

Technical Appendix 1.4: Scoping Report

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GLOSSARY AND ABBREVIATIONS

Abbreviation/Terminology	Expanded Term/Possible variables
the Applicant	Client/developer (Watchman Energy Park Limited, a company wholly owned by Renewco Power Ltd).
the Proposed Development	The scheme, the development, the proposal, the development proposal, the proposed development scheme, the wind farm, the proposed wind farm ... etc. (Watchman Energy Park).
the Site	The project site, the site, development area, red line boundary, the proposed wind farm site.
the EIA regulations	The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, as amended
scoped in	included in the proposed scope of the EIA
scoped out	excluded in the proposed scope of the EIA
ACP	Airspace Change Proposal
AIL	Abnormal Indivisible Load
agl	above ground level
AM	Amplitude Modulation
AOD	Above Ordnance Datum
ATC	Automatic Traffic Count
ATC	Air Traffic Control
A-weighting	A frequency weighting designed to correlate measured sound levels with subjective human response. The human ear is frequency selective and our ears are most sensitive between 500 Hz to 6 kHz, particularly when compared with lower and higher frequencies. The A-weighting applies a frequency correction which reduces the effect of these low and high frequencies on the overall measured level in order to account for the subjective human response at these frequencies.
AWI	Ancient Woodland Inventory
BESS	Battery Energy Storage System
BCT	Bat Conservation Trust
BDMP	Bird Disturbance Management Plan
BEIS	Department for Business, Energy & Industrial Strategy, formerly The Department of Energy & Climate Change
BEMP	Biodiversity Environmental Management Plan
BGS	British Geological Survey
BNG	Biodiversity Net Gain
BS	British Standard
BTO	British Trust for Ornithology
CAA	Civil Aviation Authority
CAR	Controlled Activities Regulations
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecological and Environmental Management
CIfA	Chartered Institute for Archaeologists
CLVIA	Cumulative Landscape and Visual Impact Assessment
CRF	Clyde River Foundation
CRM	Collision Risk Modelling
CTMP	Construction Traffic Management Plan
dB	decibel

Abbreviation/Terminology	Expanded Term/Possible variables
DECC	Department for Energy and Climate Change
DfT	UK Department for Transport
DGC	Dumfries and Galloway Council
DGRSGG	Dumfries and Galloway Raptor Study Group
DME	Distance Measuring Equipment
DWPA	Drinking Water Protection Area
ECU	Energy Consents Unit
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EHP	Environmental Health Perspectives
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EKA	Eskdalemuir Seismic Array
ES	Environmental Statement
GDL	Gardens and Designed Landscapes
GPP	Guidance for Pollution Prevention
GWDTE	ground water dependant terrestrial ecosystems
Ha	Hectare
HEPS	Historic Environment Policy for Scotland
HER	Historic Environment Record
HES	Historic Environment Scotland
HLAMap	Historic Land-Use Assessment Data for Scotland
IEF	Important Ecological Feature
IEMA	Institute of Environmental Management and Assessment
IFP	Instrument Flight Procedures
IOA	Institute of Acoustics
IOF	Important Ornithological Feature
JRC	Joint Radio Company
km	Kilometres
kWh	Kilowatt-hour
LA90	The A-weighted noise level exceeded for 90% of the time, often used to describe background or wind turbine noise as it excludes transient noises that affect the LAeq.
LCT	Landscape Character Type
LDP	Local Development Plan
LDP2	South Lanarkshire Local Development Plan 2
LUPS	Land Use Planning System
LVIA	Landscape and Visual Impact Assessment
M	Metres
MoD	Ministry of Defence
MW	Megawatts
NCN	National Cycle Network
NCV	Nature Conservation Value

Abbreviation/Terminology	Expanded Term/Possible variables
NERL	NATS En Route
NHMRC	National Health and Medical Research Council of Australia
NHZ	Natural Heritage Zone
NNR	National Nature Reserve
NPF4	National Planning Policy Framework 4
NRHE	National Record for the Historic Environment
NSA	National Scenic Area
NSR	Non-statutory register
NSR	Noise-sensitive receptors
NVC	National Vegetation Classification
PAN	Planning Advice Note
PPG	Pollution Prevention Guidelines
PSR	Primary Surveillance Radar
PWS	Private Water Supply
RSPB	Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
RSA	Regional Scenic Area
SBC	Scottish Borders Council
SEPA	Scottish Environment Protection Agency
SIL	Seismic Impact Limit
SLA	Special Landscape Area
SLC	South Lanarkshire Council
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protection Area
SPP	Species Protection Plan
SSGEP	South of Scotland Golden Eagle Partnership
SSR	Secondary Surveillance Radar
SSRSG	South Strathclyde Raptor Study Group
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
SUW	Southern Uplands Way
TA	Transport Assessment
TMA	Terminal Control Area
TTA	Tactical Training Area
WANE	Wildlife and Natural Environment
WeBS	Wetland Bird Survey
WFD	Water Framework Directive
WLA	Wild Land Area
VP	Vantage Point
ZTV	Zone of Theoretical Visibility

