will be undertaken using the methodology developed by BiGGAR Economics; which has been used to assess over 150 onshore wind farms across the UK. The potential socio-economic impacts that will be considered are:

- temporary effects on the regional and/or national economy due to expenditure during the construction phase;
- permanent effects on the regional and/or national economy due to expenditure associated with the ongoing operation and maintenance of the Proposed Development;
- permanent effects as a result of any additional public expenditure that could be supported by the additional tax revenue that would be generated by the development during the operational phase; and
- permanent effects on the local economy that could be supported by any community funding and/or shared ownership proposals during the operational phase of the development.

The link between onshore wind energy developments and the tourism sector has been a subject of debate. However, the most recent research (discussed below) has not found a link between tourism employment, visitor numbers and onshore wind development.

In 2021, BiGGAR Economics undertook a study⁴⁶, which considered wind farms and Tourism Trends in Scotland, which updated a previous study. The research identified 16 wind farms with a capacity of at least 10 MW that became operational between 2015 and 2019. Analysis of trends in tourism employment in the locality of these wind farms (15 km radius) found that 11 of the 16 areas had experienced more growth in tourism employment than for Scotland as a whole. For 13 of the 16 wind farms, trends in tourism employment in the locality had outperformed the local authority in which they were based. This work was an update of previous work undertaken by BiGGAR Economics in 2017 that considered 28 wind farms constructed between 2009 and 2015 and the trends in tourism employment in the areas local to these developments. The analysis found that there was no relationship between the development of onshore wind farms and tourism employment at the level of the Scottish economy, at the local authority level nor in the areas immediately surrounding wind farm developments.

Nevertheless, the tourism sector is an important contributor to the Scottish economy, and so there is merit in considering whether the development will have any effect on the tourism sector. This assessment will consider the potential effects that the development could have on tourism attractions, routes, trail, and local accommodation providers. This will consider the implications of any effects identified for the tourism sector in the local area and wider region.

⁴⁶ BiGGAR Economics (2021) – Wind Farms and Tourism Trends in Scotland: Evidence from 44 Wind Farms



11.7. Receptors & Impacts Scoped In or Out of Assessment

In line with Scottish Renewables guidance⁴⁷, socio-economics will be considered in a separate, standalone report prepared to accompany the Section 36 application, and which is not part of the EIA Report.

The standalone assessment will consider economic impacts on the economies of Perth and Kinross and Scotland, while the tourism assessment will focus on the local tourism economy.

11.8. Scoping Questions to Consultees

Q11.1: Do the consultees agree with the approach of scoping socio-economics out of the EIA and into a standalone report to better address the socio-economics requirements of NPF4?

Q11.2: Do the consultees agree that the scope of the proposed socio-economic assessment is appropriate?

Q11.3: Are there specific socio-economic effects that should be considered in the standalone report?

⁴⁷ Scottish Renewables (2025) – Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms

12. Noise

12.1. Introduction

This section considers the potentially significant effects of noise during the Site preparation and construction and operation phases of the Proposed Development which will require further consideration within the EIA Report.

This Scoping section sets out the key issues identified and proposes a method and standards for assessment of noise in the EIA Report.

Consultation with PKC Environmental Health Officers (EHOs) will continue throughout the assessment process to agree the following:

- the status of identified potential Noise Sensitive Receptors (NSRs);
- noise monitoring positions for the baseline survey;
- identification of potentially cumulative developments and a detailed method for the consideration of potential cumulative effects; and
- the derivation of appropriate ETSU noise limits, with apportionment for cumulative developments if appropriate.

12.2. Study Area

The assessment will consider noise sensitive residential receptor locations in the vicinity of the Proposed Development which could potentially be affected by construction or operational noise. Specifically in the case of operational wind turbine noise, Energy Technical Support Unit (ETSU) document entitled, 'The Assessment and Rating of Noise from Wind Farms' (ETSU-R-97) (ETSU, 1996) states that noise levels will be considered acceptable, even in the absence of measured baseline data, if predicted noise levels (including cumulative contributions from all wind farms) do not exceed 35 decibels (dB) L_{A90} .

Therefore, the assessment will consider receptors where predicted levels approach or are likely to approach this threshold, whilst also including receptors located further from the Proposed Development which could be influenced by other wind farms, provided the specific contribution of the Proposed Development is not negligible relative to that of the other schemes considered.

The assessment will consider receptors which could potentially be affected by operational noise from associated electrical infrastructure such as substations.

Receptors will also be considered which could potentially be affected by noise or vibration effects from the construction of the Proposed Development infrastructure. In addition, receptors located along the Site access track or route will also be considered in relation to construction traffic.

12.3. Baseline Description

A review of maps and aerial images has identified that the Site and surroundings comprise a mixture of farmland, forestry and moorland, with the A823 to the south and west and the B934



to the east. The surrounding area has been subject to wind farm development, with proposed, consented and operational developments noted. Identified cumulative developments also are shown (refer to **Figure 5.2**).

Based on our review of the available information and knowledge of the area, we anticipate that the baseline noise environment will be dominated by the wind, wildlife and livestock, with wind turbine noise a significant contributor close to the existing Green Knowes Windfarm and road traffic noise a contributor in the southern part of the study area.

12.4. Proposed Scope & Methodology of Assessment

For a development of this nature, there is no specific all-encompassing legislation relating to the evaluation of noise and vibration impacts. In lieu of any specific legislation, assessing the effect of such a development during the construction and operational phases must draw on information from a variety of sources. This assessment, therefore, makes reference to a number of British Standards, official planning guidance notes and national guidelines.

The operational phase noise assessment will be undertaken in accordance with the guidance set out in the ETSU-R-97. The assessment also considers the guidance contained within the Institute of Acoustics' document 'A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise' (IoA GPG) (Institute of Acoustics, 2013), which is accepted as representing current industry good practice.

ETSU-R-97, prepared by a Working Group on Wind Turbine Noise assembled at the behest of the then Department of Trade and Industry provides guidance and methodology for the prediction and assessment of noise from wind farms. The fundamental approach of ETSU-R-97 is the determination of appropriate allowable noise level limits with which an operational wind turbine development should comply. These operational noise limits are derived from representative measurements of pre-development ambient noise at a range of wind speeds and directions at locations representative of the closest noise-sensitive receptors. A cumulative noise impact assessment, to be agreed through further detailed consultation with the Environmental Health Officer (EHO) of Perth & Kinross Council, will also take into consideration existing, proposed and consented wind energy developments in the vicinity of the Proposed Development, where these can be demonstrated to have potential cumulative impacts.

Current national guidance and policy on wind turbine noise assessment indicates that specific assessments of vibration, infrasound, low-frequency noise and excess amplitude modulation outside the scope of ETSU-R-97 and the IoA GPG are not required at the planning stage for proposed onshore wind turbine developments. Therefore, these matters have not been considered in the assessment of operational noise impact.

The following policy and legislation will be referenced within the assessment:

- The Working Group on Noise from Wind Farms (1996), ETSU-R-97, The Assessment and Rating of Noise from Wind Farms.

Furthermore, the following good practice and guidance documents will be referred to throughout the assessment:

- British Standards Institute (2014), British Standard BS5228-1:2009+A1:2014, Code of practice for noise and vibration control on construction and open sites – Part 1: Noise;



- British Standards Institute (2019), British Standard BS4142:2014+A1:2019 Methods for rating and assessing commercial and industrial noise;
- Design Manual for Roads and Bridges (LA III Noise and vibration);
- Institute of Acoustics (2013), A Good Practice Guide of the Application of ETSU-R-97 for the Assessment and Rating of Wind Farm Noise, and Supplementary Guidance Notes; and
- International Organisation for Standardisation (2024), ISO 9613, Acoustics – Attenuation of Sound during Propagation Outdoors.

ETSU-R-97 is currently in the process of being revised and updated; presently the draft guidance is at consultation. The updated guidance, if published and adopted, will be considered within the EIA Report Noise Chapter.

12.4.1. Desk and Field Survey Methods

ETSU-R-97 generally requires the baseline noise environment at nearby noise sensitive receptors to be characterised by measuring background noise levels as a function of site wind speed at the nearest neighbours (or, at a representative sample of the nearest neighbours). ETSU-R-97 also requires that any such measurements are not significantly influenced by existing operational turbines, to prevent unreasonable cumulative increases.

An initial review of the baseline data surveyed for the operational wind turbines on the Proposed Development Site, as well as other adjacent wind farm schemes (and which are publicly available in the EIA Reports for those schemes), suggests that existing baseline levels may not have been sufficiently defined for the purposes of an assessment of operational noise in accordance with ETSU-R-97 and best practice.

New measurements would in any case involve considerable practical difficulties, given that these should not be influenced by operational wind turbines according to the requirements of ETSU-R-97. Aside from the influence of operational wind farms, the noise environment at the relevant properties is unlikely to have substantially changed since the previous surveys were undertaken.

The feasibility, and necessity, of additional baseline noise measurements will be agreed in consultation with the PKC EHO.

The potential implication of wind shear effects due to the heights of the turbines to be considered for the Proposed Development would be taken into account in line with best practice. The relevant wind speed references used for existing baseline surveys and noise limits would be reviewed, with the application of correction factors where necessary. A further review would be completed to ascertain whether correction factors are required and whether these can be derived from site specific data.

The approach to the derivation of baseline background noise levels, relevant noise limits and criteria would be discussed in consultation with the Environmental Health Department of PKC. The assessment methodology, in particular with regards to cumulative impacts, will also be discussed.

12.4.2. Assessment Method

The methodology for the assessment of operational noise from wind farms recommended in planning guidance is that documented in ETSU R 97. In summary, the assessment shall:

- Identify the nearest noise sensitive receptors;
- Determine the quiet daytime and night-time noise limits derived from background noise levels at the nearest neighbours (anticipated to be those detailed within the Condition applicable to the existing operational Green Knowes Windfarm);
- Specify the type and noise emission characteristics of the wind turbines proposed for the Site;
- Calculate noise emission levels which would be due to the operation of the wind turbines as a function of Site wind speed at the nearest neighbours, including the cumulative effect of all acoustically relevant wind turbines; and
- Compare the calculated wind farm noise emission levels with the derived noise limits.

The good practice guidance referenced above (IOA GPG) will be taken into account, including advice on baseline survey data, wind shear and noise prediction methodology.

The calculated wind farm noise emission levels will be compared with the noise limits derived in accordance with ETSU-R-97. These limits, for each noise-sensitive receptor, apply to the total noise produced by all wind farms. Therefore, potential cumulative operational noise levels, including existing, consented and application wind turbines in the area, will be assessed relative to these limits. Based on previous experience, wind farm proposals located more than 10 km from the Proposed Development are unlikely to represent an acoustically relevant contribution to cumulative noise levels. It is proposed to discount the cumulative impacts of smaller single turbine schemes in the area, with a capacity of less than 50 kW, as their impact tends to be localised and unlikely to result in significant cumulative noise impacts.

When considering neighbouring cumulative wind farm noise, the potential noise emissions from adjacent wind farms will be considered by examining the level of noise emission allowed under the respective consent for each of the wind farms, in line with current best practice (see guidance referenced above). The assessment will include consideration of the wind turbines already operating within the Proposed Development Site, the contribution to total cumulative noise levels due to operation of these wind turbines which has been assumed, as well as the previous apportionment of the total noise budget, when consents were granted for neighbouring wind farms which post date the consent for Green Knowes Windfarm.

The total ETSU R 97 noise limits assigned to Green Knowes Windfarm would normally be available to the Proposed Development, as this pre-dates other adjacent wind farm developments which were consented on this basis. The applicable noise limits for the Proposed Development will be considered in detail based on a review of potential cumulative noise, in consultation with the Environmental Health Department of PKC as required.

If proposed supporting electrical infrastructure, such as a substation, are located at a substantial distance from the nearest noise-sensitive receptors, e.g. one kilometre or more, it may be possible to conclude that the associated noise effects are likely to be negligible based on experience of similar developments. If not, a more detailed study in line with BS 4142 would be undertaken, based on representative noise data for the electrical/mechanical plant units



which may be installed, on a worst-case basis. The predicted levels at neighbouring receptors would be assessed relative to the existing baseline background noise levels at the relevant receptors, accounting for the potential character of the noise, in accordance with BS 4142. The greater the difference between predicted operational noise levels and baseline levels, the greater the impact, subject to also accounting for several contextual factors. As part of the contextual analysis, it is relevant to consider the absolute noise levels which, if sufficiently low, may be considered acceptable regardless of background levels.

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

Consideration will also be given to the potential effects of construction traffic on sensitive receptors in the area. Depending upon the outcome of the assessment of traffic, the effects of traffic along the access route will be assessed on the basis of the methodology within BS 5228-1, and the 'Calculation of Road Traffic Noise' (DoT, 1988), where appropriate.

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

The assessment of construction noise and vibration will identify if and when predicted noise levels may be above standard guideline limits, taking into account the rural character of the area. For construction traffic, the criteria set out in the Design Manual for Roads and Bridges (LA 111, National Highways, 2020) will also be referenced. Construction noise management procedures will also be determined.

12.5. Proposed Mitigation & Enhancement

We anticipate that key controls for construction noise such as core hours of works would be exerted through the requirements of the EHOs and that such controls would constitute effective mitigation measures.

Site-specific mitigation measures will be outlined to reflect the principles of Best Practicable Means, as set out in the Control of Pollution Act (CoPA) 1974. The purpose of these measures will be to reduce construction noise and, where relevant, vibration impacts insofar as is reasonably practicable.

Where predicted operational noise levels exceed the proposed noise limits at any wind speed, outline mitigation strategies will be proposed. Mitigation of operational noise, if required, may include an alternative selection of turbine, operating certain turbines in low noise modes under certain meteorological conditions, such as specific wind speeds and directions, or recommendations to move or eliminate turbines from the scheme.

12.6. Potential Impacts

The Proposed Development will change or introduce new noise sources into the area, both during the construction and operational phases. Significant adverse impacts can be prevented by restricting noise levels due to the Proposed Development to within noise limits determined in accordance with appropriate guidance, as detailed above.

12.7. Receptors & Impacts Scoped In or Out of Assessment

No NSRs have yet been scoped out of the assessment, however, the status of potential NSRs will be confirmed through consultation with the EHOs. Where properties are determined to be derelict and uninhabitable, they may be scoped out of further assessment.

Should any blasting be required for borrow pits, it is unlikely that the charge parameters will be known at the time of the assessment. We therefore propose to scope out detailed assessment of potential vibration impacts and instead commit to meeting appropriate vibration limits at NSRs should blasting be required. We anticipate that such a commitment could be agreed through an appropriate planning condition.

12.8. Scoping Questions to Consultees

Q12.1: Do you agree with the proposed methodology set out above?

Q12.2: Do you agree with the proposal to scope out operational traffic noise and operational vibration from further assessment?

13. Aviation

13.1. Introduction

This Section assesses the potential for the Proposed Development to affect aviation Communications, Navigation and Surveillance (CNS) infrastructure in the vicinity of the Development Site. The Proposed Development will be assessed against existing national policy and guidance and will be based upon the guidance laid down in Civil Aviation Publication (CAP) 764, Policy and Guidelines on Wind Turbines and Military Aviation Authority regulations.

The Section identifies the potential effects that the Proposed Development may have on civilian and military aviation and the requirement for mitigation measures to be implemented to prevent, reduce or offset any potential adverse effects. The following are considered:

- Civil aviation interests, including 'En Route' facilities managed and operated by National Air Traffic Services (En Route) Ltd (NERL), airports, licensed and unlicensed aerodromes, light aircraft landing strips, microlight sites, parachute and gliding sites; and
- Military facilities including Ministry of Defence (MoD) Airfields and military Air Traffic Control (ATC) facilities, Air Defence Radars (ADR), Danger Areas and Ranges and low flying operations.

13.2. Study Area

The development of wind turbines has the potential to cause a variety of adverse effects on aviation during turbine operation. These include (but are not limited to): physical obstructions, the generation of unwanted returns on Primary Surveillance Radar (PSR) and adverse effects on the overall performance of Communications, Navigation and Surveillance (CNS) equipment. A full aviation assessment of the Proposed Development will be undertaken to identify and assess the likely aviation issues associated with the Proposed Development.

There are two main effects that may result in an objection from aviation stakeholders:

- wind turbines can present a physical obstruction to flying operations when at, or close to, an aerodrome and to other aviation activities such as military low flying operations; and
- impacts on aviation radar systems and the provision of a radar-based Air Traffic Service (ATS). When there is line of sight between a turbine, or turbines, and a radar, the subsequent interference can sometime present as "clutter" and the controllers are unable to distinguish between this and real aircraft returns. There is a consequent reduction in their ability to provide a "full" ATC service and/or in order to ensure safety it may mean that the controllers have to route the aircraft around the clutter by a significant margin. Furthermore, the appearance of multiple false targets in close proximity can generate false aircraft tracks and seduce those returns from real aircraft away from the true aircraft position.

Where there is line of sight between turbines and air traffic control radars it is possible that the turbines may be detected by the radar, dependant on atmospheric conditions, and appear as clutter on the controllers' screens; such clutter can have a direct operational impact on air



traffic control operations. Similarly, turbines when constructed can act as a physical obstruction either to aviation operations at aerodromes in the vicinity of the development or aircraft transiting the area.

The aviation Study Area and assessment has been determined by, and is dependent on, the maximum operating ranges of each of the radar systems scoped into the assessment. The operational range of the radar system is dependent on the function of the radar, the operational requirement of the radar and on the type of radar used. The ranges of those radars and, subsequently, the topic-specific Study Area will vary depending on the technical specification of each radar system and, possibly, between different installations of the same system. The same factors apply to other aviation infrastructure (radios/beacons). CAP 764 provides criteria for initial guidance in assessing whether any wind turbine development might have an impact on civil aerodrome related operations.

Within the extent guidance the study area and consultation criteria for aviation stakeholders is defined below. These distances inform the size of the assessment area and include:

- Airfield with a surveillance radar – 30 km;
- Non-radar licensed aerodrome with a runway of more than 1,100 metres – 17 km
- Non-radar licensed aerodrome with a runway of less than 1,100 metres – 5 km;
- Licensed aerodromes where the turbines would lie within airspace coincidental with any published Instrument Flight Procedure (IFP);
- Unlicensed aerodromes with runways of more than 800 metres – 4 km;
- Unlicensed aerodromes with runways of less than 800 metres – 3 km;
- Gliding sites – 10 km; and
- Other aviation activity such as parachute sites and microlight sites within 3 km – in such instances developers are referred to appropriate organisations.

CAP 764 goes on to state that these distances are for guidance purposes only and do not represent ranges beyond which all wind turbine developments will be approved or within which they will always be objected to. These ranges are intended as a prompt for further discussion between developers and aviation stakeholders and will be reported upon in the EIA Report.

It is necessary to take into account the aviation and air defence activities of the Ministry of Defence (MoD) as safeguarded by the Defence Infrastructure Organisation (DIO). The types of issues that will be addressed in the EIA Report include:

- MoD Airfields, both radar and non-radar equipped;
- MoD remote Air Traffic Control (ATC) radars;
- MoD Air Defence (ADR) Radars;

- MoD Meteorological Radars; and
- Military Low Flying.

It is also necessary to take into account the possible effects of wind turbines upon the National Air Traffic Services (NATS) En Route Ltd (NERL) communications, navigation and surveillance systems – a network of primary and secondary radars and navigation facilities around the country.

13.3. Baseline Description

Airspace within the UK is currently annotated within five classifications of airspace which determine the flight rules to be applied within that area⁴⁸. The Proposed Development is located in an area of Class G airspace, which is unregulated, or uncontrolled, airspace.

13.4. Methodology of Assessment

An initial aviation impact assessment has been conducted using specialist propagation prediction software (RView). Developed over a number of years, it has been designed and refined specifically for the task. RView uses a comprehensive systems database which incorporates the safeguarding criteria for a wide range of radar and radio navigation systems and models the terrain using the latest Ordnance Survey (OS) Terrain 50 digital terrain model. The results are verified using the Shuttle Radar Topography Mission (SRTM) dataset, a separate smoothed digital terrain model and, by using two separate and independently generated digital terrain models, anomalies are identified and consistent results assured.

As well as examining the technical impact of wind turbines on ATC facilities, it is also necessary to consider the physical safeguarding of ATC operations, using the criteria laid down in CAP 168 Licensing of Aerodromes, to determine whether a proposed development will breach obstacle clearance criteria. This will also be reported on in the EIA Report, but initial surveys show there are no physical safeguarding issues associated with the Proposed Development.

13.5. Significance of effects

In order to assess the effect that wind farms have on aviation operations it is necessary to undertake an assessment of the potential technical effects on CNS systems and to then determine if the technical effect would lead to a significant effect on operations or flight safety.

Within aviation the sensitivity of a receptor can be subjective and, therefore difficult to quantify. Direct line of sight from a development to a radar may not, necessarily, result in an objection if there is no operational or safety implication. The differing roles of radars will require a different emphasis on the effect and an aerodrome/airfield might require differing considerations than that of another aerodrome nearby depending on the importance of that facility to military operations or to a local airport and effects need to be considered accordingly. Similarly, a nearby radar might not warrant a significant effect but the air defence radar hundreds of miles away might be crucial to national security. The guidance laid down in CAP 764 encourages a dialogue between the developer and aviation stakeholders to agree what effect, if any, there will be on operations, to determine if that effect is acceptable within an operational context and, if not, then to agree mitigation if any is feasible. The receptors

⁴⁸ UK airspace comprises five of the recognised classifications, A,C,D,E and G. Classifications B and F are not used within the UK.



identified within this assessment are considered to have a potential sensitivity to effects in terms of the safety of aviation operations.

The assessment of potential effects has been undertaken by identifying whether impacts on aviation and radar are anticipated.

The assessment does not determine significant or non-significant effects but whether there is an effect or no effect. There is no standard series of definition for significance of effects within aviation and Air Navigation Service Providers (ANSPs) tend to apply their own criteria to assessment which can lead to confusion and to further work complicating the relevance of the effect and of potential mitigation. The extent of effect is, therefore, a matter for the stakeholder concerned and this chapter does not therefore adhere to the standard EIA methodology significance assessment techniques or criterion.

13.6. Receptors Scoped In and Out of Assessment

13.6.1. Licensed Aerodromes (non-radar).

There are no non-radar equipped licensed aerodromes within 17 km and these can be scoped out from further assessment.

13.6.2. Met Office Radars

There are no Met Office radars within the stipulated consultation distance and they can be scoped out from further consideration.

13.6.3. Unlicensed Aerodromes, Gliding, Hang Gliding and Parachuting Sites

There are no known unlicensed aerodromes within consultation distance. The closest facility of interest is the private airstrip at Strathallan 10 km to the north. There is no requirement to consult with the operator of the aerodrome.

An online search for private airfields has been conducted and none identified within consultation distance, however, not all private strips are listed in publications or marked on charts. Operators of any such private airstrips that are identified during EIA Report preparation will be consulted in accordance with CAP 764 and CAP 793 Safe Operating Practices at Unlicensed Aerodromes.

13.6.4. Construction Phase

Algorithms within radar systems are established to prevent static objects being detected and to ensure that only moving objects are presented to the controllers' screens. During the construction phase the blades will be static and will not be detected. There should be no interference with radar systems.

During commissioning there is a well-established procedure for the dissemination of information considered essential for the safety of flying operations, both civil and military, to allow such aviation operations to be planned and to continue accordingly.

The construction activities, when conducted in accordance with mandated procedure, will not pose a risk to aviation and there should be no effect; the inherent embedded mitigation means that construction activities can be scoped out from further consideration with aviation.

13.6.5. Operational Phase (Licensed Aerodromes)

An initial review undertaken by WFAS using the above criteria shows that there are no civil licensed radar equipped aerodromes within 30 km. However, Edinburgh Airport normally require to be consulted beyond that, and radar line of sight modelling has been conducted against the two radars in place at Edinburgh Airport, the main PSR and the TERMA radar which is there as mitigation for other wind developments. The initial radar assessment indicates that, at a 180 m turbine tip height, there will be line of sight from the Site to the airport radars.

The initial radar assessment results show that there will be line of sight between the majority of the Site and both of the radars at Edinburgh Airport. The result will be that an area of radar clutter will be generated on the radar in an area which is likely to cause interference on the radar screens and which may already be affected by clutter from other wind turbines. It will be necessary to conduct radar modelling against the finalised layout and to determine the actual line of sight to the planned turbines but it will be for Edinburgh Airport operators to determine if the technical effect will have any operational effect but it should not be assumed that the TERMA radar will have the ability to be utilised as mitigation for the main PSR. The availability of TERMA as a mitigation will have to be confirmed with the airport operator.

The Applicant will undertake consultation with Edinburgh Airport and the outcome reported in the EIA Report.

13.6.6. Ministry of Defence

The closest MoD ATC radar equipped airfield is at Leuchars, approximately 51 km to the north-east.

The MoD do not limit the extent to which they safeguard their radars and the initial radar assessment indicates that, at a 180 m turbine tip height, there will be line of sight from the Site to the Leuchars ATC radar. The result will be that an area of radar clutter will be generated on the radar in an area which is likely to cause interference on the radar screens and which may already be affected by clutter from other wind turbines. It will be necessary to conduct radar modelling against the finalised layout and to determine the actual line of sight to the planned turbines but it will be for MoD DIO to determine if the technical effect will have any operational effect.

MoD Air Defence – The nearest Air Defence Radars are at Buchan on the east coast of Scotland, near Peterhead and at Benbecula. Radar modelling has been undertaken and the radar line of sight is very high above the Site; there should be no line of sight. This will be confirmed by radar modelling of the finalised layout and with consultation with MoD DIO and reported in the EIA Report.

MoD Low Flying – The Proposed Development is located close to boundary between of Low Flying Area (LFA) 14 and LFA 16 and close to a funnel of Class G airspace between Glasgow and Edinburgh airports and through which military aircraft can fly. Due to the tip height the development will need to be lit in accordance with Civil Aviation Authority (CAA) policy, and it should be expected that the MoD may require that the turbines be lit to MoD specification along with CAA requirements. It should be expected that both developments will require a lighting assessment on the finalised layout and the MoD will be consulted and the outcome will be reported in the EIA Report.

13.6.7. NATS En Route Ltd

NATS En Route Ltd (NERL) operates a network of long-range ATC radars throughout the country. Whether or not they would object to any turbine development depends upon whether the turbines show on the radar and what type of airspace is above the Site. The nearest NERL radars are at Lowther Hill and the additional wind farm mitigation radars at Orchardton and Kincardine. Radar modelling has been undertaken against the initial layout and it can be assumed that turbines within the Proposed Development will be visible to the NATS radar at Lowther Hill.

However, there should not be any line of-sight between any turbines within the Proposed Development and the Orchardton and Kincardine radars and which may be suitable as mitigation. Detailed radar modelling will be conducted from all three radars against the finalised layout and consultation will be conducted with NATS and will be reported in the EIA Report.

13.6.8. Aviation Obstruction Lighting

CAA extant lighting policy is covered in CAA Policy Statement of Lighting of Onshore Wind Turbine Generators which states that any obstruction in excess of 150m above ground level constitutes an 'en route navigation hazard'. Wind turbines are lit with medium intensity (2000 candela) fixed red lights located on the highest practical point, in this case the nacelle. There is also currently a requirement for 32 candela lights halfway down the tower. There are a number of mitigations that can be applied to minimise the effect of lighting on the surrounding area including reducing the number of turbines that need to be lit, reducing the brilliance of the lights to a minimum of 10% when the visibility in all directions exceeds 5 km and designing the lights to minimise downwards illumination. If necessary, a full lighting assessment will be undertaken for inclusion as a Technical Appendix to the EIA Report.

13.7. Consultation

Consultation with relevant aviation providers is a routine part of wind farm development and, after finalisation of the turbine layout, in accordance with CAP 764 consultees will include:

Edinburgh Airport;

MoD DIO;

NERL; and

CAA for Lighting.

13.8. Scoping Questions to Consultees

Q31.1: Are there any other relevant consultees who should be contacted in respect to the aviation assessment?

Q13.2: Is the scope of assessment and the spatial extent of the aviation study area considered to be appropriate?

Q13.3: Are consultees content with the aviation elements which are to be scoped out from further consideration?

14. Telecommunications & Utilities

14.1. Introduction

This Section of the Scoping Report considers potential issues associated with telecommunications and utilities as a result of the Proposed Development during construction and operation phases.

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. Efforts to mitigate potential electromagnetic signal effects will be incorporated into the turbine layout design by establishing exclusion zones around electromagnetic links.

14.2. Guidance and Legislation

The below relevant legislation, policy and guidance relevant to telecommunication and utility assessments:

- Best Practice Guidelines for Wind Energy Developments (British Wind Energy Association (BWEA), 1994);
- HSE 47 Avoiding Danger from Underground Services, Third Edition (Health and Safety Executive (HSE), 2014);
- Wireless Telegraphy Act 2006;
- Guidelines for Improving Digital Television and Radio Reception (Ofcom, 2003); and
- Tall structures and their impact on broadcast and other wireless services (Ofcom, 2009).

14.3. Proposed Scope of Assessment

14.3.1. Telecommunications

The acceptability of the Proposed Development, in terms of its effects on telecommunications, will be established through direct consultation with all appropriate consultees within the consenting process, namely Airwave Solutions, Arqiva, Atkins, BT, EE, Joint Radio Company (JRC), Spectrum Licensing and Vodafone. The proposed turbine locations will be designed to take into account the minimum separation distance of any identified communication link.

14.3.2. Television

Currently there is no widely accepted method of determining the potential effects of wind turbines on digital television reception, however digital television signals are better at coping with signal reflections, and do not suffer from ghosting that may occur with analogue signals.

To date, there are very few cases of wind turbine interference with digital television reception post-digital switchover. Given the strength of the digital signal in the area and the inherently resilient nature of digital television reception, there is considered to be a low risk of any



interference from a wind energy development at this location on domestic television reception.

14.3.3. Utilities

Other infrastructure, such as utilities, could be affected during construction; however, implementation of best practice would ensure that these are not adversely affected during construction or operation of the Proposed Development. As the Site is the current location of the operational Green Knowes Windfarm, the Applicant has prior knowledge of any potential utility infrastructure within the Site and in the immediate vicinity. Prior to construction, a line search for undergrounded utilities would occur and any services located and avoided.

During construction, there may be construction traffic passing beneath electricity lines along the transportation route. Appropriate management measures will be put in place to ensure that electricity lines are not affected by the Proposed Development, and that the Proposed Development is constructed in accordance with relevant health and safety legislation as appropriate.

14.4. Potential Impacts

If turbines are sited outside of any prescribed buffer zones, there is no potential for the Proposed Development, once operational, to have an impact on telecommunications links or utility infrastructure.

Due to the low risk of interference with television reception, the requirement to address any reception issues once the Proposed Development is operational could be conditioned in any consent granted. For the above reasons, it is not proposed to carry out a detailed assessment of potential effects on television reception and this topic therefore will be scoped out of further assessment.

No impacts are anticipated during construction on local telecommunication or television network or the local utility network.

14.5. Proposed Mitigation

Mitigation of impact on telecommunications links will be by design where possible, i.e., the turbines will be sited outside the minimum separation distance from any identified communication link(s) or other identified infrastructure. Where this is not possible, any other suitable mitigation measures will be agreed through direct dialogue between the Applicant and relevant stakeholders.

14.6. Receptors & Impacts Scoped In or Out of Assessment

Television and utility receptors are unlikely to be impacted during construction and operation of the Proposed Development. It is therefore proposed to scope out the potential effects on television and utility receptors.

Telecommunication receptors are unlikely to be impacted during construction but may be impacted during operation of the Proposed Development (to be confirmed through consultation as noted above). It is therefore proposed that potential effects of the operational stage of the Proposed Development on telecommunication receptors, should any be identified, are provided as a technical appendix to the EIA Report.

14.7. Scoping Questions to Consultees

Q14.1: Do consultees agree to the above methodology?

Q14.2: Do any consultees consider there are telecommunications links or infrastructure which could be adversely affected by the Proposed Development?

Q14.3: Do consultees have any comments regarding those receptors which may be subject to significant effects from the Proposed Development?

Q14.4: Do consultees agree that telecommunications can be scoped out of EIA with potential effects summarised in a technical appendix to the EIA Report?

15. Shadow Flicker

15.1. Introduction

This section of the Scoping Report considers shadow flicker, which is an effect caused by the rotation of the turbine blades when the sun is shining, which can create a flickering or strobe-like effect. It can be distracting and disturbing for people who are affected. Effects usually occur when the frequency of the flicker is less than 1.5 Hz.

15.2. Guidance and Legislation

There are no formal guidelines established to determine acceptable exposure levels concerning shadow flicker. A standard for the evaluation of shadow flicker is not in place. The guidance provided by the Scottish Government in the advice sheet⁴⁹ outlines the potential geographic area that may necessitate assessment. It stipulates, "*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 UK Department of Energy and Climate Change (DECC) has contributed to the existing knowledge through published research titled "Update of UK Shadow Flicker Evidence Base" (DECC, 2011). This research evaluates the global understanding of shadow flicker and establishes that an acceptable study area for assessment extends to ten rotor diameters from each turbine and encompasses a range of 130 degrees on either side of north.

15.3. Baseline Description

Potential for shadow flicker impacts will be assessed at all residential receptors within the shadow flicker Study Area.

As detailed above, the shadow flicker Study Area includes the area within a distance of ten times the rotor diameter and 130 degrees either side of north for each turbine. In the case of the Proposed Development, this area extends to approximately 1.5 km from each turbine, based on a current indicative rotor diameter of 150 m.

15.4. Assessment Methodology and Potential Impacts

As shadow flicker only occurs during operation, an assessment of potential effects during construction is scoped out of detailed assessment. A detailed assessment of potential operational shadow flicker effects will be undertaken if any residential receptors are identified within the study area of the final turbine locations.

In line with the Scottish Renewables Guidance (SR, 2025), the assessment, if required, would be reported within an Appendix to the EIA Report.

The sensitivity of the receptors will be considered to be high unless there are particular reasons for reduced sensitivity. A significant potential effect will be noted where a receptor is identified as experiencing greater than 30 hours of flicker a year or more than 30 minutes per

⁴⁹ Onshore Wind Turbines: A Web-Based Guide (Scottish Government, 2014)



day on the worst affected day (based on the realistic scenario), which ever if greater (DECC, 2011).

The assessment will present clear findings on the estimated number of hours of shadow flicker impact anticipated for each receptor, for both scenarios. Where properties are within or close to the recommended distance a figure is produced. This figure provides a more accurate picture as to which (if any) properties will receive shadow flicker. It takes into consideration dimensions of the turbines and topography as well as the motion of the sun throughout the year.

A cumulative assessment will also be undertaken if it is identified that there are operational, consented, or proposed (in planning) turbines for which the relevant shadow flicker Study Area (ten rotor diameters from those turbines) overlaps with the Proposed Development Study Area, and any residential receptors are present within the overlapping Study Areas. The estimated cumulative hours of shadow flicker impact will be considered, again for both worst-case and realistic scenarios.

In line with the Scottish Renewables guidance (2025), regardless of whether modelling identifies that shadow flicker effects are likely, it is proposed that shadow flicker is scoped out of the EIA (i.e. not reported within an EIA Report chapter). Instead, the results of the modelling exercise and details of any necessary mitigation measures designed to avoid any significant adverse effects would be provided as a technical appendix to the EIA Report.

15.5. Proposed Mitigation

If required, the Applicant will implement a shadow flicker protocol during operation to mitigate shadow flicker impacts. This could include curtailment, i.e. shutting down turbines when shadow flicker effects are predicted to occur. This is a standard approach to reducing or eliminating the potential effects of shadow flicker and would ensure that no significant adverse effects would occur. On this basis, there is no need to scope shadow flicker into the EIA.

15.6. Scoping Questions to Consultees

Q15.1: Do consultees agree with the proposed approach of the assessment within this section?

Q15.2: 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 EIA Report?

16. Air Quality & Human Health

The air quality of the Site is known to be good due to the rural location, with few pollution sources. The main pollution source is local emissions from traffic on the A9 and A823.

During the construction of the Proposed Development, the movement of vehicles and the onsite 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 the site-specific CEMP.

The assessment of human health effects will be undertaken in the context of residential amenity (i.e., visual impact, noise and shadow flicker).

It is therefore proposed that an assessment of air quality & human health is scoped out of the EIA.

16.1. Scoping Questions to Consultees

Q16.1: Do consultees agree that air quality and human health can be scoped out of EIA?

17. Risk of Major Accidents and/or Disasters

Given the nature of the Proposed Development, and its remote location, the risk of a 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 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.

17.1. Scoping Questions to Consultees

Q17.1: Do consultees agree that major accidents and disasters can be scoped out of EIA?

18. Summary

This EIA Scoping Report outlines the proposed technical and environmental assessments that will be included within the EIA Report for the Proposed Development. Table 18-1 summarises these and indicates the technical topics which have been scoped out of the EIA Report. The proposed scope and methodologies for each assessment have been provided and the guidance to be followed set out. Should any further information be required in order that a full EIA Scoping Opinion can be provided we would be happy to provide further information and/or discuss any further requirements.