1. INTRODUCTION

1.1. Overview

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

1.2. The Applicant

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

1.3. Background

- 1.3.1. The Applicant proposes to construct and operate a wind farm and associated infrastructure including a BESS on land located approximately 9 kilometres (km) west of the M74 and approximately 10 km south of Crawford, 7 km south of Elvanfoot and 12 km west of Moffat, South Lanarkshire Council (SLC). The proposed wind farm would be known as Watchman Energy Park and is hereafter referred to as 'the Proposed Development'. The Site location is presented on **Figure 1.1 (Appendix A)**.
- 1.3.2. The current turbine layout for the Proposed Development (i.e. scoping layout) is presented on **Figure 1.2 (Appendix A)**. The Site is currently anticipated to accommodate up to 16 wind turbine generators with a maximum tip height of 240 metres (m) and with a generation capacity of >50 Megawatts (MW). The layout of the Proposed Development will evolve as survey information is gathered in relation to environmental and technical constraints, and it will also respond to stakeholder consultation feedback from the scoping process and parallel engagement with the local community.
- 1.3.3. Following on from developing the turbine layout, the BESS and ancillary infrastructure will be developed. Ancillary infrastructure will include a substation, external transformers, temporary and permanent access tracks and site entrance, temporary construction compound, crane hardstandings and borrow pits.
- 1.3.4. This report has been prepared by Ramboll UK Limited (Ramboll) by competent experts in Environmental Impact Assessment (EIA) and with input from technical specialists on the relevant environmental topics (refer to **Table 1.1**).

Table 1.1: EIA Team and Technical Specialists

Discipline	Organisation
Lead EIA Consultant	Ramboll
Planning and Policy	David Bell Planning
Landscape and Visual Amenity	MVGLA Ltd
Cultural Heritage	CFA Archaeology
Ecology and Ornithology	MacArthur Green

Discipline	Organisation
Hydrology, Hydrogeology and Geology	Ramboll
Traffic and Transport	Pell Frischmann
Noise	TNEI
Aviation	Aviatica
Socio-Economics	BIGGAR Economics
Telecommunications	Aviatica
Shadow Flicker	Ramboll

1.4. Consenting Regime

- 1.4.1. It is anticipated that the Proposed Development would have an installed capacity of >50 MW. Therefore, an application for consent would be made to the Scottish Ministers under section 36 of the Electricity Act 1989. The Applicant would also seek deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997.
- 1.4.2. The Proposed Development is of a type listed in Schedule 2 of the EIA regulations (item (1) "a generating station"). On the basis that "the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location" an EIA is required. In this case, the Applicant has volunteered to undertake an EIA rather than request a formal screening opinion.

1.5. Objectives

- 1.5.1. The specific objectives of this report are to:
- seek agreement on the likely significant effects associated with the Proposed Development, and confirm that all likely significant effects have been correctly included in the proposed scope of the EIA ('scoped in');
 - seek agreement where non-significant effects have been excluded ('scoped out'); and
 - invite comment on the proposed approach to baseline data collection, prediction of environmental effects and the assessment of significance.
- 1.5.2. Unless consultees specifically request otherwise, all responses will be collated and presented as a technical appendix to the EIAR, as a record of the results of the scoping exercise.

1.6. Programme

- 1.6.1. The Proposed Development has a confirmed grid connection that anticipates the project will connect to the grid in 2036. An earlier connection date is likely to be possible under ongoing reforms to how entry of new connections to the national grid is managed. These reforms are based on the principle of 'first ready, first connected' and allow projects that can demonstrate an earlier connection date is achievable to accelerate their connection date¹. In order to develop in line with an accelerated connection date, the Applicant intends to submit an application for consent in Q2 2025.

1.7. Public Consultation

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

¹ Further information available at: <https://www.neso.energy/document/316446/download> and <https://www.neso.energy/industry-information/codes/cusc/modifications/cmp434-implementing-connections-reform> [Accessed 4th Nov 2024]

- 1.7.2. In accordance with established good practice, the Applicant is planning to host two rounds of public consultation events. The Applicant will also work with local community groups and businesses to seek their ongoing feedback for consideration in the design process. Written public comments will be documented and analysed, with any adjustments incorporated into the design of the Proposed Development noted in the application materials.

1.8. Structure of this Report

- 1.8.1. The remainder of this report is structured as follows.
- Section 2 provides a brief description of the nature and purpose of the development, typical construction activities and decommissioning proposals.
 - Section 3 describes the baseline environment conditions, the likely significant environmental effects identified and proposed method for further data collection and evaluation of effects.
 - Section 4 describes the effects that are considered not to be significant, and proposes that these be excluded from the EIA, providing a rationale in each case.
 - Section 5 provides information on the process for making representations on the scoping report.
- 1.8.2. This report is further supported by the following appendices.
- **Appendix A** provides the figures referred to within this report.
 - **Appendix B** summarises the policy considerations for the Proposed Development.
 - **Appendix C** provides the scoping layout wind turbine coordinates.
 - **Appendix D** provides details of the landscape designations 15 – 45 km from the Site boundary.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1. Site Selection

- 2.1.1. The Site for the Proposed Development is considered by the Applicant to be suitable for wind farm development for the following reasons:
- the Site is situated amongst a cluster of operational, proposed and consented wind farms, including the operational Clyde Wind Farm to the north-east and the proposed Daer Wind Farm to the east;
 - the Site can accommodate a renewable energy development whilst avoiding significant direct effects on areas designated for nature conservation;
 - there is scope to deliver a suitable access to the Site for both construction traffic and abnormal indivisible loads (AIL) whilst avoiding potential for impacts on local road users;
 - the Site has consistently high anticipated wind speeds, which will deliver excellent wind energy yields;
 - the large-scale character of the landscape in and around the Site can accommodate large modern, commercial wind turbines; and
 - the Site has good access to the electricity transmission network and a grid connection can be achieved in a reasonable timeframe.