Table 18-1: Topics Scoped In and Out of EIA

Regulation 4(3) Factors	Construction	Operation
Landscape	Scoped In	Scoped In
Ornithology	Scoped In	Scoped In
Ecology	Scoped In	Scoped In
Geology, Peat, Hydrology & Hydrogeology	Scoped In	Scoped In
Cultural Heritage	Scoped In	Scoped In
Access, Traffic & Transport	Scoped In	Scoped Out
Socio-Economic, Tourism, Recreation & Land Use	Scoped Out (separate, standalone report to be provided)	Scoped Out (separate, standalone report to be provided)
Noise	Scoped In	Scoped In
Aviation	Scoped Out	Scoped In
Television & Utilities	Scoped Out	Scoped Out
Telecommunications	Scoped Out	Scoped Out (report to be provided as technical appendix to EIA Report if required following consultation)
Shadow Flicker	Scoped Out	Scoped Out (report to be provided as technical appendix to EIA Report if required)
Air Quality	Scoped Out	Scoped Out
Risk of Major Accidents and/or Disasters	Scoped Out	Scoped Out

19. Proposed Consultees

During the EIA process, a range of statutory and non-statutory consultees will be contacted to provide valuable input and expertise to the EIA Report. By engaging both statutory and non-statutory consultees, the EIA aims to ensure a comprehensive evaluation of potential environmental impacts and promote an inclusive decision-making process.

19.1.1. Statutory Consultees

- HES;
- NatureScot;
- Perth and Kinross Council; and
- SEPA.

19.1.2. Non-Statutory Consultees

- Civil Aviation Authority (CAA);
- Community Councils
- Crown Estate Scotland;
- Edinburgh Airport;
- Fisheries Management Scotland;
- John Muir Trust;
- MoD;
- Mountaineering Scotland;
- NATS En Route plc;
- RSPB Scotland;
- Scottish Water;
- ScotWays;
- Scottish Wild Land Group;
- Scottish Wildlife Trust;
- Tayside & Fife Raptor Study Group
- Tay District Salmon Fisheries Board;
- Tay Foundation Fisheries Trust;
- Telecommunications:
 - Airwave Solutions



- Arqiva
 - Atkins
 - BT
 - EE
 - Joint Radio Company (JRC)
 - Spectrum Licensing
 - Vodafone
- Transport Scotland; and
- Visit Scotland.

Appendices

Appendix A: Legislation, Planning Policy and Guidance

Legislative Context

The Electricity Act

An application for consent under Section 36 of the Electricity Act 1989 for the construction of an electricity generating station whose capacity exceeds 50 MW is different from an application under the Town and Country Planning (Scotland) Act 1997 for a similar electricity generation station whose capacity is less than 50 MW. Most notably, Section 25 of the 1997 Act does not apply to the determination of applications under Section 36 of the 1989 Act. Whilst the statutory Development Plan is an important relevant consideration, it does not have primacy in the decision making process.

Under Schedule 9 of the 1989 Act applicants are also obliged to have regard to certain environmental matters when formulating development proposals. These include the desirability of preserving natural beauty, conserving listed natural heritage interests and to protecting sites, buildings and objects of architectural and historical interest. They also require applications to do what it reasonably can to mitigate any effects of proposals and to avoid impacts on fisheries or fish stocks in any waters. Schedule 9 is not however a development management test. It seeks to ensure that environmental considerations are taken into account in the formulation of proposals and appropriate mitigation is provided.

The iterative design process conducted as part of the EIA will ensure that all these issues will be taken into account in the formulation of the proposals. In addition, the EIA process will help to identify any required mitigation.

National Development Plan Policy and Guidance

National Planning Legislation

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2024, which amends the Climate Change (Scotland) Act 2009, maintains Scotland's statutory commitment to achieving net-zero greenhouse gas emissions by 2045. The 2024 Act introduced a system of multi-year carbon budgets, each covering a five-year period, which sets out the total permitted emissions for each budget cycle and provides the framework for monitoring progress towards the 2045 target.

Furthermore, there is a national target to generate 50% of Scotland's overall energy consumption via renewable means by 2030. Whilst Scotland's current energy demands are largely met by renewable energy sources, significant additional renewable energy capacity as well as supportive infrastructure on the grid, such as wind power, is needed to facilitate decarbonisation as we transition to net zero.

National Planning Framework 4



NPF4 (Scottish Government, 2023a) was adopted by Scottish Ministers in February 2023. It now forms part of the statutory Development Plan for planning applications made under the Town and Country Planning (Scotland) Act 1997. For the purposes of Section 36 decision making, acknowledging that Section 25 of the 1997 Act is not engaged, NPF4 is an important consideration in the overall decision making process.

All of the national planning policies within NPF4 are underpinned by **Policy 1: Tackling the Climate and Nature Crisis**, which requires significant weight to be given to the global climate and nature crises that are ongoing and developing. Developments that can help to curb these events and are sustainable should be supported.

Policy 11 governs the requirements for energy related developments. The intent of **Policy 11: Energy** is *"to encourage, promote and facilitate all forms of renewable energy development and associated distribution infrastructure"*, and the policy outcome is identified as *"the expansion of renewable, low carbon and zero emission technologies"*. Such development is required to maximise its economic benefits to local communities and maximise the amount of renewable energy they could produce. The policy is supportive of wind farm development as demonstrated by the following statement:

"a) Development proposals for all forms of renewable, low carbon and zero emissions technologies will be supported. These include (i) wind farms, including repowering, extending, expanding and extending the life of existing wind farms".

This must be balanced against a range of criteria to ensure that, through project design and mitigation, energy related developments do not have unacceptable effects on a wide range of elements, which are listed below:

- Impacts on communities and individual dwellings;
- Significant landscape and visual impacts;
- Public access;
- Aviation and defence interests;
- Impacts on telecommunications and broadcasting installations;
- Impacts on road traffic and trunk roads;
- Impacts on the historic and cultural environment;
- Effects on hydrology, the water environment and flood risk;
- Biodiversity;
- Impacts on trees, woods and forests;
- Proposals for decommissioning;
- Site restoration; and
- Cumulative impacts.

In terms of landscape and visual impacts, part e)ii.) of Policy 11 recognises that significant landscape and visual impacts are to be expected for onshore wind energy developments and

states that “where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable.”

Part (e) further provides that when considering impacts upon the above considerations that “significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets.”

Table 1 lists the other national planning policies considered to be of relevance to the Proposed Development and summarises the intent of these policies.

Table 1: Relevant National Planning Policies in NPF4

NPF4 Policy	Policy Intent
Policy 1: Tackling the Climate and Nature Crisis	To encourage, promote and facilitate development that addresses the global climate emergency and nature crisis.
Policy 2: Climate Mitigation and Adaption	To encourage, promote and facilitate development that minimises emissions and adapts to the current and future impacts of climate change.
Policy 3: Biodiversity	To protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks.
Policy 4: Natural Places	To protect, restore and enhance natural assets making best use of nature-based solutions.
Policy 5: Soils	To protect carbon-rich soils, restore peatlands and minimise disturbance to soils from development.
Policy 6: Forestry, Woodland and Trees	To protect and expand forests, woodland and trees.
Policy 7: Historic Assets and Places	To protect and enhance historic environment assets and places, and to enable positive change as a catalyst for the regeneration of places.
Policy 11: Energy	To encourage, promote and facilitate all forms of renewable energy development onshore and offshore.
Policy 12: Zero Waste	To reduce the amount of waste generated and maximise the potential for the use of recycled material.
Policy 20: Blue and Green Infrastructure	To protect and enhance blue and green infrastructure and their networks.
Policy 22: Flood Risk and Water Management	To strengthen resilience to flood risk by promoting avoidance as a first principle and reducing the vulnerability of existing and future development to flooding.
Policy 23: Health and Safety	To protect people and places from environmental harm, mitigate risks arising from safety hazards and encourage, promote and facilitate development that improves health and wellbeing.
Policy 33: Minerals	To support the sustainable management of resources and minimise the impacts of the extraction of minerals on communities and the environment.



Part 1 of the NPF4 sets out the overarching spatial strategy for Scotland to 2045 and identifies that it will support the planning and delivery of, amongst other things, sustainable places where we reduce emissions, restore and better connect biodiversity. In setting out the Scottish Government's vision and strategy for the delivery of sustainable places, it states that:

"Scotland's future places will be net zero, nature-positive places that are designed to reduce emissions and adapt to the impacts of climate change, whilst protecting, recovering and restoring our environment."

Meeting our climate ambition will require a rapid transformation across all sectors of our economy and society. This means ensuring the right development happens in the right place.

Every decision on our future development must contribute to making Scotland a more sustainable place. We will encourage low and zero carbon design and energy efficiency, development that is accessible by sustainable travel, and expansion of renewable energy generation."

National Developments

Eighteen national developments are identified in total in NPF4. These are defined as "significant developments of national importance that will help to deliver our spatial strategy". NPF4 identifies that "national development status does not grant planning permission for the development" but does clarify that "their designation means that the principle of the development does not need to be agreed in later consenting processes."

Annex B of NPF4 sets out statements of need for each of the eighteen national developments, which includes onshore electricity generation from renewables exceeding 50 MW capacity wind (category 3: *Strategic Renewable Electricity Generation and Transmission Infrastructure*). NPF4 states that "This national development supports renewable electricity generation, repowering, and expansion of the electricity grid. A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets".

Onshore Wind Policy Statement 2022

In 2022, the Scottish Government published the Onshore Wind Policy Statement which reaffirms that the deployment of onshore wind is mission critical for meeting Scotland's energy targets. The statement renews the commitment to onshore wind technology and sets ambition for a minimum installed capacity of 20GW of onshore wind in Scotland by 2030, while recognising the existing nature crisis, and that onshore wind farms must strike the right balance in how we care for and use the land.

The Statement also highlights the importance of repowering and life-extension of existing sites, setting a key aim for the transition to net zero by "Support[ing] the efficient delivery of the renewable energy potential of the cluster, taking account of all appropriate technologies and the optimisation, extension and repowering of existing wind farms." In doing so, it reinforces the Scottish Government's expectation that planning authorities support well-designed, appropriately sited onshore wind proposals that contribute meaningfully to national decarbonisation targets, energy security, and the wider transition to a low-carbon economy. It also identifies repowering as a key opportunity to maximise energy output from existing wind farms, improving efficiency and benefitting existing grid connections and infrastructure. This



guidance supports both new onshore wind development and the repowering of existing sites, recognising it as a central role to achieving Scotland's 2030 and 2045 climate commitments.

The Climate Change (Scotland) Act 2009

The Climate Change (Scotland) Act 2009 establishes a statutory framework for reducing greenhouse gas emissions in Scotland and provides the basis for the country's transition to a low-carbon economy. The Act originally set an interim target of a 42% reduction in emissions by 2020 and a minimum 80% reduction by 2050, compared to the 1990 baseline. It also places duties on public bodies to act "*in the way best calculated to contribute to the delivery of the targets set in...under this Act.*" This Act underpins Scotland's commitment to renewable energy generation, including onshore wind, as a key mechanism for achieving these national emissions targets.

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2024

The Climate Change (Emissions Reduction Targets) (Scotland) Act 2024 updates and amends the Climate Change (Scotland) Act 2009, further refining Scotland's statutory framework for reducing greenhouse gas emissions. The framework retains the legally binding commitment to achieve net-zero emissions by 2045 and replaces the fixed interim percentage reduction targets previously set under the 2019 Act with carbon budgets. These carbon budgets, set over five-year periods, establish limits on total emissions permissible for each budget cycle and defines the required reduction pathway for long-term decarbonisation, enabling progress to be monitored against interim targets. The Act provides an updated legislative context for the role of renewable energy and underpins the importance of supporting low-carbon infrastructure, including wind power, in meeting Scotland's carbon budgets and long-term climate targets.

Local Planning Policy and Guidance

The following local policy and guidance is also considered a material consideration:

- Perth and Kinross Local Development Plan 2019;
- Landscape Supplementary Guidance 2020;
- Flood Risk and Flood Risk Assessment 2021;
- Airfield Safeguarding Supplementary Guidance 2020;
- Renewable and Low Carbon Energy Planning Guidance Consultation Draft 2025; and
- Supplementary Planning Guidance (SPG) for Wind Energy Proposals in Perth & Kinross 2005.

Local Development Plan 2019

The Perth and Kinross Local Development Plan (LDP2) (Perth and Kinross Council, 2019) provides the statutory planning framework for land use and development across the Perth and Kinross area. It sets out the Council's strategy for sustainable development and supports the transition to a low-carbon economy through renewable energy generation, where proposals are appropriately sited and designed to avoid significant adverse environmental effects. The forthcoming Emerging Local Development Plan 3 (LDP3) will replace the current LDP2 and is



expected to continue this approach, reinforcing support for renewable energy as part of Scotland's wider net-zero targets, which will cover the period between 2027 and 2037, anticipated to be adopted in late 2027.

The primary policy within the adopted LDP2 relevant to the assessment of the Proposed Development is Policy 33: Renewable and Low Carbon Energy. This policy states:

"Proposals for the utilisation, distribution and development of renewable and low-carbon sources of energy will be supported subject to the following factors being taken into account: (a) The individual or cumulative effects of developments and associated transport/electricity infrastructure... (b) The contribution of the proposed development towards meeting carbon reduction and renewable energy generation targets; (c) The net economic impact of the proposal, including local and community socio-economic benefits such as employment and supply chain opportunities; (d) The transport implications..."

This policy underscores the Council's commitment to supporting renewable energy developments, including wind farms, provided they are sensitively located and designed to mitigate potential adverse impacts on the environment and local communities.

Table 2 below lists the other LDP2 policies considered to be of relevance to the assessment of the Proposed Development and summarises the intent of these policies.

Table 2: Relevant LDP2 Policies

LDP2 Policy	Policy Intent
Policy 1: Placemaking and Design	Ensures new development, including renewable energy projects, respects landscape character, local identity, and contributes to sustainable development principles.
Policy 2: Design Statements	To ensure that design statements are submitted where required and demonstrate how the proposal responds to the Site and its context.
Policy 5: Infrastructure Contributions	To ensure that new development makes a fair and proportionate contribution to the delivery of infrastructure required to support that development.
Policy 15: Public Access	To protect and enhance public access rights and core paths, ensuring that development does not adversely affect access opportunities.
Policy 26: Scheduled Monuments and Archaeology	To protect listed buildings and their settings from inappropriate development and ensure alterations preserve their character.
Policy 27 Listed Buildings	To protect listed buildings and their settings from inappropriate development and ensure alterations preserve their character.
Policy 28: Conservation Areas	To preserve or enhance the character and appearance of conservation areas through appropriate development and design.
Policy 29: Gardens and Designed Landscapes	To protect nationally important gardens and designed landscapes from development that would adversely affect their character or setting.
Policy 31: Other Historic Environment Assets	To safeguard other historic environment assets and their settings from inappropriate development.
Policy 32: Embedding Low and Zero Carbon Generating Technology in New Development	To encourage the incorporation of low and zero carbon generating technologies in new development to reduce carbon emissions.

LDP2 Policy	Policy Intent
Policy 33: Renewable and Low-Carbon Energy	To support proposals for renewable and low-carbon energy developments where impacts are acceptable and benefits are maximised.
Policy 35: Electricity Transmission Infrastructure	To support electricity transmission infrastructure where it is necessary and where environmental and community impacts are acceptable.
Policy 37: Management of Inert and Construction Waste	To ensure that inert and construction waste is managed sustainably and does not adversely affect the environment or communities.
Policy 38: Environment and Conservation	To protect and enhance the natural and cultural environment, including designated Sites and protected species.
Policy 39: Landscape	To safeguard and enhance the landscape character and visual amenity of the area, particularly in sensitive locations.
Policy 40: Forestry, Woodland and Trees	To protect existing trees and woodlands and promote new planting to enhance biodiversity and landscape quality.
Policy 41: Biodiversity	To conserve and enhance biodiversity through appropriate site selection, design and mitigation measures.
Policy 42: Green Infrastructure	To ensure that development contributes to the provision and enhancement of green infrastructure networks.
Policy 50: Prime Agricultural Land	To protect prime agricultural land from irreversible development unless justified by national policy or strategic need.
Policy 51: Soils	To safeguard soil resources and ensure that development does not result in the loss of valuable soils.
Policy 52: New Development and Flooding	To ensure that new development is not at risk of flooding and does not increase the risk of flooding elsewhere.
Policy 53: Water Environment and Drainage	To protect and improve the water environment and ensure appropriate drainage arrangements are in place.
Policy 56: Noise Pollution	To ensure that development does not result in unacceptable levels of noise pollution affecting sensitive receptors.

Landscape Supplementary Guidance 2020

The Landscape Supplementary Guidance (2020) provides a detailed framework for assessing the impact of wind farm proposals on landscape character and visual amenity across Perth and Kinross. It reinforces Local Development Plan Policy 39: Landscape and introduces refined criteria for evaluating development within the region's 11 Special Landscape Areas (SLAs). The guidance adopts a landscape-led approach, emphasising the importance of protecting and enhancing the distinctive qualities of these areas, including their scenic value, cultural associations, and sense of place. For wind energy developments, the document outlines expectations for siting, design, and cumulative impact assessment, ensuring that proposals are compatible with the landscape's capacity to accommodate change (notwithstanding more recent national policy that confirms there will be landscape change due to wind farm development). It also aligns with national policy on Wild Land (albeit the Proposed Development is not in or near Wild Land) and encourages early engagement and use of the Landscape Capacity Framework to inform site selection and layout. In doing so, the guidance supports the delivery of renewable energy targets while safeguarding the integrity of valued landscapes.

Flood Risk and Flood Risk Assessment 2021

The Flood Risk and Flood Risk Assessment Supplementary Guidance (2021) provides a detailed framework for evaluating the potential flood impacts of new development proposals,



including wind farms, across Perth and Kinross. It supports Local Development Plan Policy 52: New Development and Flooding, and aligns with national planning policy and SEPA guidance. The document sets out requirements for site-specific flood risk assessments, emphasising the need to avoid development in areas at medium to high flood risk and to ensure proposals do not increase flood risk elsewhere. For wind energy developments, the guidance highlights the importance of assessing access routes, construction compounds, and ancillary infrastructure for flood vulnerability. It also promotes the use of sustainable drainage systems (SuDS) and encourages early consultation with relevant authorities. By embedding flood resilience into the planning process, the guidance helps ensure that renewable energy infrastructure contributes to climate adaptation as well as mitigation.

Airfield Safeguarding Supplementary Guidance 2020

The Airfield Safeguarding Supplementary Guidance (2020) was published by Perth & Kinross Council as part of the suite of planning guidance documents supporting the Local Development Plan 2. It sets out the criteria for assessing development proposals that may affect the safe operation of airfields within Perth and Kinross. It supports the implementation of Local Development Plan policies by identifying consultation zones around Perth Airport (Scone) and other safeguarded aerodromes. The guidance outlines the types of development that may pose a risk to aviation safety, such as tall structures, lighting, and wind turbines, and establishes procedures for consultation with relevant aviation authorities. For wind farm proposals, particular attention is given to potential impacts on radar, navigation aids, and flight paths. Developers are expected to demonstrate that their proposals will not compromise airfield operations or aviation safety. This ensures that the expansion of renewable energy infrastructure is balanced with the operational integrity of safeguarded airspace.