2.2. Policy Considerations

- 2.2.1. The Proposed Development relates to electricity generation from renewable energy sources and is a direct response to national planning and energy policy objectives.
- 2.2.2. The Proposed Development would make a significant contribution to the attainment of renewable energy generation and greenhouse gas reduction targets at both the Scottish and UK levels and the quantification of this contribution will be described in the EIAR.
- 2.2.3. The EIAR will set out the relevant policies that have been considered as part of the assessments undertaken throughout the EIA. A separate Planning Statement will provide a detailed appraisal of the Proposed Development against the relevant Development Plan policies, national planning and energy policy and other material considerations.
- 2.2.4. A summary of the policy consideration for the Proposed Development is set out within **Appendix B**, which describes the statutory framework within which the application will be submitted and outlines relevant planning policy and guidance documents that will be taken into consideration to help inform the design of the Proposed Development.

2.3. Site Description and Context

- 2.3.1. The Site covers an area of approximately 1,428 hectares (ha). The Site is located approximately 10 km south of Crawford, 7 km south of Elvanfoot and 12 km to the west of Moffat and between the valley of the Daer Water to the north, Daer Reservoir and commercial forestry to the east, open moorland of the Southern Uplands to the south, and further open moorland and commercial forestry with the A702 road beyond to the west. The Site is within the administrative boundary of in SLC.
- 2.3.2. The immediate vicinity of the Site is sparsely populated, with settlement largely confined to the valleys. There are a number of villages within 15 km of the Site and the town of Moffat is located approximately 12 km east of the Site. There is one uninhabited residential property located within the Site, with a number of residential properties also located within approximately 2.5 km of the Site including properties along the A702 road, and the minor road leading to the Daer Reservoir.

- 2.3.3. The Site predominantly comprises upland moorland and is intersected by a section of the Southern Upland Way (SUW), approximately 2 km in length. The landscape is typical of the wider location, undulating and includes a series of rounded hills characteristic of the Southern Uplands including Comb Hill, Watchman's Brae, Rodger Law and Ewe Gair.
- 2.3.4. The southern area of the Site overlaps with one statutory designated site, Shiel Dod Site of Special Scientific Interest (SSSI) which is designated for blanket bog; no development would be undertaken within Shiel Dod SSSI.
- 2.3.5. There is one Scheduled Monument within the Site: Smithwood, Bastle House, located 900 m south-west of Daerside. A further 37 Scheduled Monuments are located within 10 km of the Site. Thirty-seven non-designated heritage assets are located within the Site, considered to be of local/regional importance.
- 2.3.6. A number of watercourses run through the Site. The south of the Site is within the catchment of Daer Water, upstream of Daer Reservoir which located a short distance east of the Site. The central area of the Site drains to Kirkhope Cleuch which in turn flows to Daer Reservoir with the west of the central catchment draining directly to Daer Reservoir. The north of the Site (approximately 15% of the total Site area) drains via Meikle and Calf Burn to Daer Water downstream of the reservoir. A very small area (<5% of the total Site area) drains in a north westerly direction to Potrail Water.
- 2.3.7. There is extensive wind energy development within this part of southern Scotland and there are several windfarms within the surrounding landscape of the Site including Clyde and Extension (operational) to the northeast, Daer and Rivox Wind Farms (both at application stage) to the east, and Harestanes (operational) to the southeast.

2.4. The Proposed Development

- 2.4.1. Details of the Proposed Development will not be finalised until much later in the EIA process. The turbine layout will evolve in response to site survey information, environmental and technical constraints, stakeholder feedback, and feedback gathered through public engagement. To allow early engagement, the description of the project provided herein is based on cautious maximum parameters, especially in relation to the number and height of the wind turbines. These maximum parameters are of sufficient detail to determine a proportionate assessment scope for the EIA and as a basis for what will be presented in the EIAR.
- 2.4.2. The main elements of the Proposed Development would include:
- approximately 16 wind turbines with a maximum tip height of 240 m and a combined generation capacity of >50 MW;
 - permanent foundations supporting each wind turbine, and associated crane hardstanding at each wind turbine base;
 - a series of new on-site access tracks with associated watercourse crossings (where the final layout dictates);
 - underground power cables, generally laid in trenches alongside access tracks;
 - an onsite substation and control building;
 - temporary construction compounds and laydown areas; and
 - a BESS with approximately 50 MW capacity, including ancillary equipment and co-located with the onsite substation.
- 2.4.3. In addition, ancillary works may be necessary, such as:
- extraction of rock from borrow pits;
 - temporary on-site concrete batching plant;

- off-site works to facilitate the delivery of abnormal loads (e.g. construction of over-run areas and temporary modifications to street furniture etc); and
 - temporary anemometer masts for three to six months during the construction period for calibration purposes.
- 2.4.4. For the purposes of scoping, the indicative turbine coordinates are presented in **Table A.C1 (Appendix C)** and the Site layout is presented in **Figure 1.2 (Appendix A)**.
- 2.4.5. The proposed turbines would be three bladed horizontal axis turbines with tapered tubular steel towers. The wind turbines would be installed on foundations, the detailed design of which will depend on the type of turbine procured and the specific ground conditions. A crane pad would also be required for each turbine and would consist of an area of hardstanding adjacent to the turbine.
- 2.4.6. A micro-siting allowance of 100 m for the turbines and other infrastructure will be applied to anticipate possible unfavourable site conditions or other construction constraints. These allowances will be clearly defined within the EIAR and assessed as appropriate.
- 2.4.7. The anticipated height of the wind turbines means that, under current regulations, there will be a statutory requirement for aviation lighting in accordance with Article 222 of the Air Navigation Order 2016. Any aviation lighting scheme will be agreed with the Civil Aviation Authority (CAA) and other relevant consultees.
- 2.4.8. Energy storage such as the use of batteries is being considered for inclusion as part of the Proposed Development. The BESS would comprise a number of units with ancillary equipment such as inverters. The BESS would store excess power generated by the Proposed Development and release the power to the grid when the output from the Proposed Development falls due to decreased wind speed.
- 2.4.9. Biodiversity enhancement measures for the Site may include, but not be limited to, options such as peatland restoration, heathland restoration, grassland management, hedgerow creation and tree planting. An Outline Biodiversity Enhancement Management Plan (BEMP) would be developed for the operational phase and agreed with consultees.
- Site Access
- 2.4.10. A detailed access review is currently underway to confirm the preferred access route into the Site, which is anticipated to be from the A702 or B7076. This includes consideration of the M74 between Junctions 13 and 15, the A702 between Junction 13 of the M74 through to Carronbridge, the B7076 from Junction 12 of the M74 through to Junction 15, and the road to Daer Reservoir.
- 2.4.11. Access to the Site for AIL traffic will likely be from the M74, via either the A702 or B7076 as described above.
- 2.4.12. Prior to submission of the application for consent, potential construction traffic routes will be fully assessed, considering both vehicle numbers and the delivery of AIL to the Site to ensure the most appropriate solution is developed.
- 2.4.13. The proposed access route for general construction traffic and AIL will be clearly identified in the application submission.
- 2.4.14. Within the Site itself, the Proposed Development will be served by a network of both new and upgraded onsite access tracks to enable construction and operational maintenance. Existing access tracks will be re-used where possible and any new access tracks will seek to minimise impacts on soils and peat. The layout of the access tracks will be determined based on the final turbine layout and the technical and environmental constraints on the Site.

Grid Connection and Cabling

- 2.4.15. The grid connection itself will be subject to a separate consent process led by the transmission system owner. The Proposed Development has secured a connection agreement to connect to the Elvanfoot substation located approximately 9 km north of the turbine array of the Proposed Development. No decision has yet been made on how the connection would be delivered (e.g. overhead lines or underground cable).
- 2.4.16. It is anticipated that electric cabling connecting turbines and the control building would be laid in trenches running alongside the access tracks, the layout of which would be determined by the final turbine layout and informed by consideration of relevant environmental receptors and effects, such as on-site ecological and ground conditions.

Construction

- 2.4.17. Typical construction activities and work methods will be set out in the EIAR. Information will also be provided on an indicative construction programme, construction traffic generation and construction phasing.
- 2.4.18. An Outline Construction Environmental Management Plan (CEMP) will also be submitted as part of the EIAR which will contain details of appropriate environmental management measures, including pollution prevention (in line with Scottish Environment Protection Agency (SEPA)'s Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs)), and waste minimisation and management measures.

Operation and Maintenance

- 2.4.19. The anticipated operational life of the wind turbines that form a key part of the Proposed Development is approximately 40 years although the Applicant does not seek a time-limited consent.
- 2.4.20. A wind farm is typically visited up to four times a month by a maintenance crew, and the BESS would require maintenance at a similar frequency. There would also be a requirement for maintenance of the access tracks and other ancillary infrastructure during the operational period.

Decommissioning

- 2.4.21. Following the operational phase of the project, the Proposed Development would either be decommissioned or repowered. Where decommissioning is required, this is anticipated to involve:
- dismantling and removal of the turbines, met masts, site substation, BESS facility, and any other above ground infrastructure; and
 - removal to at least 1 m below ground level of the turbine and met mast foundations.
- 2.4.22. Detailed decommissioning proposals would be established and agreed with relevant authorities prior to commencement of decommissioning activities. This would take cognisance of guidance available at the time.

Community Benefits

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

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

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

2.5. Design and Alternatives

- 2.5.1. The EIAR will provide a chapter detailing and illustrating the design optimisation process followed and the reasonable alternatives considered in developing the wind farm layout and setting the physical parameters of the proposed turbines.
- 2.5.2. The Proposed Development design process will seek to establish a layout and turbine typology which take account of visibility from the surrounding environment and the key environmental constraints on-site and in the surrounding area, with the design also looking to deliver mitigation of adverse effects as far as is practicable.
- 2.5.3. An initial design strategy was developed in April 2024 to guide the early design and layout of the Proposed Development to what has been presented in this Scoping Report. It considered how the Proposed Development would relate to the landscape, its landform, scale and other landscape features and set out design principles that should guide the design development process.
- 2.5.4. Following completion of the main baseline landscape and visual assessment, the initial design strategy will be further developed and used to evaluate the ongoing design of the Proposed Development.
- 2.5.5. The design iteration process will take account of other environmental and technical factors to establish the final layout for the Proposed Development. Key sensitivities which are likely to influence the design process include:
- key views from surrounding settlements, landmark hills and transport corridors;
 - the settings of designated cultural heritage assets in the surrounding area;
 - sensitive ecological habitats, including unmodified blanket bog, dry heath, marshy grassland and acid flushes;
 - groundwater dependant ecological habitats;
 - watercourses and associated fisheries, riverine mammals and invertebrates; and
 - breeding birds, including raptors and waders (disturbance and collision risk).