Renewable and Low Carbon Energy Planning Guidance Consultation Draft 2025

The Renewable and Low Carbon Energy Planning Guidance Consultation Draft (2025), published by Perth & Kinross Council, outlines updated criteria for assessing renewable energy proposals in light of the NPF4. It builds on Local Development Plan Policy 33 and integrates national policy shifts that prioritize climate action and energy transition. The guidance emphasises a plan-led approach to site selection, landscape sensitivity, and cumulative impact, particularly for wind energy developments. It also introduces clearer expectations for community engagement and environmental safeguarding.

A key statement from the draft highlights its strategic intent: *“Wind plays a significant role in the renewable energy mix with potential contributions to producing clean energy through the siting of the right turbines in the right place including new sites, and repowering/extending existing sites.”*

This reinforces the Council's commitment to aligning local planning decisions with Scotland's national decarbonisation goals while ensuring that renewable infrastructure is delivered responsibly and transparently.

Other Relevant Considerations

Climate change and renewable energy policy and legislation will be important considerations in the determination of the application for the Proposed Development. National policy and legislation that will be considered by the Applicant will include:



- Update to the Climate Change Plan 2018 – 2032 (Scottish Government, 2020) sets out the strategic pathway for achieving the strengthened emissions reduction targets to deliver a 75% reduction in greenhouse gas emissions by 2030, with the energy sector identified as a key area for transformation.
- The Scottish Energy Strategy 2017 (Scottish Government, 2017) presents the Scottish Government's vision for the future energy system in Scotland through to 2050 and sets out priorities for an integrated system-wide approach that considers the use and supply of energy for heat, power and transport.
- The Draft Energy Strategy and Just Transition Plan (Scottish Government 2023b), which was published by the Scottish Government for consultation in January 2023. The draft strategy recognises the need for Scotland to transform the way it generates, transports and uses energy to meet climate change ambitions and describes how the energy transition will maximise economic opportunities for Scotland.
- The Green Industrial Strategy (Scottish Government, 2024) sets out the next steps of the 'just transition' towards clean and renewable power and seeks to maximise Scotland's wind economy as part of Scotland's net zero development pipeline.
- The Energy White Paper: Powering our net zero future (UK Government, 2020) sets out the UK Government's strategy for delivering a net-zero energy system by 2050, and identifies onshore and offshore wind as key technologies for decarbonising the power sector and meeting climate targets.
- The British Energy Security Strategy (UK Government, 2022), which sets out the UK Government's ambition to accelerate the transition away from oil and gas through an expanded role for renewables.
- Powering Up Britain: Net Zero Growth Plan (UK Government, 2023) sets out the UK Government's ambitions to diversify, decarbonise and domesticate energy production and recognises that onshore wind is an efficient, cheap and widely supported technology.
- The Clean Power 2030 Action Plan: A new era of clean electricity 2024 (UK Government, 2024) outlines the UK Government's strategy to achieve a clean, secure, and affordable electricity system by 2030. The plan aims to generate at least 95% of Great Britain's electricity from clean sources by 2030, with targets including 27–29 GWh of onshore wind, and 45–47 GWh of solar power.
- Low Carbon Scotland: Meeting the Emissions Reduction Targets 2013-2027- The Second Report on Proposals and Policies 2013

Spatial Planning for Onshore Wind Turbines – Nature Heritage Considerations Guidance 2015

The Spatial Planning for Onshore Wind Turbines – Natural Heritage Considerations Guidance (2015), published by Scottish Natural Heritage (now NatureScot), provides a detailed framework for integrating natural heritage into the spatial planning of wind energy developments. It supports national planning policy by offering technical advice on siting and design that minimises impacts on sensitive habitats, species, and landscape character. The guidance encourages early engagement with ecological and landscape constraints and promotes the use of spatial tools to identify areas of relative sensitivity and capacity.



The document emphasises the need for careful planning, stating: *“Spatial plans are capable of being more than just an initial steer in the development plan. They can help to inform the scoping stage of an EIA and provide a framework for site selection, environmental assessment and decision making... and other parts of the policy which relate to the natural heritage.”*

This guidance plays a critical role in ensuring that wind energy proposals, such as those in Perth and Kinross, are compatible with Scotland’s commitment to protecting its natural heritage while advancing renewable energy goals.

Appendix B: Cultural Heritage Appraisal

Introduction

Utilising current legislation, policy and guidance as set out in Section 9: Cultural Heritage, this report shall aim to screen nationally and regionally significant designated heritage assets for potential significant effects as a result of the Proposed Development.

In line with consultation responses from Historic Environment Scotland (HES), a 10km Study Area has been employed for nationally significant designated heritage assets. A 5km Study Area was employed for designated sites of regional significance.

Building on the initial appraisal carried out at scoping, a screening exercise has been employed to identify assets where there may be a significant effect. The results of this study are presented in this appendix.

Methodology

The screening process has taken into account the following factors:

- The type of monument and key aspects of its setting that contribute to its significance;
- Blade Tip Zones of Theoretical Visibility (ZTVs) (**Figure 9.1**) to determine the potential visibility from the heritage assets or, where relevant, in combination with them; and
- The distance of the assets from the proposed turbines.

Aspects of archaeological, architectural or historical value are not considered in this screening report as they are intrinsic values of the assets. There is no potential for such aspects to be affected by the Proposed Development, unless the asset is placed within the site boundary. These aspects are not, therefore, considered here for assets outwith the site boundary and the exercise below concentrates on visual relationships, such as setting, that contribute to cultural significance.

Table 1: Scheduled Monument within 10km of the Proposed Turbine Locations

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM6544	Kelly Bridge, palisaded enclosure 250m SSE of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	8.6	Northeast	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM6884	Dunning, standing stone 300m SE of Leadketty Holdings	Prehistoric ritual and funerary: standing stone	0	7.9	Southwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM2328	Tillicoultry House, tombstone	Crosses and carved stones: tombstone	0	9.9	Northeast	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM5776	Millhaugh, enclosure and pit alignment 300m E of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	7.1	Southwest	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 (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM9434	Dun Knock, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	0	7.7	Southwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM13611	Castle Campbell	Secular: castle	0	7.3	North	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM90321	St Serf's Church, Dunning	Ecclesiastical: burial ground, cemetery, graveyard	0	7.7	Southwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM5774	Henge and palisaded enclosure, 220m WSW and 210m SW of Millhaugh Farmhouse	Prehistoric domestic and defensive: palisaded enclosure; Prehistoric ritual and funerary: henge	0	6.8	Southwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
SM5775	Cairn and mortuary enclosure	Prehistoric ritual and	0	6.9	Southwest	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 (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
	120m WSW and 150m SW of Cranberry	funerary: kerb cairn				
SM4061	Peterhead, standing stone 350m NNW of	Prehistoric ritual and funerary: standing stone	1	4.5	Southeast	This asset comprises a prehistoric standing stone, known as Peterhead and measures 0.65m wide and 1.3m in height. The standing stone is situated in the open plane of the Strathallan, located to the south of the A9 and west of Allan Water. The standing stone was placed intentionally in the landscape, so as to be appreciated by those moving through the valley from east to west, forming the asset's primary approach. Views along Glen Eagles⁵⁰ valley to the southeast also contributes to a key aspect of the asset's setting, allowing the standing stone to be appreciated from surrounding views. The proximity of the stone to the Allan Water suggests that it is likely that the ritual significance of the asset is related to water. However, given that we do not know the stone's function, it is not possible to determine the capacity of this relationship between the stone and flowing water. Should the Allan Water contribute to the asset's setting, views to the west would form a key aspect of the asset's setting from which it derives its significance.

⁵⁰ Glen Eagles is the valley through which Ruthven Water runs, located to the northwest of the Proposed Development.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						There is one turbine tip predicted to be visible from the asset to the southeast. This will not be visible along the primary approach to the standing stones along the valley to the east and west, nor will it be visible when viewing the watercourse to the west. Visibility of the turbine tip may be present when looking southeast, down the Glen Eagles valley, although the scale of the hills in this backdrop would outcompete the turbine tip for visual focus. Therefore, the proposed Development will not distract from the ability to understand, appreciate, and experience the standing stone, and as such, is scoped out of further assessment.
SM2252	Loaninghead, symbol stone 270m E of, Gleneagles	Crosses and carved stones: symbol stone	1	4.3	Southeast	This asset is a Pictish Symbol stone, referred to as Loaninghead. The standing stone is inscribed with Pictish symbols, which contribute to the understanding of pre-Christian activity in the Perth and Kinross area. Situated in the open plane of the Strathallan, with the A9 road to the north, the A823 to the east, and the Allan Water to the west. The standing stone would have been placed intentionally in the landscape, so as to be appreciated by those moving through the valley from east to west, forming the asset's primary approach. Views along the Glen Eagle's valley to the southeast also contribute to a key aspect of the asset's setting, allowing the stone to be appreciated from surrounding views. The placement of the asset in the valley and in relation to the Allan Water suggests that the stone is likely a territorial marker, with the symbols referring to a name of some kind. The asset's

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						proximity to flowing water may also contribute to a ritualistic intention for the stone placement, with strong connections between water and the afterlife having persisted throughout Scottish mythology and traditions. Should the Allan Water contribute to the asset's setting, views to the west would form a key aspect of the asset's setting from which it derives its significance. There is one turbine tip predicted to be visible from the asset to the southeast. This will not be visible along the primary approach to the standing stones along the valley to the east and west, nor will it be visible when viewing the watercourse to the west. Visibility of the turbine tip may be present when looking down the Glen Eagles valley, although the scale of the hills in this backdrop would outcompete the turbine tip for visual focus and the turbine would be imperceptible. Therefore, the proposed Development will not distract from the ability to understand, appreciate, and experience the standing stone, and as such, is scoped out of further assessment.
SM7593	Loaninghead, fort 350m NE of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	4	4.5	Southeast	This asset comprises Loaninghead fort, a prehistoric domestic and defensive fort, visible as a series of upstanding earthworks. The fort is defined by two ramparts and ditches, with the defences at the north end and the potential entrance to the west. The fort is located on the open plane of the Strathallan, with Gleneagles village to the north, the modern A9 to the south, the modern A823 and Ruthven Water to the east, and Allan Water to the west.



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						The fort is located within a key defensive position in the landscape, with its main approach along the valley to the east and west, alongside clear views along Glen Eagles to the southeast. The immediate landscape surrounding the asset comprises fertile agricultural land, with the nearby watercourses acting as an essential resource and transport link. Views towards and from this immediate landscape form a primary point of appreciation for the fort's dominance within the landscape, defensibility and control over the surrounding land. There are four turbine tips anticipated to be visible from the fort in the southeastern direction. Whilst the turbine tips would be present when looking down the Glen Eagles to the southeast, their limited visibility would not distract from the ability to understand, appreciate, and experience the dominance, defensibility, and control of the fort. Views of the watercourse to the southeast would be no more impacted by the proposed turbines than the existing modern infrastructure to the south and east of the asset. Additionally, the turbine tips would not be visible along the main approach through the Strathallan, nor would they encroach on the fort's immediate agricultural landscape. As such, the Proposed Development will not distract from the ability to understand, appreciate, and experience the asset, and therefore, the fort is scoped out of further assessment.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM7947	Barrow cemetery and pits, 300m WNW of South Strathy	Prehistoric ritual and funerary: barrow	5	8.8	South	The asset comprises the remains of four prehistoric round barrows and a group of five pits, surviving as cropmarks and buried archaeological remains. Remains such as these typically date to the Bronze Age. The asset is situated on the west slopes of the White Moss burn with limited views of the surrounding landscape, c.0.07km southeast of the A9, set beside a burn, although it is now cut into a straight drainage waterway. The asset is set within a wider area of known prehistoric activity, with Haugh standing stone (SM7948) located c.1km to the west of the barrows, and prehistoric settlement activity including the enclosure c.0.25km west (SM8029) and around Dunning. Prehistoric burial monuments, including barrows, are typically positioned in landscapes which held importance to the population, including with associations to water courses. The asset's setting comprises its visual connection with the White Moss Burn to the east, of which it is situated to look over, and its intangible relationship with the wider landscape, comprising the River Earn and Ruthven Water, of which would have been important aspects of the landscape during this period. The approach to the asset is not certain, but due to the position of the barrows, focusing on the asset's would not have been possible until being immediately within their vicinity along the burn. The asset also derives its setting from its intangible and contextual relationship with the wider prehistoric landscape,

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						including the enclosure and standing stone to the west, and prehistoric activity around Dunning, from which we can further understand, experience and appreciate the important landscape in which these barrows were positioned, and the distribution of ritualistic monuments from this time. Whilst up to five turbines would be visible beyond the skyline of the Ochil Hills to the south of the asset, the asset's setting is localised, with key views only spanning along the White Moss Burn and toward the assets upon its proximate approach. Views toward the skyline of the Ochil's do not form part of the asset's setting, and therefore the presence of turbines beyond this backdrop would not affect the ability to understand, experience and appreciate the asset within its setting. Its intangible relationships with the wider prehistoric landscape are not understood, experienced and appreciated from key views around the barrows, and therefore views outward toward other potentially contemporary assets do not contribute towards its significance. Therefore, it has been scoped out of further assessment.
SM8029	Drumtogle, enclosure 300m SE of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	5	8.8	South	This asset comprises a prehistoric enclosure, most likely domestic and/or defensive in nature. The diameter of the enclosure measures c.30m, with the entrance appearing to be from the south-southeast side. The asset's level of preservation makes it an important surviving prehistoric settlement with high archaeological interest.



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						The asset is located in the floodplain of the River Earn, which is situated to the north of the enclosure and runs west to east. The open valley, views along the river and surrounding hills form a key aspect of the asset's setting from which it derives its significance. Key long-distance views along the River Earn contribute to the defensive characteristics of the asset, where inhabitants can monitor those travelling along the river to the north and any approaches from the open landscape to the south. Additionally, the natural resources and surrounding landscape would have been suitable for farming and domestic activities, with views focused in this aspect on the assets immediate setting. Views from the south-southeastern approach to the enclosure contribute another key aspect of the asset's setting from which it derives its significance. The views along the River Earn and over its immediate surroundings contribute to how we understand, appreciate, and experience the defensive and strategic positioning of the enclosure, whilst also contributing to how the occupants may have utilised the landscape. The five turbine tips predicted to be visible to the south of the asset will at most be located in the peripheral view upon the approach to the asset, nor on its defensive aspects, which comprise views along the River Earn and its localised setting. The proposed turbines are not to the extent that they will erode the ability to understand, appreciate, or experience the asset. As such, the asset is scoped out of further assessment.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM9373	Easter Coul Cottage, enclosure 250m E of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	5	5.4	South	These assets comprise Easter Coul domestic enclosure (SM9373) and Castle Craig fort (SM4213), both prehistoric defensive assets that share the same setting. The enclosure (SM9373) is located on the raised knoll on the west side of Pairney Burn, overlooking Castle Craig fort to the southeast of the burn on a larger promontory. Their proximity and shared setting suggest a relationship between the two assets. Castle Craig is located on the northwestern base of Craig Rossie hill and overlooks the valley and burn to the west. It is unclear as to whether the assets are contemporary to one another, but should they be, they would collectively create a strategic defensive position in a prominent part of the landscape for monitoring entrance to the valley to the southwest and into the floodplain of the River Tay to the north. The assets derive their significance from their strategic placement within the landscape as well as their level of preservation. The fort and enclosure are strategically positioned in the landscape; built on an elevated ridgeline, overlooking the valley to the south, with clear visuals of the open planes to the north and west. The route of the Pairney Burn also provides a natural defensive feature, preventing approaches from the north of the asset and from the south, without being highly visible and slow. Additionally, Castle Craig forms further defensive features for Craig Rossie from the east and in return, Craig Rossie provides further defence for Craig Fort from western advancements. In this instance, both assets utilise one another for defensive
SM4213	Castle Craig, fort SSW of Pairney	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	15	5.3	South	



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						purposes, alongside additional defences from the Pairney Burn to the north. Moreover, views towards the enclosure and fort from the open landscape to the southeast and northeast contribute to the asset's settings, whereby their prominent position in the landscape contributes to the ability to understand, appreciate and experience their dominance, defensibility, and control within the landscape they occupy. The proposed turbine layout predicts that between 5-15 turbine tips will be visible from the fort. However, these turbines would not be located within any of the key views toward or from the asset over its observed and defended landscape, nor toward the asset along its approach. Any visible turbines would be peripheral and located within the backdrop of the hills to the southwest would not affect the ability to understand, experience and appreciate the forts' defensive position within the landscape, nor their visual dominance in views towards the assets. Therefore, both assets are scoped out of further assessment.
SM9437	Blaeberry Hill, deserted settlement	Secular: settlement, including deserted, depopulated and townships	7	4.8	Southwest	This asset comprises a deserted late-medieval settlement. The asset is an example of a unique 16th century site, contributing to the understanding of pre-land improvements in the upland settlements in this region of Scotland. The settlement comprises a long house, a farm range of four small compartments, an enclosed stack yard, and areas of cultivated land to the north. These remains are extant as earthworks within the scheduled area.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						The asset's immediate environment contributes to its setting from which it derives its significance; it retains the rural, agricultural character of the asset's landscape. The asset would originally have been placed to utilise the landscape for agricultural purposes, taking advantage of the fertile land. The asset is currently surrounded by commercial forestry. Due to the asset's setting being localised to the surrounding agricultural landscape, there are no intended views from the asset, nor towards the asset, aside from the settlement's local landscape in which it occupies. There are seven turbine tips predicted to be visible from the asset. These turbines do not encroach on the assets' local setting and, as such, do not encroach on the intended views towards or outwith the asset which contribute to its setting. As such, the ability to understand, experience, and appreciate the asset will not be impacted by the Proposed Development, and therefore, the asset is scoped out for further assessment.
SM7584	Fort, 210m SW of Brookfield House	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	7	6.4	Southeast	These assets comprise two prehistoric forts. SM7584 is D-shaped and defined by two circuits of ditches, with a palisade trench visible between them. A third ditch is present, forming an outer protective ring upon the northern approach. SM7585 is defined by two parallel ditches enclosing a triangular area.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
SM7585	Cecilmount, fort 350m SW of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	8	6.5	Southeast	The forts are strategically placed in the open plane of the Strathallan, with long-distance views concentrated to the east and west along the Allan Water. This clear visual along the water allows for control and monitoring along the river, an important resource for travel and communication. The forts' visibility within the valley would have made them key markers, asserting dominance and control over passage through the valley, demonstrating that their utilisation of the open landscape and one another contributes to their defensibility and power within the area. Additionally, outward views towards the entrances of the valley to the southwest, in which the Danny Burn runs, and the valley to the southeast, in which the Allan Water runs, for an aspect of the fort's defensibility. Views between the forts, from east to west, reinforce their defensive relationship and prominent placement in the open landscape. These aspects of setting allow those occupying the forts to have control over the land they are working and living off of, and contribute to how we understand, appreciate, and experience the two assets' relationship with one another and their strategic, defensive character. There are up to eight turbine tips predicted to be visible from the assets. The Proposed Development appears to be outwith the long-distance views which the forts monitored and controlled. At most, the turbine tips would be in the periphery of the