3. SCOPE OF THE EIA

3.1. Summary of Scope of EIA

Introduction

- 3.1.1. The EIA regulations (regulation 4(3)) require consideration of the potential likely significant effects on the following factors:
- Population and human health;
 - Biodiversity, and in particular species and habitats protected under Council Directive 92/43/EEC on the conservation of natural habitats and wild flora (1) and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (2);
 - Land, soil, water, air and climate; and
 - Material assets, cultural heritage and the landscape.
- 3.1.2. For renewable energy projects in the UK, identification of potential impacts and assessment of those impacts to determine whether or not significant effects are likely on the above-mentioned factors is usually provided under the specialist topic categories as shown in **Table 3.1**.
- 3.1.3. The inclusion of a specialist topic category in an EIA process, and reporting of that assessment in the EIAR, will depend on the identification of potential likely significant effects. In relation to this, the proposed scope of the EIAR for the Proposed Development is set out in **Table 3.1**. For those topics proposed to be scoped out further details and justification are included in Section 4 of this report.
- 3.1.4. The EIAR will report on the likely significant effects, including, where applicable, direct, indirect, cumulative, short, medium and long-term, permanent and temporary, beneficial and adverse effects.

Table 3.1: Proposed Scope of EIAR

Topics to be scoped in	Topics to be scoped out
Landscape and visual amenity	Socio-economics
Cultural heritage	Air quality
Ecology	Population and human health
Ornithology	Risk of major accidents and/or disasters
Hydrology, hydrogeology and geology	Ice throw
Traffic and transport	Climate change
Noise and vibration	Shadow flicker
Aviation and telecommunications	

Cumulative Effects

- 3.1.5. The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration is also given to the cumulative effects which might arise from the proposal in conjunction with other existing and/ or approved development proposals in the vicinity.
- 3.1.6. Cumulative effects are defined as those effects arising from the addition or combination of the Proposed Development to other existing proposed developments, or those arising from synergistic effects between factors.
- 3.1.7. The assessment of cumulative effects from the Proposed Development in combination with existing developments will be addressed during the assessment of effects of the Proposed Development

alone, as pre-existing developments are part of the baseline environment. Cumulative effects will be addressed under each topic chapter.

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

Table 3.2: Cumulative planning application search characteristics and thresholds

Cumulative scheme characteristics	Thresholds
<p>Cumulative schemes to be considered include:</p> <ul style="list-style-type: none"> - those within 25 km of the Site²; - onshore wind developments where a turbine or turbines are greater than 50 m to tip height; - schemes under construction; - schemes which have a valid consent; or - schemes which have been submitted to the relevant authorities but not yet determined (subject to a cut-off point to allow assessments to be undertaken). - schemes which have been submitted for scoping where they have a known timescale to planning submission and where they have potential to play an important part in the cumulative effects of wind energy development. 	<p>All considered schemes will need to:</p> <ul style="list-style-type: none"> A) comprise a construction and/ or operational phase that is concurrent with the Proposed Development; B) share common sensitive receptors/ resources which are assessed and described in the supporting environmental documentation, and have the potential to be significantly affected by the combination of the approved (committed) development and the Proposed Development; and C) have sufficient environmental assessment information freely and publicly available to inform a cumulative effects assessment.

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

3.2. Consultation

- 3.2.1. Consultation alongside the EIA process is critical to the development of a comprehensive and proportionate EIAR. The views of statutory and non-statutory consultees are important to ensure that the EIA from the outset focuses on specific issues where significant environmental effects are likely, and where further investigation is required.
- 3.2.2. The consultation, as an ongoing process, enables embedded and additional mitigation measures to be incorporated into the Proposed Development to limit adverse environmental effects and optimise environmental benefits. Early and ongoing engagement with consultees will be important to influence the design process of the Proposed Development by seeking an appropriate level of feedback from consultees, to ensure that comments are considered in the evolving design.
- 3.2.3. No consultation has been undertaken with statutory and non-statutory consultees prior to the submission of this Scoping Report. Following submission of this Scoping Report and as part of the ongoing work to inform the EIA process, consultation will be undertaken with a range of statutory and non-statutory consultees.

² It is noted that guidance includes for landscape and visual study areas of greater distances. However, early Zone of Theoretical Visibility (ZTV) analysis was prepared allowing analysis of the potential geographic range of landscape and visual effects, which afforded a more focussed Study Area for the Proposed Development based on likely significant effects (refer to section 3.3 of this Scoping Report for further details).

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

3.3. Landscape and Visual Amenity

Overview

- 3.3.1. This section provides an overview of the landscape and visual receptors in relation to the Proposed Development and sets out the proposed methodology for the Landscape and Visual Impact Assessment (LVIA) which will include an assessment of cumulative effects and the evaluation of the potential significant effects for the Proposed Development.