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						northwestern approach, although not to the extent that the ability to understand, appreciate, and experience the assets would be inhibited. Additionally, the turbines are anticipated to be in the peripheral view when viewing SM7584 from SM7585 . The proximity of the two forts and the importance of viewing the immediate landscape surrounding the forts means that the turbine tips in the long-distance periphery, will not compete for visibility. As such, the turbines will not impact the ability to understand the relationship between the two forts, nor erode the ability to appreciate and experience the forts' relationship. As such, the assets are scoped out of further assessment.
SM7589	Coulshill, hut circle and enclosure 400m SE of	Prehistoric domestic and defensive: hut circle, roundhouse	10	1.8	Southwest	This asset comprises a prehistoric hut circle and enclosure, visible as turf-covered banks, measuring 12m in diameter, with an adjoining rectangular enclosure. The asset contributes to the understanding of prehistoric settlement and land-use in central Scotland. The hut circle and enclosure are located in the Coul Burn valley, with the burn flowing to the west and Muckle Law to the east. Situated within a naturally resourceful and sheltered valley, the enclosure was successfully able to utilise the immediate agricultural landscape and easily move through the valley along the burn. The asset's setting comprises the valley in which it is located, overlooking the valley to the northwest and southeast, and the immediate agricultural landscape to the east and west. The functional nature of the asset suggests that the views associated with its setting are primarily local, with no intended

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						long-distance views focused on the hill ranges to the east and west. At most, views along the valley contribute to views from the asset in which it derives its significance. These views form the key channels of control from the defensive aspect of the asset, as well as the domestic agricultural management of the land. There are no intended views towards the asset that contribute to its setting. There are 10 turbine tips anticipated to be visible to the southwest of the asset. Views of the immediate landscape to the east and west fall outside the turbines, as do views to the northeast along the burn. At most, the turbines may be visible to the southwest when looking down the valley; however, this is one aspect of the asset's setting, and given the nature of the surrounding landscape, the hills and scale of the valley will outcompete any visibility of the turbine tips. As such, the Proposed Development will not distract from the ability to understand, appreciate, and experience the asset. Therefore, the hut circle and enclosure are scoped out for further assessment.
SM7948	Haugh of Aberuthven, standing stone, enclosure and ring-ditch SW of	Prehistoric domestic and defensive: house; Prehistoric ritual and	10	9.4	South	This asset comprises a prehistoric standing stone, enclosure, and ring ditch. The multi-purpose site offers insight into a more complex prehistoric landscape, combining community, economy, and ritual. The asset is located in the open plane of the Strathearn, with expansive views along the River Earn to the north, and Ruthven

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
		funerary: standing stone				Water to the east. Located on a slight elevation, the strategic placement of the enclosure allows for clear visibility along the waterways, the open valley to the west, and the hill range to the north, whilst also being out of the river's floodplains. This intentional use of the landscape allows the enclosure to be naturally defended by the waterways, providing protection to the south, where evidence of the enclosure's entrance has been recorded. As such, the main approach to the asset is from the lowlands in the south and southwest, with views towards the asset from the north and east contributing to the asset's setting, in which it derives its defensibility, control, and power. The standing stone associated with the site has also been intentionally placed within the landscape as a marker, suggesting either a ritual function or a more practical one, in which the stone may form the boundary of the land occupiers. Additionally, the stones' placement may be associated with the intersection of the River Earn and Ruthven Water. Alternatively, should the stone be ritualistic in nature, then its proximity to flowing water would form a key aspect of its setting, with strong connections between water and the afterlife having persisted throughout Scottish mythology and traditions. As such, views from the asset towards the east and north contribute to the understanding, appreciation, and experience of the asset's placement and function within the landscape.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						There are 10 turbine tips anticipated to be visible to the south of the asset. This would not impact the approach from the valley to the east and west, nor any views outwith the asset to the north towards the River Earn. At most, the turbines may be visible from the lowlands to the north and northeast. However, the turbines are situated beyond the skyline in the southern view; therefore, any potential visibility would not distract from the asset's setting. Moreover, views to the south are not considered to form a primary aspect of the asset's setting, from which it derives its significance. Therefore, the Proposed Development will not distract from the ability to understand, experience and appreciate the asset's multipurpose function in terms of defensibility and potential ritual practices, and as such is scoped out for further assessment.
SM9313	Broadfold Cottage, long barrow 420m SW of	Prehistoric ritual and funerary: long barrow	11	5.2	South	This asset comprises the remains of a prehistoric long barrow, measuring 65m long and 15m wide. A central pit or chamber appears to be located at the northeast end of the long barrow. The unique nature of barrows, especially in Scotland, makes these assets a significant feature in the archaeological record. Moreover, those buried within the barrows are understood to be individuals who held prominent positions within a community, broadening our understanding of prehistoric burials and rituals associated with death. The barrow is situated within the valley of Ruthven Water, but it is at a slight elevation so that it is out of the immediate



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						floodplain. The hills to the north form the backdrop of the barrow from the southern approach to the asset, with views to and from the asset contributing to its setting. Additionally, the barrow's proximity to the Ruthven Water and Dalry Burn forms another key aspect of the asset's setting, with prehistoric rituals and burials associating death and the afterlife with running water. As such, views overlooking the valley and watercourses contribute to the asset's ritualistic significance. The approach to the asset is from the immediate landscape comprising the Ruthven Water to the north and Dalry Burn to the east. The only views from the asset which contribute to the barrow are to the north and northwest over the watercourses and valley. There are 15 turbine tips anticipated to be visible to the south of the asset. The key views from the asset overlooking the valley and hills are focused to the north, demonstrating that the turbines will not encroach on these aspects of the barrows setting. The turbines would be within the southward views toward the barrow; however, these turbines would be positioned above the skyline of the hills to the south and would be above the key views focusing on the asset and therefore would not have a potential effect upon its approaching views. As such, the Proposed Development will not impact the ability to understand, appreciate and experience the barrow and its contextual landscape. Therefore, the asset is scoped out of further assessment.

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SM8706	Easthill, standing stones 250m SSE of, Auchterarder	Prehistoric ritual and funerary: standing stone	12	6.0	Southeast	This asset comprises three prehistoric upright standing stones, as well as the remains of potentially fallen additional stones. One of the stones stands alone at a crossroad junction to the east of the two stones, possibly due to re-erection. The standing stones are located within the Strathearn, overlooking the boggy terrain to the north. The standing stones are located on a slight ridgeline, with the primary approaches being from the northeast and southwest overlooking the Strathearn. Views towards the asset along this valley would have contributed to the asset's setting, as it would be intended to be viewed along its approach. The ridgeline has a history of settlement, being a well-draining rise of land amongst the wetter lowland and therefore was likely a significant location for prehistoric people, either as a routeway or area of activity. There are 12 turbine tips predicted to be visible from the standing stones. The turbines would not be visible in the western views from the eastern approach and would be situated behind the skyline of the hills to the south. This will not impact the ability to understand, appreciate, and experience the stones within their setting. The turbines would also not cause any potential distraction more than the modern construction of the junction connecting Easthill Road and Tullibardine Road, which has already split the stones. Additionally, the expansion of Auchterarder to the west and Muriton to the east have

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						encroached on views in these directions. As such, the asset is scoped out for further assessment.
SM5590	St Mackessog's Church, Auchterarder	Ecclesiastical: church; Secular: mausoleum	13	6.9	Southeast	This asset comprises the remains of a late medieval church which served the local Auchterarder parish, contributing to medieval religious practices in the area. The church is located to the north of Auchterarder, to the east of the B8062 and comprises limited tangible remains aside from the remnants of the entrance to the southwest. The church's setting incorporates its local community for which it served, with any intended views and approaches being localised. At most, views along the southwestern approach contribute to the ability to understand, appreciate, and experience the asset, which would not contain views of the proposed turbines. As such, the asset is scoped out for further assessment.
SM90308	Tullibardine Chapel, chapel 100m W of West Mains of Tullibardine	Ecclesiastical: chapel	13	8.0	Southeast	This asset comprises a 15th century chapel surrounded by a small graveyard, remaining largely unaltered and contributing to our understanding of medieval ecclesiastical architecture. The chapel is located to the northwest of Auchterarder and northeast of the A823, with its setting incorporating its local environment, including that of West Mains of Tullibardine. The immediate views from the approaches from the east, south and north would contribute to the understanding of the assets' contribution to the local parish in which it served. As the asset's



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						setting is localised, there are no intended long-distance views to and from the asset that contribute to the asset's significance. The 13 turbine tips anticipated to be visible would be considered as part of any long-distance views from the asset. Given the locality of the chapel's setting, the proposed turbines will not distract or impact the ability to understand, appreciate, and experience the asset, and as such, the asset is scoped out for further assessment.
SM9540	Ash Keys, enclosure and possible moated homestead 420m WSW of	Secular: homestead moat	13	7.2	South	The asset comprises a potential moated homestead dating to the medieval period. Rectilinear in shape, the enclosure appears to be surrounded by a 2m wide ditch and the southwest, south, and northeastern sides, with a broader ditch to the north. An additional ditch appears to divide the enclosure, with an entrance visible from the northern side. Indications for internal structures and a second burn flowing to the south of the asset have been recorded. The enclosure is located on the River Tay floodplain, to the southwest of Aberuthven, northeast of Auchterarder and east of the A824. The asset's setting consists of the immediate local environment, taking advantage of the farmable landscape and water sources, including the burn to the north of the asset and the surrounding farmland, as well as the Ruthven Watercourse to the east. Views from the northern approach would have comprised the asset's immediate landscape and would not

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						have extended beyond the burn. Additionally, the functionality of the asset indicates that no long-distance views are intended from the asset, nor are any key views towards the asset considered to contribute towards its setting, from which it derives its significance. As such, the Proposed Development will not encroach on the ability to understand, appreciate, and experience the asset and can therefore be scoped out of further assessment.
SM8510	Parks of Aldie, settlement, enclosures and cultivation remains W of	Secular: settlement, including deserted, depopulated and townships	14	9.8	Northwest	This asset comprises a depopulated medieval to post-medieval settlement, referred to as 'The Muckle Toon' and may be associated with Aldie Castle (LB11469), which is located 0.6km southeast of the settlement. The asset comprises at least four rectilinear structures, as well as a series of enclosures arranged along a hollowed trackway which runs from the northeast to the southwest. An additional two structures are discernible to the northwest of the site, with evidence of rig and furrow. The asset's immediate environment, comprising farmland and a gentle slope to the south down towards Aldie Castle and the Pow Burn, which runs east to west, all contribute to the asset's setting from which it derives its significance. Whilst the visual relationship between the settlement and Aldie Castle is no longer intact due to designed woodland, and the settlement no longer being visually prominent above ground, their intangible



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						and spatial relationship is still intact to continue to contribute to our understanding of the asset. There are 14 turbine tips predicted to be visible from the asset. These turbines do not encroach on the assets' local environment, in any views which contribute towards its setting, including views towards the castle and its immediate rural landscape. As such, the ability to understand, experience, and appreciate the asset will not be impacted by the Proposed Development, and therefore, the asset is scoped out for further assessment.
SM5952	St Bean's Church, Kinkell	Ecclesiastical: church	14	9.2	Southeast	This asset comprises the remains of a 16th century parish church of Kinkell, with its history most likely dating to the 13th century. The church is located to the north of the B8062 and south of the River Earn and now stands in a state of ruin. The church is positioned on a primary route through the valley from Auchterarder in the south to Crieff further north. Its functional role within the landscape, with its locality and accessibility to travellers, forms the primary aspect of its setting. There are no long-distance views associated with the church's setting, with views towards and from the asset localised to its approach and position along the main road to the west.

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						There are 14 turbine tips anticipated to be visible to the southeast. The locality of the church's setting and lack of intended long-distance views to and from the church suggest that visibility of the turbines will not distract from the ability to understand, appreciate, and experience the asset. As such, the church is scoped out for further assessment.
SM3073	Ogle Hill, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	14	4.0	South	Scoped in for further assessment.
SM3133	Ben Efray, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	14	4.2	South	This asset comprises a prehistoric hillfort, situated to the northeast of the Ben Efray summit. The fort is strategically placed to utilise the steep slopes of the summit as defensive measures, with ramparts to the southeast providing extra defence on the gentler slopes. The fort's strategic position in the landscape forms the basis of the asset's setting from which it derives its significance. Views from the asset focus on overlooking the valley to the west, through which Pairney Burn runs. Additionally, views from the asset and towards the asset from the open landscape to the north and west contribute to a key aspect of the asset's setting. The entrance to the fort has been identified to the southeast, with the approach along the ridgeline in this direction forming an

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						aspect of the asset's approach. To the west of the fort is Ogle Hill fort (SM3073). Whether the assets are contemporaneous with one another is unclear, although they both have clear visual along the valley through which Pairney Burn runs, suggesting control and defence of this valley was strategic and important to both forts. Strategic and defensive views north over Strathearn, and west over the Pairney burn and to Ogle Hill fort (SM3073), form the key aspects of the assets from which it derives its significance. These views contribute to the ability to understand, appreciate, and experience the fort's dominance, defensibility, and control within the landscape it occupies. The proposed turbine layout predicts that up to 14 turbine tips will be visible from the fort to the south. Views to the south from the asset do not form a key aspect of the asset's setting. The turbines fall outwith the views towards the fort from the southeastern approach. Views overlooking the valley to the north and west fall outside the visibility of the turbines and, as such, will not be impacted. Additionally, views towards the fort along the approach from the northern landscape would also not be impacted by the turbines due to the scale of the slope on which the fort is located. At most, these turbines would be in the backdrop of the fort in these views to the south; however, due to the position and scale of the fort, the turbines would not compete for visibility with the fort and, as such, would not

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						detract from the ability to understand, appreciate and experience the asset. Therefore, the asset is scoped out of further assessment.
SM7729	Fort, 320m NW of Kinkell Grange	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	14	9.1	Southeast	This asset comprises a prehistoric fort, D-shaped and defined by three levels of defence, defined by ditches, with a central entrance to the west. The fort is situated within the Strathearn and built on a gentle elevation in the meandering bend of the Machany Water, which runs to the south and west of the asset. The River Earn is situated to the north of the asset, and Pairney Burn to the southwest. This river junction demonstrates that the fort was intentionally placed in the landscape, with clear views along the river channels in all directions, contributing to the defensibility of the fort. Machany Water and Pairney Burn form a natural defence to the east, south, and west of the fort, with the gentle topography elevating the fort out of the river's floodplains. The open valley to the north and northwest provides suitable land for agricultural practices, with the River Earn forming the periphery of views in this direction. Key views from the fort comprise those overlooking the valley and River Earn to the north, as well as those east to west, along the Strathearn. The primary approach and entrance to the fort from the west is naturally defended by Machany Water and demonstrates the intentional placement of the fort in relation to its control and dominance in the landscape.

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						The 14 turbine tips are anticipated to be visible to the southeast. These would be present in the periphery upon the western approach to the asset and from views towards the asset from the northern plane. The western approach would not be impacted due to the elevation the fort is situated on and the surrounding Machany Water, preventing any distracting peripheral views. Additionally, views of the turbines when viewing the asset from the north would not compete with the scale of the fort. Long-distance views from the fort fall outside the direction of the Proposed Development. As such, the turbines will not detract from the ability to understand, appreciate, and experience the defensibility, dominance, and control of the fort. As such, the asset is scoped out of further assessment.
SM3384	Carleith, cairn W of Carden	Prehistoric ritual and funerary: cairn (type uncertain)	14	9.1	Northwest	This asset comprises a burial cairn, measuring 8.5m in diameter, with the remains of two stone coffins contained within. The cairn is situated on a gentle ridgeline, approximately 2km south of the Crook of Devon village and 2km east of Powmill, with Pow Burn flowing to the south and Gairney Water and the River Devon to the north. The asset's setting comprises the views along the valley to the east and west, and potentially as far as the River Devon to the north. This placement of the cairn suggests that it was intended to be viewed by those travelling through the valley. Additionally, the cairn's proximity to flowing water would form a key aspect of its setting, with strong



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						connections between water and the afterlife having persisted throughout Scottish mythology and traditions. Therefore, views overlooking the rivers to the north and south form a primary aspect of the asset's setting from which it derives its significance. There are 14 turbine tips anticipated to be visible to the northwest. This would not impact views to the west and east when looking across the valley, nor to the south when overlooking Pow Burn. The approach to the cairn from the valley to the east and west and views overlooking the River Devon to the north, will also not be impacted by the turbines. This is due to the turbines being situated behind the skyline in this viewshed; as such, the tips will not distract from the cairn's intended placement in the landscape from which it derives its significance. As such, the Proposed Development will not detract from the ability to understand, appreciate, and experience the cairn and is therefore scoped out of further assessment.
SM7627	Down Hill, fort, Glen Devon	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	14	2.8	Northwest	Scope in for further assessment.

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SM7629	John's Hill, enclosure 1.22 km SW of Corb	Prehistoric domestic and defensive: enclosure (domestic or defensive)	14	1.3	Southwest	This asset comprises a prehistoric ring enclosure, situated to the north of the summit of John's Hill. The remains of the enclosure are visible as a roughly circular turf bank, measuring 30m in diameter and overlooks Corb Glen to the north and northwest. The fort's strategic position in the landscape affords it extensive views of the surrounding hills and Corb Glen, forming the primary aspect of the asset's setting from which it derives its significance. Positioned on the northern side of John's Hill, the fort focuses on monitoring Corb Glen from the northwest to the northeast, with long-distance views in these directions forming an aspect of the asset's setting. These views of the surrounding hills and Corb Glen allow the enclosure to control movement through the landscape and contribute to the asset's dominance and defensibility. The approach to the fort would have been from the valley to the southwest, following the gentle incline round to the southeast of the asset. Additionally, the visual dominance of the fort from the valley to the north and northwest contribute to the asset's defensibility and control. There are 14 turbine tips anticipated to be visible from the fort. The primary focus of the asset's control is to the northwest, outwith the Proposed Development. Views of the turbines would be in the periphery upon approaching the fort from the southeast, although this would not be to the extent of distracting from viewing the fort. Views from the asset would not be

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						impacted upon the primary aspect of the asset's setting, which is to the valley to the northwest and north. The turbines would be visible in long-distance views from the fort to the southwest; however, this does not detract from the overall ability to understand, appreciate, and experience the asset due to the primary focus of the asset's setting being to the valley in the north and northwest. As such, the enclosure is scoped out of further assessment.
SM9367	Thorn, fort 70m NE of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	15	4.7	South	This asset comprises a prehistoric hillfort situated at the northwestern base of Coul Hill, located on a naturally defensive southeastern-facing scarp that overlooks Dalry Burn. The fort's strategic position in the landscape forms the basis of the asset's setting from which it derives its significance. The main approach to the asset is from the open valley to the north and along the ridgeline to the east and west, with Dalry Burn to the east and south acting as a natural defence. Views from the asset focus on the open plane to the north and round to the valley entrance of Cloan Glen to the southwest. The open and fertile landscape to the north and west of the asset provides suitable resources for agricultural activities. The slight elevation of the fort, meaning it is visible when approaching from a distance, allows it to be visually dominant and asset control over the immediate landscape in which it is located. The proposed turbine tips will be visible to the south from the peak of the asset, although views in this direction do not

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						contribute to the primary aspect of the asset's setting, and as such, the ability to understand, appreciate, and experience the fort's dominance, defensibility, and control within the landscape it occupies remains unimpacted. Therefore, the asset is scoped out for further assessment.
SM3675	Dunning, Roman camp 420m NW of Haughend	Roman: camp	15	8.3	Southwest	This asset comprises the remains of a temporary Roman camp, with the six visible entrances surrounded by defensive earthworks. The well-preserved condition of the asset contributes to our understanding of Roman defensive camps, as well as the wider Roman military campaign in Scotland. The asset is located in the Strathearn, to the northeast of Dunning and sandwiched between the B934 and the Bridge of Earn Road. Its setting comprises the open valley to the east and west, as well as wider views from the River Earn and south from the routes coming out of the Ochil's. The scale and prominent placement of the asset promoted the dominance and power of the Roman military advancement. Views to and from the asset mark the temporary camp as a key centre for monitoring advancements and movements along the Strathallen to the east and west. Additional views to the asset from the Ochil's to the south and the River Earn to the north would also contribute to the camp's setting, whereby those travelling through the landscape would be deterred by the military presence. The key views from the camp to the River Earn in the north would form part of the asset's key transport link, with monitoring this

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						routeway ensuring control over access to the valley, asserting the power of the Roman military. Dun Knock fort (SM9434) is located on an elevated ridge to the south of the Roman camp, strategically positioned in the valley, so has to have clear views in all directions. The Roman camp's proximity to the fort suggests that it may have consolidated power over the earlier fort and utilised its defensive position along the main route south of Strathearn, with the scale of the camp needing to be placed in the open landscape to the northeast. This reiterates the power and control of the Roman military force and contributes to the intentionality of the camp's placement within the landscape. There are 15 turbine tips anticipated to be visible to the southwest. The views from the Roman camp overlooking the valley to the east and the River Earn and hills to the north are not in the direction of the turbine layout. Views south along the route through the Ochil's would also not have any turbine tips within this viewshed. The approach from the east, west, and river to the north will not be encroached upon by the Proposed Development. Views overlooking the hills to the southwest are not considered to contribute towards its setting. Overall, the turbine would not be present within any of the key views which contribute to the asset's setting. Therefore, the asset is scoped out of further assessment.

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SM7595	Banheath, farmstead and cultivation remains 1050m SSW of	Secular: farmstead	15	5.6	East	This asset comprises a medieval or later settlement and field system, including a series of wall footings, three rectangular buildings, three small buildings with associated enclosures, and rig and furrow. The farmstead is located on the northern slopes of Craigentagert Hill and Kinpauch Hill, overlooking the landscape to the north, with the Glen Burn to the west providing a water source. The agricultural nature of the asset demonstrates that its setting is the fertile landscape the inhabitants cultivated, with fertile soils, well-draining land, and the nearby Glen Burn providing a water source as well as transport and communication links. Whilst there would be 15 turbine tips visible, this would not be distracting given the locality of the assets' setting, in which views to the east do not fall within the remit of the farmstead's setting. Additionally, the functional nature of the asset would suggest that long-distance views to and from the asset do not contribute to its setting. As such, the Proposed Development will not impact the ability to understand, appreciate, and experience the asset. Therefore, this farmstead is scoped out for further assessment.
SM4073	Peterhead, enclosure 250m NNE of	Prehistoric domestic and defensive: enclosure	15	4.2	Southeast	This asset comprises a prehistoric enclosure, most likely domestic and/or defensive in nature. Limited information is available on the enclosure, but the asset's location demonstrates that it was placed within a key defensive position



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		(domestic or defensive)				in the landscape, having extensive long-distance views and a clear channel for monitoring and controlling the Glen Eagles valley to the southeast. The enclosure is located to the south of the A9, west of the A823, and north of the Scottish Central Railway line, with its setting incorporating its immediate environment, which comprises flat, fertile soils, with the Allan Water to the west and the Ruthven Water to the east. The natural resources and surrounding land would have been suitable for farming and domestic activities, with key views focused on monitoring this landscape. Views towards the asset would have included those from the open landscape, with the enclosure placed along the main approach through the Strathallan. As such, views towards the asset from the east and west contribute towards its setting. The 15 turbine tips predicted to be visible to the southeast of the asset will not encroach on the primary aspects of the asset's setting. At most, visibility of the turbines will be present in the periphery when viewing the valley to the east. The turbines may also be visible in the periphery when viewing the asset from the west; however, in both instances, the turbines will not distract from the ability to understand, appreciate, or experience the asset. As such, the asset is scoped out of further assessment.
SM4088	Lochie, enclosure 350m SE of	Prehistoric domestic and defensive:	15	4.2	Southeast	This asset comprises a prehistoric enclosure, situated at the northeastern base of Eind Plantation. The enclosure is situated in a naturally defensive position, with protection provided by the

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		enclosure (domestic or defensive)				slopes to the south, easy access and views over Cloan Burn to the east, and the open landscape to the north and northwest, up to Ruthven Water. The main approach to the asset is from the northeast, with views towards the asset from the open landscape and mouth of the Cloan Burn. The enclosure's strategic position within the landscape forms the primary aspect of the asset's setting from which it derives its significance. Long-distance views outwith the open landscape to the north and west, and the valley opening to the northeast, contribute to the ability to understand, appreciate, and experience the enclosure's dominance and defensibility within the landscape. The 15 turbine tips anticipated to be visible from the enclosure are outside the views from the asset which contribute to its significance. Views towards the asset from the lowlands in the north and northwest have limited visibility of the turbines; at most, the turbines will be visible upon the northeastern approach. This will not be to the extent that it will distract from the ability to understand, experience, and appreciate the asset, and as such, the enclosure is scoped out of further assessment.
SM2976	Rossie Law, fort	Prehistoric domestic and defensive: fort (includes hill and	15	5.2	South	This asset comprises a prehistoric fort, situated at the summit and western slope of Rossie Law, overlooking Banekist Burn to the west and the lowland areas to the north and east. The fort's strategic position in the landscape forms the basis of the asset's setting from which it derives its significance.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
		promontory fort)				The fort is situated in a naturally defensive position, with Blackgoats Hill providing protection to the south and southeast of the asset, allowing the fort to monitor and control the open plane to the north and east. The main approach appears to be to the south/southeast of the fort, where extra defence has been built up to provide further protection. Views towards the asset from the lowlands to the north form a crucial aspect of the fort's setting, from which it derives its significance. These views contribute to the ability to understand, appreciate, and experience the fort's dominance, defensibility, and control within the landscape it occupies. Additionally, the key views from the asset include those to the north and those along the valley to the west, allowing monitoring along this route. The promontory position of the fort allows for clear control over the surrounding landscape. The proposed turbine layout predicts that up to 15 turbine tips will be visible from the fort. These are anticipated to be visible in long-distance views to the southeast, along the valley, although not to the extent that it will erode the ability to understand, experience, and appreciate the fort's defensive position within the landscape. Views towards the asset will not be impacted upon approaching the asset from the north or west due to Blackgoat's Hill in the backdrop. At most views from the southeastern entrance may have peripheral visibility of the turbines, although this will not distract from the ability to

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						understand, appreciate, and experience the fort's dominance, defensibility, and control. As such, the asset is scoped of further assessment.
SM7625	Braughty, unenclosed settlement 750m ESE of	Prehistoric domestic and defensive: settlement	15	6.8	Northwest	This asset comprises an unenclosed prehistoric sub-circular settlement, measuring 20m in diameter and is situated on the south-facing slope of Cairn Hill. A 10m ring ditch sits to the west of the asset and there may be a series of roundhouses within the site. The unenclosed settlement contributes to the understanding of prehistoric settlements in the area. The enclosure is situated in a naturally defensive position, with protection from the summit and northern slopes of Cairn Hill. Situated on the southern slopes, the unenclosed settlement has clear views over the land to the south and west, with Braughty Little Burn to the west and the South Queich running along from the southwest to the south of the asset. The asset's position within the landscape, in which views outwith over the valley, forms the primary aspect of the asset's setting from which it derives its significance. The settlement's setting consists of the fertile land and river running to the west and south. The main approach to the asset appears to be from the east along the ridgeline. Additionally, views towards the enclosure comprise those from the lowlands to the south and southwest. The asset's prominent position within the landscape makes it a clear visual marker, asserting dominance and control within the landscape it occupies.

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						There are 15 turbine tips anticipated to be visible from the asset to the northwest. This will not impact any views from the asset, nor towards the potential settlement from the lowlands to the southwest. At most, there may be turbines in the backdrop when approaching the asset from the southeast, although this will not be to the extent that it will distract from the ability to understand, experience, and appreciate the asset. Therefore, the asset is scoped out for further assessment.
SM7626	Claysike, enclosures 300m W of	Prehistoric domestic and defensive: settlement	15	6.5	Northwest	These assets comprise two prehistoric enclosures, situated to the south of the A91 and east of the River Devon. Claysike enclosures (SM7626) consist of two enclosed settlements, with one enclosing an oval-shaped area with an entrance to the south of the southeastern arc, and the other presenting as a roughly D-shaped area. Middleton Fossoway enclosure (SM7628) is a sub-circular Iron Age enclosure, most likely a timber roundhouse, with a diameter of 45m, with the possible entranceway to the west of the northwestern arc. Both enclosures contribute to the understanding of prehistoric settlements in the area. The enclosures are situated in a naturally resourceful location, with protection from the hills to the north and White Hill and Hoods Hill to the east. The River Devon forms a natural defence boundary to approaches from the west and southwest, whilst also offering a good resource for transport and communication. The floodplain to the south of the enclosure comprises fertile
SM7628	Middleton Fossoway, enclosure 400m SSE of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	15	6.0	Northwest	

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						soils suitable for agricultural practices and demonstrates the functionality of the asset's setting. The two enclosures are not oriented towards one another, but due to their positioning in the floodplain, with the hill range to the north, White Hill and Hoods Hill to the east, and the River Devon to the south, forcing those approaching from the lowlands into a bottleneck between the two enclosures. This forms an aspect of the relationship between the two enclosures, which contributes to their defensibility and control. Overall, the enclosures are sheltered from the north due to natural topography, southwest by the River Devon. Key views comprise the approach toward the enclosures, looking north from the river's floodplains, and from the assets looking west toward the entrance to Glendevon, and southeast over the main approach to the assets. There are 15 turbine tips anticipated to be visible to the northwest of the asset. This would not distract from views towards the asset from the west or north, and views towards the asset from the east and south would be on the lowlands in the valley and therefore falling out of the turbine's visibility. Views overlooking the approaches to the south and the River Devon to the southwest fall outside the visibility of the turbines. Long-distance views from the asset primarily focus on the eastern and western directions and the hill range to the north. Views of the

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						turbines may be present in the periphery when viewing the valley to the west and the hills to the north. However, views up to the hill range in the northwest do not contribute to the asset's setting and nor would they distract from the ability to understand, appreciate, and experience the assets. Therefore, the enclosures are scoped out of further assessment.
SM7591	Gleneagles Castle, tower and earthwork	Secular: tower	15	3.6	Southeast	This asset comprises a roofless late medieval tower house and surrounding earthworks. Located on a prominent knoll overlooking the mouth of Glen Eagles to the south, the tower's position in the landscape forms the primary aspect of its setting from which it derives its significance. The views along the Ruthven Water and valley to the northeast and south of the asset form the key long-distance views from the asset. The entrance to the tower is in the southeast corner, with the intended views towards the asset mostly comprising those from the approach along the valley and open landscape to the north. The proposed turbine layout to the southeast of the asset will cause a minor distraction to the views along Ruthven Water in the southern direction. This will be within the periphery but only distracts from one aspect of the asset's setting. Additional views outwith the asset are not impacted by the turbines, nor is the approach to the tower from the southeast. As such, the Proposed Development will not impact the ability to understand,

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						experience, and appreciate the asset and is therefore scoped out of further assessment.
SM7586	East Biggs, hut circles 800m ESE of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	15	8.3	East	This asset comprises two conjoined prehistoric hut circles, measuring 12m and 9m in diameter, characteristic of the Bronze and Iron Age and contributing to prehistoric upland settlements. The asset is located to the south of Burn Ogilvie and to the north of the Danny Burn valley, with clear views along the ridgeline to the northeast and southwest, as well as the landscape it occupies to the west. The natural resources and surrounding land would have been suitable for farming and domestic activities, with key views focused on monitoring the lowlands to the north and northwest. This intentional placement of the hut circles forms a key aspect of the asset's functional and defensive setting from which it derives its significance. There is limited to no intended view towards the hut circles due to their primarily domestic and agricultural function. At most, views towards the asset from the ridgeline approach to the northeast or southwest and from the lowland areas to the north contribute to the prominent placement of the hut circles. There are 15 turbine tips anticipated to be visible to the east of the hut circles. Views from the lowlands to the north and from the northeastern approach fall outside the visibility of the turbines. The views from the asset overlooking the open landscape to the north, northwest, and southwest also fall outside the turbine visibility. Views towards the hut circles from

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						the southeast may have turbines in their peripheral view, but due to the placement of the asset on the eastern side of the ridgeline to the turbines will not distract to the extent that it will impact the ability to understand, appreciate, and experience the hut circles. As such, the turbine will not impact the ability to understand, appreciate, and experience the asset, and is therefore scoped out of further assessment.
SM8023	Tullibole, church and burial ground	Ecclesiastical: church	15	8.6	Northwest	This asset comprises the remains of an undated church and burial ground. The church most likely dates to the medieval period, with alterations made throughout the post-medieval period. The church is located to the north of the B9097 and south of the A977 and contributes to the understanding of ecclesiastical architectural changes in medieval and post-medieval Scotland. The church's setting, from which it derives its significance, comprises its proximity to the historic main routes (A977) and (B9097) to the north and south. These would have been the main routes for the locality to visit. Cullibole Castle, c.0.3km southwest of the church, is most likely a later addition. Should the church be contemporary with the settlement of Tullibole castle, it is likely that the church was positioned and built for the occupiers of the castle, and therefore being positioned to serve and provide a location of worship. Therefore, the immediate environment in which the asset is located contributes to the primary aspect of the asset's setting, although there are no

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						intended views to or from the asset beyond the castle and roads. At most, views towards the church from the main road to the east, which comprises its approach, or from the castle to the south, contribute to the ability to understand, appreciate, and experience the church. Given the enclosed nature of the assets setting, the proposed turbines anticipated to be visible, will not impact the ability to understand, appreciate and experience the church and as such, the asset is scoped out for further assessment.
SM9158	Leadketty, enclosures, ring-ditches, square barrow & pits 600m NW of	Prehistoric ritual and funerary: enclosure (ritual or funerary)	15	9.2	Southwest	This asset comprises two large prehistoric enclosures, one of which is circular in nature and measures 120m by 90m and is defined by a continuous ditch. A roughly rectangular structure is discernible within the centre, indicative of a potential burial. To the northeast, another circular enclosure, approximately 31m in diameter, shares similar characteristics, with another large sub-circular enclosure to the southwest of the site, measuring 170m in diameter. Numerous ring ditches are located between the enclosures, demonstrating the extent of the site. The asset is located to the west of Dunning Burn and south of the River Earn, with the main approach to the enclosure from the northeast. The enclosure's setting comprises the open landscape to the north and west, as well as the River Earn and Dunning Burn to the east and south. This proximity to water, while raised on a slight elevation so as not to be at risk of flooding, forms a key aspect of the asset's setting. Prehistoric

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						burials are often found along or near watercourses, with associations between water and the afterlife being prominent throughout Scottish mythology. The asset's prominence within the landscape ensures that it would be a key focus for those travelling through the east to west oriented Strathearn, likely acting as a landscape marker as well as a funerary monument. There are 15 turbine tips anticipated to be visible to the southwest of the asset. Given that the key views to and from the asset are along the valley to the east and west and outwards towards the River Earn in the north, the proposed turbines will not distract from the ability to understand, appreciate, and experience the asset and its setting. Additionally, any views towards the asset from the north/northeast would be no more distracted by the proposed turbines in the backdrop than the modern village of Dunning, which is situated in this southwestern view. As such, the asset is scoped out of further assessment.
SM6297	Gray Stone, standing stone, 250m NNE of Knowes	Prehistoric ritual and funerary: standing stone	15	5.5	Southwest	This asset comprises a prehistoric standing stone, locally referred to as the Gray Stone, measuring 2.1m high, with a roughly triangular base, and leaning slightly to the west. The standing stone is located on the northeastern ridgeline of Casken Hill and to the north and east of Dunning Burn, with its setting incorporating both views to and from the asset. The standing stone has been intentionally placed within the landscape as a marker, suggesting either a ritual function or a

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						more practical one, in which the stone may form the boundary of the land occupiers. Additionally, the prominent placement of the standing stone may suggest that it was used as a landscape marker for travellers moving through the lowlands to the north, or as a meeting place for surrounding inhabitants. As such, views from the valley to the north form a primary aspect of the asset's setting from which it derives its significance. Alternatively, should the stone be ritualistic in nature, then its proximity to flowing water would form a key aspect of its setting, with strong connections between water and the afterlife having persisted throughout Scottish mythology and traditions. As such, views from the asset towards the east and north, through which the Dunning Burn flows, contribute to the understanding, appreciation, and experience of the asset's placement and function within the landscape. The primary approach to the standing stone appears to be from the valley to the east and up along the northeastern ridgeline, with long-distance views overlooking the open landscape to the north and northwest framing this approach as they form the primary views to and from the stone. There are 15 turbine tips anticipated to be visible from the asset; at most, these would fall in the backdrop when approaching the asset from the northeast, although the extensive hill range between the asset and the Proposed Development means that

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						the turbines will not distract from the ability to understand, appreciate and experience the asset. Views overlooking the Burn to the north and east, and the lowlands to the north and northwest, all fall outside the visibility of the turbines. As such, the standing stone is scoped out of further assessment.
SM8918	Pit Alignment, 160m SE of Wellhill House	Prehistoric domestic and defensive: pit alignment; Prehistoric ritual and funerary: pit alignment (ritual or funerary)	15	9.2	Southwest	This asset comprises the remains of at least eleven pits associated with prehistoric settlement or ritual activity. The pit alignments derive their significance from their level of preservation and contribution to prehistoric landscapes. Situated on the open landscape of the Strathearn, the pits are aligned in a north to southwest arrangement. The asset's proximity to the Dunning Burn, which is c.0.2km west, Garvock Burn c.0.8km east, and the River Earn, approximately 2km to the north, form a key aspect of the asset's ritualistic nature, whereby associations with water and the afterlife are heavily linked in prehistoric societies. The pit is located within a wider prehistoric funerary landscape, with Inverdunning House Henge (SM8922) 150m north of the asset. Additionally, a prehistoric enclosure (SM9159), ring ditch and pit groups (SM8920), and the ceremonial site of Leadketty (SM9158), which comprises a series of ring ditches, pits and a square barrow, are also present to the north and northwest of the site. Two barrows have been recorded to the east of the pit alignment, just before Garvock Burn. The range of different prehistoric funerary assets demonstrates the scale and importance of ritual practices within this section of the