Study Area

- 3.3.2. The Study Area to be adopted for the LVIA, and in accordance with NatureScot guidance³, suggests that for turbines of over 150 m to blade tip, an initial Study Area of 45 km radius should be considered, followed by refinement of the Study Area to focus on potential significant effects.
- 3.3.3. Subsequently a basic Zone of Theoretical Visibility (ZTV) analysis was prepared from the outer turbines allowing some early analysis of the potential geographic range of landscape and visual effects. The ZTV in **Figure 3.3.1a** and **Figure 3.3.1b (Appendix A)** shows areas from where any part (however small) of the turbines of the Proposed Development would theoretically be visible. It does not take account of any screening, and it does not indicate how much of any turbine may be seen, i.e. whether visibility at any given point is of blade tips only or full turbines. This type of ZTV therefore represents maximum theoretical visibility.
- 3.3.4. The ZTV shows that the theoretical visibility would be widespread within 5 km from the Site due to containment from surrounding higher ground. Beyond 5 km, theoretical visibility would reduce to along valleys and the summits and upper slopes of high ground in all directions with the largest geographical extent covering the Southern Uplands to the south-east and south-west.
- 3.3.5. Following a review of the ZTV and fieldwork, the Study Area has been reduced to allow the detailed LVIA to focus on the extent of likely significant effects. Visual effects were considered for locations across the wider area, but those for inclusion in the detailed LVIA are within an area of approximately 25 km radius for viewpoints and routes, and approximately 15 km radius for settlements. Effects on landscape character and designated landscapes were also considered for a wider area, and those for inclusion within the detailed LVIA are within an approximate 15 km radius where significant effects are expected to be more likely based on professional experience and judgement.
- 3.3.6. There is extensive wind energy development with this part of southern Scotland. Consideration of both existing wind farms and proposed wind farms (cumulative effects) will be considered in the LVIA. Key considerations will be the interaction of the Proposed Development with existing and other proposed developments, and the overall development pattern of wind farms within the Study Area. It is unlikely that significant cumulative effects due to the introduction of the Proposed Development would be identified at a range greater than 15 km, and it is proposed therefore that the Cumulative LVIA (CLVIA) will focus on receptors within 15 km of the Proposed Development. Cumulative data collection will focus on schemes within approximately 25 km from the Proposed Development (to allow for views in opposite directions).

³ Scottish Natural Heritage (2017) Visual Representation of Wind Farms, Guidance. Version 2.2. Available from: <https://www.nature.scot/sites/default/files/2019-09/Guidance%20-%20Visual%20representation%20of%20wind%20farms%20-%20Feb%202017.pdf> [Accessed May 2024]

Baseline Conditions

- 3.3.7. Following identification of the Study Area, a preliminary review of the baseline conditions has been undertaken and the findings are reported below.
- 3.3.8. The key sources of information to inform the baseline landscape and visual conditions of the Site and its surroundings are:
- Ordnance Survey and other leisure maps;
 - Landscape Character Type (LCT) descriptions available from NatureScot⁴ and SLC⁵; and
 - Citations for designated landscapes available from NatureScot, Historic Environment Scotland (HES), SLC, Scottish Borders Council (SBC), and Dumfries and Galloway Council (DGC).

The Site

- 3.3.9. The Site is located in the area between Daer Reservoir and Daer Water in the east, and the A702 road in the west within South Lanarkshire. Predominantly upland moorland in character, the Site is undulating and includes a series of rounded hills characteristic of the Southern Uplands including Comb Hill 645 m Above Ordnance Datum (AOD), Watchman's Brae 594 m AOD, Rodger Law 688 m AOD, and Ewe Gair 559 m AOD.
- 3.3.10. To the north, elevations reduce and include the floodplain of the Daer Water comprising semi-improved farmland and woodland planting, including extensive commercial forestry plantations, beyond the Site boundary. An approximately 2.1 km section of the Wanlockhead to Beattock section of the Southern Upland Way crosses through the Site in a north west to south east orientation following an existing vehicle track.

The Surrounding Landscape

- 3.3.11. The 45 km initial Study Area runs from the village of Forth and outskirts of Hamilton and Motherwell in the north, to the Solway coast in the south, and extends to Teviothead in the east, and Dalmellington in the west.
- 3.3.12. The ZTV however, illustrates that theoretical visibility of the Proposed Development would not cover all this area, and as discussed above, the assessment will focus on a smaller Study Area where significant landscape and visual effects may occur. The Study Area, of approximately 15 km radius as identified above, encompasses the Lowther Hills to the east and west of the Site and includes the lower slopes of Hart Fell to the east, Queensberry Hill to the south, and Lowther Hill in the west.
- 3.3.13. There are numerous existing wind farms within 25 km of the Site, as shown on **Figures 3.3.2 to 3.3.4 (Appendix A)**, including large developments such as Clyde and its extension that spread across a wide area to the north east of the Site. Harestanes and Minnygap occupy an area to the south east of the Site and Dalswinton further south. To the north west, Andershaw and Middlemuir are located south of Douglas and beyond the Southern Uplands.
- 3.3.14. Consideration of the relationship between the Proposed Development and these wind farms will be a key aspect for both design of the scheme and assessment of landscape and visual effects.

Landscape Character

- 3.3.15. The LCTs within the Site and Study Area are described in the 2019 NatureScot review of the landscape character of Scotland⁴, and illustrated on **Figure 3.3.2 (Appendix A)**.

⁴ NatureScot (2019) Scottish Landscape Character Types Map and Descriptions. Available from: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions> [Accessed May 2024]

⁵ South Lanarkshire Council (2010) South Lanarkshire Landscape Character Assessment. Available from: https://www.southlanarkshire.gov.uk/downloads/file/4146/landscape_character_assessment_-_final_report_november_2010 [Accessed May 2024]

3.3.16. The Site lies predominantly within the Southern Uplands – Glasgow & Clyde Valley (LCT 217), where all of the proposed turbines would be located, with the north eastern parts of the Site extending into Upland Glen – Glasgow & Clyde Valley (LCT 209).

3.3.17. The LCTs to be included within the LVIA are as follows:

- LCTs hosting the turbine array:
 - Southern Uplands – Glasgow & Clyde Valley (LCT 217).
- Other LCTs hosting other small parts of the Site:
 - Upland Glen – Glasgow & Clyde Valley (LCT 209).
- Other nearby LCTs with more than limited theoretical visibility:
 - Southern Uplands – Borders (LCT 95);
 - Middle Dale – Dumfries & Galloway (LCT 163);
 - Upper Dale – Dumfries & Galloway (LCT 165);
 - Upland Glens – Dumfries & Galloway (LCT 166);
 - Upland Fringe- Dumfries & Galloway (LCT 172);
 - Foothills – Dumfries & Galloway (LCT 175);
 - Foothills with Forest – Dumfries & Galloway (LCT 176); and
 - Southern Uplands – Dumfries & Galloway (LCT 177).