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						Strathearn and emphasises the wider contextual setting of the pit alignments. As such, the main approach to the asset is from the east to west when travelling through the Strathearn. These views to and from the open landscape and watercourses to the east, north, and west form a key aspect of the asset's ritual setting from which it derives its significance. The open landscape and access to water also provide a suitable agricultural landscape, contributing to the domestic aspect of the asset's setting, whereby the settlement was intentionally placed for the natural resources and benefits of the land. Situated on a slight elevation allows the asset to fall outside the floodplains of the surrounding watercourses, as well as providing a visual across the Strathearn for suitable monitoring of those travelling through. This demonstrates the domestic and defensive aspects of the assets which contribute to its setting. There are 15 turbine tips anticipated to be visible from the asset to the southwest. The views overlooking the valley to the east and west, and the watercourses to the east, north, and west, will not be impacted by the proposed turbine layout. Views from the western approach would also fall outside the turbine visibility. At most, views of the turbines would be in the periphery to the eastern approach and in the backdrop when viewing from the north. The complexity and scale of the asset and the surrounding prehistoric features would prevent any distraction from long-distance views of the turbine tips. Additionally, the

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						tips will be situated on the skyline to the southwest and therefore would not distract from the lowland valley views from the north. As such, the Proposed Development will not distract from the ability to understand, appreciate, and experience the pit alignments nor their contribution to the wider funerary landscape. Therefore, the asset is scoped out of further assessment.
SM8920	Ring ditch and pit group, 180m ENE of Wellhill House	Prehistoric domestic and defensive: pit alignment; Prehistoric ritual and funerary: barrow	15	9.3	Southwest	This asset comprises a prehistoric ring-ditch with associated burial remains. Measuring approximately 15m in diameter, the nine roughly circular pits are concentrated to the east of Dunning Burn, to the west of Garvock Burn, and to the south of the River Earn. The ring ditch and pit group are located within a wider prehistoric funerary landscape within the Strathearn and derives its significance from its potential to contribute to the understanding of prehistoric burial and ritual landscapes. Welhill House pit alignment (SM8918) is c.60 to the south of the asset and Inverdunning House Henge (SM8922), a prehistoric enclosure (SM9159) and the ceremonial site of Leadketty (SM9158), which comprises a series of ring ditches, pits and a square barrow, are all situated to the north and northwest of the site. There are also two barrows which have been recorded to the east of the asset, just before Garvock Burn. The range of different prehistoric funerary assets demonstrates the scale and importance of ritual practices within this section of the Strathearn and emphasises the wider contextual setting of the ring ditch and pit group. As such, the main approach to the asset



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						is from the east to west when travelling through the Strathearn. These views to and from the open landscape and watercourses to the east, north, and west form a key aspect of the asset's ritual setting from which it derives its significance. The approach to the ring-ditch appears to be from the east and west, along the Strathearn in which it is located. Views towards the asset from the valley contribute to this aspect of the asset's setting. The domestic aspect of the ring ditch would suggest that the asset's setting would also include the fertile and low-lying landscape in which it is located. With views concentrated on overlooking the open valley and the surrounding prehistoric assets and watercourses to the west, north, and east of the asset. There are 15 turbine tips anticipated to be visible to the southwest of the asset. The views overlooking the valley to the east and west, and the watercourses to the east, north, and west, will not be impacted by the proposed turbine layout. Views from the western approach would also fall outside the turbine visibility. At most, views of the turbines would be in the periphery to the eastern approach and in the backdrop when viewing from the north. The complexity and scale of the asset and the surrounding prehistoric features would prevent any distraction from long-distance views of the turbine tips. Additionally, the tips will be situated on the skyline to the southwest and therefore would not distract from the lowland



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						valley views from the north. As such, the Proposed Development will not distract from the ability to understand, appreciate, and experience the ring ditch and pit group, nor their contribution to the wider funerary landscape. Therefore, the asset is scoped out of further assessment.
SM8922	Inverdunning House, henge 140m S of	Prehistoric ritual and funerary: henge	15	9.4	Southwest	This asset comprises a prehistoric circular enclosure, most likely a henge. Measuring approximately 30m in diameter and located within the Strathearn, to the east of Dunning Burn, west of Garvock Burn, and south of the River Earn. The henge is located within a wider prehistoric funerary landscape and derives its significance from its potential to contribute to the understanding of prehistoric burial and ritual landscapes. A prehistoric pit alignment (SM8918) and a series of pit groups and a ring ditch (SM8920) are located to the south of the asset. With an enclosure (SM9159) and the ceremonial site of Leadketty (SM9158), which comprises a series of ring ditches, pits and a square barrow, situated to the northwest of the site. There are also two barrows which have been recorded to the east of the asset, just before Garvock Burn. The range of different prehistoric funerary assets demonstrates the scale and importance of ritual practices within this section of the Strathearn and emphasises the wider contextual setting of the henge, which may form the primary epicentre for the ritual practices. The approach to the henge is from the east and west, along the Strathearn in which it is located. Views towards the asset from



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						the valley contribute to this aspect of the asset's setting, where the henge would have been a clear visual marker for those passing through. Long-distance views overlooking the watercourses to the west and east, and the River Earn and hills in the backdrop to the north would also contribute to the wider ritual setting of the henge. There are 15 turbine tips anticipated to be visible to the southwest of the asset. The views overlooking the valley to the east and west, the hills to the north, and the watercourses to the east, north, and west, will not be impacted by the proposed turbine layout. Views from the western approach would also fall outside the turbine visibility. At most, views of the turbines would be in the periphery to the eastern approach and in the backdrop when viewing from the north. The complexity and scale of the asset and the surrounding prehistoric features would prevent any distraction from long-distance views of the turbine tips. Additionally, the tips will be situated on the skyline to the southwest and therefore would not distract from the lowland valley views from the north. As such, the Proposed Development will not distract from the ability to understand, appreciate, and experience the henge, nor its contribution to the wider funerary landscape. Therefore, the asset is scoped out of further assessment.
SM8773	Barrows, 630m and	Prehistoric ritual and	15	9.5	Southwest	This asset comprises the remains of two prehistoric barrows, located 240m apart. The barrow to the northeast is circular in



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
	860m NE of Nether Garvock	funerary: barrow				shape, dates to the Bronze Age and measures 11m in diameter, with a possible entrance to the southeast. The second barrow comprises the more unique square design, dating to the Iron Age and measures up to 15m in each length. The unique nature of barrows, especially in Scotland, makes these assets a significant feature in the archaeological record. Moreover, those buried within the barrows are understood to be individuals who held prominent positions within a community, broadening our understanding of prehistoric burials and rituals associated with death. The barrows are located within a gentle dip in the landscape to the west of Garvock Burn, east of Dunning Burn, and south of the River Earn. The barrows are no longer prominent in the landscape, but given their topographic location, would most likely have incorporated local views of the immediate landscape, including views of each other, and views overlooking the watercourses to the east, west, and north. Long-distance views would have focused on the Ochils to the southeast due to their orientation, with movement through these valleys forming an aspect of their approach from the southeast. There are 15 turbine tips anticipated to be visible to the southwest. The key views from the asset overlooking the watercourses to the east, north, and west, and the hills to the

Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						southeast, demonstrate that the turbines will not encroach on key views from the barrows. Views towards the asset from the southeastern approach will not be impacted by the turbines. At most, views of the turbines would be in the periphery to the southeastern views of the Ochils, although this would be out of the turbine viewshed. Additionally, given that the barrows are no longer prominent in the landscape demonstrates that their setting is already altered. As such, the Proposed Development will not impact the ability to understand, appreciate, or experience the barrows any more than their current setting, nor will it detract from their existing contribution to the prehistoric funerary landscape. Therefore, the asset is scoped out of further assessment.
SM8921	Timber circle and pit circle, 460m ESE of Leadketty Farm	Prehistoric domestic and defensive: pit circle	15	8.6	Southwest	The asset comprises two prehistoric pit circles aligned north to south, with the northern circle encompassing the remains of a potential timber circle comprised of eight pits and the southern circle comprising seven pits. Located on a gentle ridgeline to the east of Dunning Burn, northeast of the modern village of Dunning, and west of the B934. The slight elevation raises the asset out of the burns floodplain and also allows for key views along Dunning Burn to the north and southwest, and the open landscape to the east, with the asset's setting incorporating the burn and surrounding fertile soil suitable for agricultural practices. The main approach

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						to the timber and pit circle is from the northeast, following the natural ridgeline it is situated on. Wider approaches to the asset from the east and west when travelling through the Strathearn also contribute to the asset's dominance and defensibility. There are 15 turbine tips anticipated to be visible to the southwest. Views overlooking the burn to the northwest and the agricultural landscape to the east fall outside of the turbine visibility. Views of the burn towards the southwest from the asset and views from the northeast facing the timber and pit circle, may have visibility of the turbine tips; however, given the modern village of Dunning is also within this visual, the proposed turbine layout will not encroach on the asset's setting any more than the current infrastructure. Additionally, long-distance views to the southwest do not contribute to the asset's setting. Therefore, the Proposed Development will not impact the ability to understand, appreciate, and experience the timber and pit circle, and as such, the asset is scoped out of further assessment.
SM9159	Enclosed settlement and roundhouse 220m WSW of Inverdunning House	Prehistoric domestic and defensive: enclosure (domestic or defensive)	15	9.4	Southwest	This asset comprises an unenclosed and enclosed prehistoric settlement, including two roundhouses, a curvilinear enclosure, a linear ditch, a souterrain and an unidentified cropmark. The asset is strategically located within the landscape, overlooking Dunning Burn to the west and the open valley to the east and west. The site contributes to the understanding of multi-phase sites in the Perth and Kinross area.



Designation Reference	Designation Title	Category	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
						The settlement's setting consists of its immediate, defensive and strategic environment, including the Dunning Burn, across to Garvock Burn in the east. The asset is situated within the Strathearn, with long-distance views overlooking the valley to the east and west, contributing to the defensibility of the asset. The main approach to the asset would follow the valley from the east and west, with views from the surrounding landscape contributing to the ability to understand, appreciate, and experience the asset's dominance, defensibility, and control within the landscape in which it occupies. There are 15 turbine tips anticipated to be visible from the asset to the southwest. The turbines may be visible in the periphery to approaches from the west, and any northeastern views towards the asset, but this would not be to the extent that it will distract from the ability to understand, experience, and appreciate the settlement's prominence within the landscape. Additionally, no views from the asset overlooking the landscape and watercourse to the north and east would be impacted by the turbines. As such, the asset is scoped out of further assessment.

Table 2: Category A Listed Building within 10km of the Proposed Turbine Locations

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
LB5912	Keltie castle.	0	6.2	Southwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
LB5915	Duncrub dovecot	0	8.0	Southwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
LB24546	Dollar academy	0	8.3	North	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
LB52454	St. Serf's church, Dunning	0	7.7	Southwest	Due to this asset and contemporary assets with intervisibility falling outwith the ZTV, this asset has been scoped out of further assessment.
LB11200	Kinross House				Scoped in for further assessment.
LB5819	Montrose Mausoleum, St. Kattan's churchyard Aberuthven	11	7.7	South	This asset comprises a mausoleum built in 1736 by William Adam, located in the Kattan Churchyard in Aberuthven. Several Dukes of Montrose are buried within the structure, with the last to be interred in 1836, demonstrating the importance of the mausoleum to this family's history. The Venetian entrance and preservation of the structure contribute to its architectural and associative interests. The mausoleum is situated along the main road (A824) into Aberuthven, making it an identifiable asset along this route. Moreover, the quality and design of the building demonstrate that there are intended views focused on appreciating the asset, from the church grounds surrounding the building, and from the village and main road. Additionally, the mausoleum and graveyard are positioned so as to appreciate the agricultural rolling landscape backed by the Ochil's to the south. These long-distance views

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					to the south form a key aspect of the asset's setting from which it derives its significance. There are 11 turbine tips predicted to be visible from the asset to the south. Given the turbines are to be located to the south of the asset, they will not encroach on the main approach to the mausoleum from the graveyard, nor will they distract from the periphery when approaching the asset from the main road to the west and east. At most, the turbine tips will be visible beyond the skyline views from the asset towards the rolling landscape and hills, although visibility of the turbine tips will not compete with the scale of the hills and wider landscape in this viewshed. As such, the Proposed Development will not impact the ability to understand, appreciate and experience the asset, and as such, the mausoleum is scoped out for further assessment.
LB11459	Tulliebole castle	15	8.6	Northwest	This asset comprises a 14th century tower house situated within the lands of Tulliebole. Later developments throughout the 17th century altered the castle, focusing on a less defensive aspect of the castle's setting and prioritising aesthetic architectural design. The castle was first recorded in the 14th century, sandwiched between the A977 to the north and the B90097 to the south, with rough pasture surrounding the castle and ancient woodland bordering the periphery of the castle grounds. The medieval aspect of the asset's setting focuses on monitoring the waterways to the south (Gairney Water) and to the west (River Devon). Additionally, the castle's defensive position within the valley would have prioritised monitoring views to the east and west. Alterations to the castle's architectural design have diminished aspects of this prior setting,

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					evolving from a defensive castle to a polite, domestic castle. The primary approach to the castle is from the southeast. The castle would have once marked a key feature in the landscape, asserting dominance and control; modifications to the landscape surrounding the asset, including the expansion of the historic woodland, have now diminished aspects of these views, forming a shield against views into the estate and views to the south from the castle. Views overlooking the designed landscape and moat to the northeast now form a modern aspect of the asset's setting from which it derives its significance, demonstrating how the setting has altered from one of defensibility to architectural and landscape design. This includes a designed landscape which has a sense of isolation and privacy from outward views. As such, the views of the Proposed Development to the northwest, located within the Ochil Hills, would not be located within the defensive or polite setting of the asset, nor would it form a distraction to the ability to understand, appreciate, or experience the functional role this asset would have played within a medieval and post-medieval landscape. Therefore, the asset is scoped out for further assessment.

Table 3: Category B Listed Building within 5km of the Proposed Turbine Locations

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
LB4550	Kincardine castle	3	4.3	Southeast	This asset comprises an early 19 th century castle, potentially designed by Richard Crichton, including gothic style features with a northwestern



Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					entrance, octagonal turrets, and square-headed windows. The castle's importance is derived from its architectural and associative characteristics. The castle is built on a steep slope on the meandering bend of the Ruthven Water and is surrounded by historical woodland. The woodland surrounding the castle forms the peripheral boundaries of the castle grounds, ensuring it is secluded and sheltered from inward views. Important views towards the castle include those from the northeastern approach, which uses woodland to create a sense of privacy, before opening when reaching the castle to a designed view, so as to appreciate the castle's historical architecture. The woodland banding along the Ruthven Water and Kincardine Glen prevents views from the house toward the Ochil Hills, including toward the Site. There are three turbines anticipated to be visible from the asset according to the ZTV, however, it is considered that the designed woodland along the Ruthven Water and around the south side of the house would screen views significantly. This woodland provides part of the asset's setting as part of its associated designed landscape. The turbines will not be present in views from the castle overlooking the grounds to the north, nor will the turbines distract from the ability to understand, appreciate, and experience the architectural significance of the asset upon the approach to the northeast due to the sheltered nature of the designed landscape. As such, the castle is scoped out of further assessment.
LB4571	Gleneagles station	3	4.4	Southeast	This asset comprises a single-storey ticket office, dating to 1919. The preserved architecture of the asset contributes to early railway

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					construction and local character, combining architectural design and functionality. The station is located within the functional purpose of being beside the station and train rail, and therefore, the only aspects which contribute towards its setting are its contextual relationship with these two aspects. No other aspects of views outward or towards the asset contribute towards its setting. Three turbines are predicted to be from the asset. However, it is not considered that any visibility of the turbines would affect the ability to understand, appreciate, and experience the relationship between the ticket office and its associated rail infrastructure. As such, the asset is scoped out for further assessment.
LB11798	Glenquey	3	2.9	Northeast	This asset comprises Glenquey House, most likely dating to the post-medieval period. The asset primarily derives its significance from its architectural value, including its traditional harled and cream-washed finish. The structure is located within a desirable part of the landscape, with shelter from the steep slopes of Innerdownie to the west providing a sense of privacy. The natural water source from Glenquey Burn to the southeast further contributes to the picturesque setting of the house, which is also oriented to admire views over the burn, the length of the valley, and the surrounding hills. The primary approach through the valley from the northeast is utilised to appreciate the aesthetic setting of the house,

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					through which its architectural design and preservation can be appreciated. The three turbine tips anticipated to be visible from the asset fall behind Inverdownie ridgeline and do not encroach on the views which contribute to the understanding, appreciation and experience of the asset's setting as outlined above, which comprise views east, southeast and south along the glen. As such, the Proposed Development does not distract from the cultural significance of the asset and is therefore scoped out of further assessment.
LB5817	Foswell	5	3.4	Southeast	This asset comprises a late 18th century house, demonstrating an example of high-quality, well-preserved architecture. The asset primarily derives its significance from its architectural value, including its projecting gables and droved dressings, as well as its historical development due to 20th century alterations. The house is positioned on the north slopes of Black Maller/Maller Hill, extending north and overlooking the landscape to the north, with connecting woodland from around the house, its gardens and along the Cloan Glen to the east. The house is orientated facing north-northwest, providing aesthetic views across Strathearn beyond some sparse tree planting. The majority of the landscape around the house historically comprised agricultural field enclosures and commercial forestry plantations, which are likely associated with the house's income. This landscape is largely intact from the 1888-1915 OS 6-inch edition map.

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					The house's historical approach is from the north, with an encompassing treeline creating a sense of privacy before opening up when reaching the house, forming the primary point of appreciation for the house's architecture. Additionally, the house is oriented to view the rolling landscape of the lower valley to the north-northwest, which is a key view designed from the house and may have been both aesthetic and functional, in terms of monitoring the wider arable land associated with its wider estate. The immediate woodland surrounding the north to southeast of the house appears to be designed and would also form an aspect of the house's wider design, hence contributing to the ability to understand, appreciate and experience the asset. There are five turbine tips anticipated to be visible to the southeast of the house. This would not impact views towards the valley in the north-northwest, nor would the turbines distract from the designed woodland and agricultural and pastoral land within the estate. The primary approach to the house will remain unimpacted. As such, the Proposed Development is not in a viewshed that contributes to the asset's setting and therefore will not distract from the ability to appreciate the cultural significance and architectural design of the house. The ability to appreciate the asset's architectural interests, its designed landscape with the woodland and burn to the east, and key views oriented to the north, would all remain intact. As such, the asset is scoped out of further assessment.
LB11823	Glendevon castle	7	1.1	Northeast	Scoped in for further assessment.