Landscape Designations

3.3.18. Landscape designations within the 15 km Study Area are illustrated on **Figure 3.3.3 (Appendix A)** and set out in **Table 3.3**. Landscape designations between 15 km to 45 km that are not proposed to be included in the detailed LVIA are set out in **Appendix D**.

3.3.19. The Site is located within South Lanarkshire’s Leadhills and Lowther Hills Special Landscape Area (SLA).

Table 3.3: Designated Landscapes

Designated Landscape	Approximate distance to Site boundary	Distance and Direction from the closest turbine	ZTV coverage and notes on inclusion in assessment
National Level Designations			
Tala Hart Fell Wild Land Area (WLA)	11.5 km to the north east.	13.5 km north east	Theoretical visibility is predicted from summits and upper slopes facing south west. It is not considered that the wild qualities of the WLA will be adversely affected by the Proposed Development and therefore this will not be included in the LVIA.
Drumlanrig Castle Garden and Designed Landscape (GDL)	6.3 km to the south west.	7.4 km south west	Theoretical visibility is predicted to be widespread within the GDL and will be included in the LVIA.

Designated Landscape	Approximate distance to Site boundary	Distance and Direction from the closest turbine	ZTV coverage and notes on inclusion in assessment
Scot’s Mining Company House GDL	7.0 km to the north west.	8.3 km north west	No theoretical visibility predicted therefore this will not be included in the LVIA.
Raehills GDL	12.6 km to the south east.	15.3 km south east	Theoretical visibility is predicted on the eastern periphery of the GDL but would be reduced by intervening forestry and woodland; therefore, the GDL will not be included in the LVIA.
Local Landscape Designations			
Leadhills and Lowther Hills SLA (South Lanarkshire)	The Site is entirely located within the designation.		Included in the LVIA.
Thornhill Uplands Regional Scenic Area (RSA) (Dumfries & Galloway)	700 m to the south and west.	2.3 km west	Included in the LVIA due to proximity to the Proposed Development and extent of theoretical visibility predicted.
Moffat Hills RSA (Dumfries & Galloway)	8.3 km to the east.	10.3 km east	Theoretical visibility is predicted to cover a large area comprising west facing hills and summits. Due to proximity to the Proposed Development, this RSA will be included in the LVIA.
Tweedsmuir Uplands SLA (Scottish Borders)	8.7 km to the north east.	11.2 km north east	Theoretical visibility would be limited to summits and upper slopes facing south-west. Due to proximity to the Proposed Development, this SLA will be included in the LVIA.
Upper Clyde Valley and Tinto SLA (South Lanarkshire)	11.6 km to the north east.	16.6 km north	Theoretical visibility would be limited to elevated south facing summits and upper slopes. It is not considered that the special qualities of the SLA would be adversely affected by the Proposed Development. However, the view from Tinto will be considered in the visual assessment.

Visual Amenity

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

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

Visual Receptors

3.3.21. The ZTV shown in **Figure 3.3.1a** and **Figure 3.3.1b (Appendix A)** indicates theoretical visibility at several settlements within the wider 45 km Study Area. The detailed LVIA will concentrate on the effect on views from settlements within 15 km of the Site Boundary, where there is potential for significant effects to occur. Abington, Elvanfoot, Beattock, Leadhills and Wanlockhead are not within the ZTV, and along with settlements beyond 15 km, will be scoped out of the LVIA.

3.3.22. Residential properties within approximately 2.5 km of the Site include properties along the A702 road, and the minor road leading to Daer Reservoir.

3.3.23. Roads within the Study Area tend to follow valleys or passes, although a network of roads cover flatter land. The main routes from which theoretical visibility is identified include:

- M74/A74 motorway from Glasgow to Carlisle passes Approx. 4.6 km to the east of the Site;
- A76 between Kilmarnock and Dumfries – 6.8 km south west of the Site;
- A701 trunk road from Edinburgh to Dumfries – 8.2 km to the east of the Site;
- A702 trunk road from Biggar to Carronbridge – 410 m to the west of the Site;
- A708 between Moffat and Selkirk – 12.1 km to the south east of the Site;
- B7076 which runs parallel with the M74 motorway – 4.3 km to the east of the Site.

3.3.24. The West Coast Main Line rail route between Glasgow and London passes through the Clyde valley between Symington to Abington and Crawford before passing over the Beattock summit towards Moffat, 3.6 km to the north and east of the Site. The ZTV indicates theoretical visibility of the Proposed Development from the railway between Crawford and Elvanfoot, and between Moffat to past Lockerbie.

3.3.25. Recreational routes tend not to be limited to valleys, with the Southern Upland Way long distance path crossing the hills and passes through the north of the Site. National Cycle Route 74 (NCN74) from Gretna to Glasgow runs parallel to the M74 along the B7078 road.

Proposed LVIA Viewpoints

3.3.26. Viewpoints proposed for the assessment of visual effects would be discussed with the SLC and NatureScot, with an initial list of locations identified in **Table 3.4** below (shown on **Figure 3.3.4 (Appendix A)**). These include locations to represent:

- views from the local roads including those listed above;
- views from settlements close to the Proposed Development;
- views from key visitor locations within the surrounding landscape e.g. from the Southern Upland Way; and

- views from hilltops that are both popular with walkers and representative of designated landscapes, such as Tinto Hill, Lowther Hill and Queensberry.