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
LB11828	Glendevon house, entrance archway	9	1.4	Northeast	These assets comprise Glendevon House (LB11827), entrance lodge (LB11828), and bridge (LB11829), dating to the late 18th century, early 19th century. These assets primarily derive their significance from their architectural group value, including the gothic-style villa, the key-stone mermaid crest on the entrance archway, and the mid-18th century bridge, which has undergone repair in the late 18th century and early 19th century. The approach to Glendevon House begins with the bridge crossing the River Devon to the northeast, before passing through the entrance archway, and leading up to the House and its designed landscape from the north. The consistent architectural character of the buildings contributes towards their intangible relationships and indicates that they are part of the same estate, forming a key aspect of their settings. Woodland is utilised around the estate, most notably along the linear drive from the river to the house steading and surrounding the house itself, which creates corridors and isolated open spaces throughout the estate. The surrounding treeline provides shelter along the approach to the house before opening up on the immediate approach, allowing the asset's architectural design to be appreciated. Additionally, the periphery of the house is lined with a historical woodland to the north, west, and south of the grounds, adding further privacy and shelter from views into the estate and outwith towards the modern A823 to the east. Views from the house overlooking the grounds to the southeast and northwest form part of the wider designed landscape associated with the estate. The open fields to the north and east are separated by a treeline coverage, suggesting there are no long-distance views intended from the estate.
LB11829	Glendevon bridge over River Devon at glendevon house gate	9	1.4	Northeast	
LB11827	Glendevon house	14	1.6	Northeast	



Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					The turbines predicted to be visible from the asset to the northeast will not cause a distraction when crossing the bridge, nor when passing through the entranceway on the lead up to Glendevon House. The sheltering treeline further prevents any encroaching turbines, and the main open approach to the house from the drives focuses on a southeastern direction, which is outwith the Proposed Development. Additionally, the view of the designed landscape to the northwest and southeast of the house is shielded by historic woodland, as such, any visibility of the turbine tips would not distract from the ability to understand, appreciate, and experience the assets' architectural significance, nor its relationship with the entrance archway and bridge. As such, all assets are scoped out of further assessment.
LB15243	Tollhouse, upper yetts of muckhart	9	4.6	Northwest	This asset comprises an unaltered early 19th century tollhouse, demonstrating a major example of architecture from this period. The asset primarily derives its significance from its well-preserved vernacular architecture, characterised by its broad-eaved piend roof chimney and centre-porch. The tollhouse's setting comprises its contextual relationships with the A823 and the B934, along which it is positioned intentionally to collect tolls from those using the historic route through the glen. The visual relationship between the house and the road along its approach contributes toward how we understand, experience and appreciate the asset as a historic tollhouse. Whilst views of the Proposed Development are anticipated to be visible from the asset, they would not distract from the ability to appreciate the

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					asset's relationship with the main route through the glen within its immediate locality, and as such, the house is scoped out of further assessment.
LB11821	Glendevon parish church	9	1.3	Northeast	This asset comprises an early 19th century church, demonstrating an example of ecclesiastical architecture from this period. The asset primarily derives its significance from its architectural value, which has progressed throughout the 19th and 20th centuries, including a gothic style window and a broad-eaved roof. The church is located on the east side of the River Devon, centrally located within Glendevon along the route to and from Gleneagles to the northwest and through the Ochil hills. The access to the church is from the main road (A823) to the northeast of the church. Located along the main road, the church is situated as a meeting point for those living within the valley. The Church's location along a primary route through the surrounding hills would contribute to the functional aspect of the asset. As such, views towards the church and from the church do not contribute to its setting; instead, its setting comprises the main road it is located next to and its centrality within Glendevon. There are nine turbine tips anticipated to be visible from the asset to the northeast. Whilst these would be visible, they would not distract from the asset's setting, which is primarily associated with its location and accessibility from the surrounding farmsteads. The turbines fall outwith the views which contribute to its setting, and as such, visibility of the turbines would not impact the ability to understand, appreciate, and

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					experience the asset nor its cultural significance. Therefore, the church is scoped out of further assessment.
LB5816	Cloan	9	4.2	South	This asset comprises a late 18th early 19th century house, demonstrating a major example of architecture from this period. The asset primarily derives its significance from its architectural value, including the Scots Baronial-style tower, as well as its historical development due to 20th century alterations. There are multiple historical approaches to the house, from the main drive to the northwest, an additional entrance to the northeast, and a footpath to the south-southwest. The driveway to the northwest forms the primary point of appreciation for the house's architecture. Historic woodland encompasses the house except on the northwest side, where the view from the road provides a key visual towards the house. An associated walled garden present to the south of the house and walkways around the nearby landscape of pasture along the Dalry Burn also form part of the building's setting, being part of a small, designed landscape in which the house is located within the core of. The encompassing historic treeline was planted intentionally, so as to provide shelter from views into and from the house, ensuring a sense of isolation and privacy from within the grounds. Therefore, the seclusion of the grounds surrounding the house prevents any long-distance views out of the estate. As such, views of the surrounding landscape do not contribute to the ability to understand, appreciate and experience the asset.

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					There are nine turbine tips anticipated to be visible to the south of the house. Given the designed landscape surrounding the house intends to prevent any long-distance views into and from the grounds, views of the turbines would not encroach on the asset's setting. Additionally, the historic approach to the house from the northwestern driveway and the northeastern road is isolated by the historic treeline. Therefore, the Proposed Development would not distract from the ability to understand, appreciate, and experience the house's cultural significance and, as such, is scoped out of further assessment.
LB11794	Borland	10	1.3	North	This asset comprises three detached steading blocks, dating to the mid-18th century, demonstrating an example of post-medieval architecture. The asset primarily derives its significance from its architectural value, including the unaltered western section of the steading, as well as its historical development due to 20th century alterations. The steading is located on a rise to the north of the River Devon within Glendevon. Situated outside the floodplains and on good drainage, the farmstead utilises the natural resources and topography to manage its immediate area of agricultural landscape. The main approach to the steading is from the south, linking up with the main A823 road. Historic woodland frames the steading to the west and lines the southern approach, providing a sense of privacy and preventing any views into or from the asset. There are no intended long-distance views to or from the asset. The asset's setting is primarily functional, with views overlooking the agricultural landscape to the north and northwest forming an aspect of the asset's setting but not contributing to the architectural appreciation of the steading. The views towards the steading from the southern

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					entrance form an aspect of the asset's setting from which its architectural significance can be understood, appreciated, and experienced. There are 10 turbine tips anticipated to be visible from the asset to the north and northwest. The steadings' setting primarily focuses on the immediate agricultural landscape and the functionality of its location within the valley. There are no intended long-distance views to or from the asset; as such, the Proposed Development, whilst potentially visible, will not distract from the ability to understand, appreciate, and experience the steading, nor its cultural significance. Therefore, the steading is scoped out of further assessment.
LB11825	Wester glensherup, old house of, now garage and loft.	11	1.4	Northeast	This asset comprises a late 17th century ruin, demonstrating an example of post-medieval architecture. The asset primarily derives its significance from its architectural value, including the crowstepped gable and later historical developments due to 20th century alterations. The house is located on the south side of the River Devon in Glendevon. The main approach to the asset is from the main road (A823) to the north, before crossing the Glensherup Bridge (LB1824), and passing over a ridgeline with planted trees across it. The treeline leading up to the house creates a shield from the main valley and travel route through the glen, providing a sense of privacy from long-distance views into or from the house. Views from the house comprise its associated pastoral agricultural landscape to the east and west, forming a primarily functional aspect to the asset's setting. The historic treeline to the south of the house marks the boundary of the agricultural landscape and prevents long-distance views in this direction.

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					There are 11 turbine tips predicted to be visible from the asset to the northeast. Given that the asset's primary setting comprises its agricultural landscape to the east and west and does not comprise any intended long-distance views to or from the house, would suggest that the proposed turbine layout will not distract from the ability to understand, appreciate, and experience the asset, nor distract from the asset's cultural significance. As such, the asset is scoped out of further assessment.
LB11826	Kaimknow farmhouse	11	1.4	Northeast	This asset is a probable late 18th century farmstead, primarily designated due to its architectural interest, from the well-preserved features, including that of the bow-ended design and T-plan front, alongside later 19th century developments. The farmhouse is located within an agricultural landscape, on a gentle ridge to the north of the A823 and the River Devon. Situated out of the river's floodplain, the farmhouse has clear views along Glendevon to the southeast and southwest, the lowlands to the south of the open landscape to the northeast. The agricultural landscape forms its contextual setting, being that the farmhouse is an agricultural building. This demonstrates the functionality of the farmhouse's setting and placement within the landscape. The asset's setting is limited to the immediate surrounding farmland, in which it has a historical function with. Therefore, no views towards the asset or beyond its local agricultural land contribute towards its setting. Whilst there are 11 turbine tips anticipated to be visible from the asset, they will not distract from the ability to understand, appreciate, and

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					experience the agricultural function of the farmhouse within its agricultural landscape, which forms its contextual setting. As such, the farmhouse is scoped out of further assessment.
LB4546	Gleneagles house including stable block	15	3.0	Southeast	This asset comprises a mid-17th century house and stable block (LB4546). The house is primarily designated due to its architectural interest, including the areas unaltered and those that have undergone reconstruction and alteration throughout the 18th to late-19th centuries. The historical approach to Gleneagles House is to the northeast and east, connecting to the A823, this approach forms a primary point of appreciation for the house's architecture. Ruthven Water runs to the east of the house with the gardens to the north and south. The Chapel (LB4547) is situated to the north of the House and may have been purposefully incorporated into the estate grounds. The estate is encompassed by woodland designed to create shelter and privacy for the grounds and the house, based along a linearly designed landscape following the glen of Gleneagles. The remains of the estate extend to the east and west, preserving the historic agricultural field enclosures of the estate around the farmsteads of the east and west Gleneagles mains. The assets settings include the designed gardens, Ruthven Water, and hills in the backdrop to the south and southeast. There are 15 turbine tips predicted to be visible from the asset to the southeast. The approaches to the assets would not be impacted either by the development due to the channelled entrance and orientation of the house in comparison to the development. The turbines within the backdrop of the Ochils would be outwith the extent of the estate and its

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					intended views, which are designed to be isolated within designed woodland, providing a sense of privacy from the external landscape. Therefore, the ability to understand, appreciate and experience the asset within its designed landscape and its designed views remains intact, and is scoped out of further assessment.
LB4547	Gleneagles chapel, and graveyard	15	3.3	Southeast	The chapel comprises a small rectangular building and derives its significance from its architectural features, including crowstepped gables, chamfered square-headed windows and a small graveyard. The chapel is located at the northern entrance of Gleneagles, on the west side of the Ruthven Water. The chapel is now located within the estate grounds of the 17th century Gleneagles House (LB4546), surrounded by woodland. The chapel is positioned within the main historic route through the Ochil Hills at the northern mouth of Gleneagles for the convenience of access for the contemporary local population of the time. The A823 would have provided access to the church, prior to it being adopted into the estate grounds of Gleneagles House. Therefore, the aspects of its setting which contribute to the chapel's setting are its location along a core landscape route and road. Views outward of the church were not intended, and therefore there are no key views from the church outward. There are nine turbine tips anticipated to be visible from the asset to the southeast. Whilst these would be visible, they would not distract from the asset's setting, which is primarily associated with its location and accessibility from the surrounding settlements. The turbines fall outwith the views which contribute to its setting, and as such, visibility of the turbines would not impact the ability to understand, appreciate, and

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					experience the asset nor its cultural significance. Therefore, the church is scoped out of further assessment.
LB4549	Gleneagles tollhouse	15	1.9	East	This asset comprises a late-18th to mid-19th century single-storey and attic rubble tollhouse. The asset is primarily designated due to its architectural interest, including the remains of a Venetian-style doorway, alongside later 19th and 20th century developments. The tollhouse's setting comprises its contextual relationships with the A823, along which it is positioned intentionally to collect tolls from those using the historic route through the glen. The visual relationship between the house and the road along its approach contributes toward how we understand, experience and appreciate the asset as a historic tollhouse. Whilst views of the Proposed Development are anticipated to be visible from the asset, they would not distract from the ability to appreciate the asset's relationship with the main route through the glen within its immediate locality, and as such, the house is scoped out of further assessment.
LB4551	Kincardine glen railway viaduct over Ruthven Water	15	4.8	Southeast	This bridge dates to the mid-19th century and comprises six tall semi-circular arches, which form the basis of the asset's architectural significance. The bridge also derives its significance from its setting, which comprises its functional relationship with the railway and the Ruthven Water. The asset's contributing setting is local, and therefore long-distance views do not contribute to the bridge's setting nor the ability to appreciate the functionality of the viaduct.

Designation Reference	Designation Title	Turbine visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					There are up to 15 turbine tips predicted to be visible within the Ochil's within south views. Therefore, the turbines would not be located within the asset's setting, nor would it distract from the ability to understand, appreciate, and experience the bridge and its relationship with the railway and the river. Therefore, the asset is scoped out of further assessment.
LB11797	Blacklinn bridge over River Devon.	15	2.0	Northwest	This bridge dates to the mid-19th century and comprises a single semi-circular archway, with its architectural features contributing to its significance. These include droved dressings, belt courses at the parapet and the terminal piers. The asset's setting comprises its functional relationship with the River Devon over which it crosses, carrying the A823 over the watercourse. Views of the wider landscape do not contribute to the bridge's setting. As such, whilst there are anticipated to be views of the Proposed Development, these views would not impact the ability to understand, appreciate, and experience the asset and its contextual setting with the river. Therefore, the bridge is scoped out of further assessment.

Table 4: Designated Garden and Designed Landscape within 10km of the Proposed Turbine Locations

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
GDL00089	Castle Campbell	0	7.4	North	Due to the entirety of this asset and any key approaches falling outwith the ZTV, this asset has been scoped out of further assessment.

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
GDL00402	Cowden Japanese-Style Garden	0	6.4	North	Due to the entirety of this asset and any key approaches falling outwith the ZTV, this asset has been scoped out of further assessment.
GDL00360 Category B: Gleneagles Hotel (LB4570)	Gleneagles Hotel and Golf Courses	15	5.7	Southeast	Scoped in for further assessment.
GDL00227 Category A: Invermay House (LB11071) Category A: Old House of Invermay (LB11074) Category B: Invermay House Dovecot (LB11069)	Invermay	15	9.3	Southwest	This asset comprises a well-preserved 19th century landscape with earlier features dating back to the 16th century, and some of the features having been designed by famed Walter Nicol. Sir Walter Scott, also lived at Invermay, contributing to the estate's historical interest. The associated Invermay estate includes fifteen listed buildings within the GDL, all of which contribute to the character and cultural significance of the asset. The estate's core is comprised of the woodlands surrounding Old Invermay and Invermay House, located in the centre of the GDL, with the Water of May running to the north. There are three main approaches to the estate: from the north, south, and west. The western approach from Henhill Road passes through a designed woodland, crossing the Water of May, before splitting to form a looping driveway from the north and the west, creating a passing route of appreciation for the Old Invermay House and up to the modern Invermay

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
Category B: Scott's Bridge (LB11070) Category B: Bridge (LB11065) Category B: West Lodges and Gates (LB11067) Category B: Home Farm (LB11077) Category B: Estate Wall (LB11068) Category B: Stables (LB11076) Category B: Game Larder and Icehouse (LB11072) Category B: Dairy (LB11075)					House. The clear area around Invermay House allows for appreciation of the house from all angles. This approach continues past both houses and through another historic woodland before opening out on the exit to the south of the estate. The sheltering woodlands around the approaches through the estate provide a sense of privacy, which then opens up when viewing the houses to mark a point of appreciation for their architectural and cultural significance. There is another potential approach to the estate from the east, although this would not have formed part of the primary approach to the estate. Key views are contained within the estate upon all the approaches, with the designed landscape and woodland sheltering any wide landscape views, so as to ensure the primary sense of appreciation is the Invermay House. The designed pathways through the woodlands utilise the Humble and Bumble Gorge as a natural water feature, running east to west through the estate. This natural watercourse forms a crucial aesthetic feature when approaching the estate and when walking throughout the grounds. This demonstrates that the intended views within the GDL were primarily focused on the approach to Old Invermay House and Invermay House, as well as the natural landscape and not any long-distance views outwith the estate. The two bridges (LB11070, LB11065) located along the main western entrance to the houses contribute to the aesthetically designed landscape, appreciating the natural watercourse and directing views up to the core of the estate. Their settings are both functional in that they cross the Water of May, as well as providing aesthetic accents when associated with the Invermay estate. Additional key views within the estate include the footpaths to the south and southwest of the asset; these paths appear to

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
Category C: Gates and Gate-Piers, North Lodge (LB11066) Category C: The Gazebo (LB11078) Category C: Summerhouse (LB11073) Category C: Muckersie Chapel (LB11079)					pass through a historical woodland still evident today, and down to the West Lodge entrance (LB11067) in the southwest and Home Farm (LB11077) in the south. Paths also along the Water of May running east to west from an aspect of the assets setting, with the Chapel of Muckersie (LB11079) in the far eastern boundary of the GDL. These pathways form a scenic aspect of the estate's pathways. The land to the south of the estate comprises arable farmland, rough grazing, and intermittent plantations, demonstrating the differing land uses within the GDL. The open parkland's setting to the west of the house, which forms part of the pathway looping from the house down to the Guzebo, is contained within the estate, with the historic woodland to the south shielding any long-distance views out of the GDL. Moreover, the Broomhill Burn running to the south of the estate forms the periphery in which anything south of the Burn forms part of the functional landscape associated with the estate. The large woodland plantations to the south of the GDL would have screened views outward from the south of the estate. Additionally, the agricultural land outwith the historic plantations would have been solely practical, with no designed views and, as such, no designed screening. Unlike the aesthetic and designed areas of the GDL, which are encapsulated within the woodland to provide a sense of privacy. Therefore, there are no intended views of the hills to the south of the estate, which contribute to the GDL's setting. There are up to 15 turbine tips predicted to be visible from within the GDL. The turbines will not encroach on views towards Invermay house from the main entrance from the north along the western drive, with the driveway

Designation Reference	Designation Title	Turbine Visibility (0-15)	Distance to nearest turbine (km)	Direction to nearest turbine	Appraisal Comments
					sheltered by a treeline, allowing key visual focus on the house. Views from the house overlooking the GDL may be impacted by the turbines in the distance, although this will not erode the ability to appreciate or experience the designed landscape. Additionally, views along the footpaths to the south of Invermay House, when approaching the Gazebo (LB11078) and Home Farm (LB11077), may contain the proposed turbines. However, the turbines will not distract from the ability to appreciate the designed footpaths within the estate. The turbines will cause at most peripheral distraction to the eastern and western portions of the site, although this will not impact the ability to appreciate the functionality of the designed landscape which utilises the natural watercourse features within this portion of the site due to the intentional woodland screening throughout this section of the estate, as well as the woodland bordering the core of the estate to the south. Given that the farmland to the south is functional, with no intended views outwith the estate, nor this area of land contributing to the asset's cultural significance, means that the views of the turbines from this area of the GDL will not distract from the ability to understand, appreciate and experience the asset. As such, the asset is scoped out of further assessment.