Table 3.4: Proposed Viewpoints

Viewpoint Title		Grid Reference		Approx. Distance (km) ⁶	Reason for selection
1	Tinto	295324	634367	26.0	Representative of views from a popular landmark hill with paths from different directions and a summit cairn.
2	Pykestone Hill	317293	631271	32.0	Representative of views from a popular landmark hill within the Tweeddale NSA.
3	Culter Fell	305280	629061	23.2	Representative of views from the highest hill to the east of the Study Area, on the South Lanarkshire / Scottish Borders boundary.
4	A702 Road	295865	615648	7.5	Representing view from the A702 road.
5	Watermeetings	295049	613262	5.0	Representative of views from residential properties and the unclassified road to Daer Reservoir.
6	Annanhead Hill - Annandale Way	305847	613249	11.8	Representative of views from a popular long-distance footpath.
7	Hart Fell	311344	613574	17.0	Representative of views from a popular landmark hill situated in the Talla-Hart Fell WLA.
8	Lowther Hill	288987	610403	5.4	Representative of views from a popular landmark hill with paths from different directions.
9	Comb Head	290505	609196	3.6	Representative of views from a high point on the SUW long-distance footpath.
10	Wintercleuch	296572	610020	2.3	Representative of views from residential properties.
11	Hods Hill - Southern Upland Way	300477	609480	5.4	Representative of views from a high point on the SUW long-distance footpath.
12	Southern Upland Way - Daer Reservoir	297727	608804	2.6	Representative of views from the SUW long-distance footpath as it crosses Daer Reservoir.
13	Southern Upland Way, Roman and Reivers Route south-east of Moffat	311109	603954	16.0	Representative of views from two popular long-distance footpaths.
14	Queensberry	298911	599747	6.6	Representative of views from a popular landmark hill with paths from different directions.

⁶ Approximate distance from the proposed viewpoint locations to the nearest turbine of the Scoping Layout.

Viewpoint Title		Grid Reference		Approx. Distance (km) ⁶	Reason for selection
15	Drumlanrig Castle	285189	599314	10.5	Representative of views from a Garden and Designed Landscape open to the public.

Cumulative

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

Potential Significant Effects

Construction

- 3.3.28. The landscape and visual effects that could arise as a result of the Proposed Development during construction are identified as follows:
- temporary effects on landscape character, primarily as a result of wind turbine installation during construction, with direct effects on the fabric on the landscape and on the character of the Site landscape relating to ground level structures, and indirect effects on the perceived effects on the character of the surrounding landscape; and
 - temporary visual effects on views, primarily as a result of visibility of ground level activity and structures as well as wind turbine installation during construction, experienced by people (visual receptors).

Operation

- 3.3.29. The landscape and visual effects that could arise as a result of the Proposed Development during operation are identified as follows.
- long-term effects on landscape character, as a result of wind turbine operation and ground level structures, either affecting the pattern of elements that define the character or affecting the visual/ perceptual characteristics of landscape character;
 - long-term visual effects as a result of the Proposed Development on nearby views, with effects as a result of wind turbine operation on wider views, experienced by people at places with visibility of different elements of the Proposed Development. This includes effects of aviation safety lighting after dark and effects on the visual aspects of residential amenity for properties close to the Site;
 - cumulative effects of the Proposed Development in combination with consented and proposed wind farm schemes across the wider area, including combined, successive and sequential visibility; and
 - implications of significant effects identified in or affecting designated landscapes, which may affect their special qualities and reasons for designation.

Decommissioning

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

Assessment Methodology

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

- 3.3.32. The landscape and visual assessment will identify potential significant effects of the Proposed Development on the landscape resource and visual amenity, in accordance with 'Guidelines for Landscape and Visual Impact Assessment' ('GLVIA3'⁷). Other sources of guidance and references used in the assessment would be industry standards.

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

Desk Study and Field Surveys

- 3.3.34. Desk studies will be carried out to identify key landscape and visual receptors (in addition to the reviews set out above), and to identify the likely visibility of the Proposed Development based on ZTV mapping. Computer generated 3D models will be used to prepare draft wireline images to illustrate theoretical visibility, and to enable the confirmation and analysis of viewpoints for fieldwork and for detailed visualisation modelling though the production of wirelines and photomontages.

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

- 3.3.36. Photography will be undertaken for viewpoint locations, including photography at dusk for locations for which night-time photomontages are required to illustrate the effects of aviation lighting.

Assessment of Landscape Effects

- 3.3.37. Effects on landscape character will be considered in detail for LCTs within the Study Area, with ZTV mapping used as a means of identifying which LCTs require assessment.

- 3.3.38. Predicted changes in both the physical landscape and landscape character will be identified and the assessment will identify the magnitude and type of change to the landscape, with reference to its key characteristics as set out in the NatureScot LCT descriptions⁴. The sensitivity of the landscape will also be taken into account, acknowledging local sensitivity studies, and value placed on the landscape through designation, key or unique characteristics, as well as the presence of other consented and operational wind farms. The magnitude of the effect will be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered, to form a judgement regarding the overall effect and whether this is judged to be significant.

- 3.3.39. Significance of landscape effects, considering receptor sensitivity and the magnitude of change as set out above, will identify the level of effect using four categories: major, moderate, minor, and negligible. Major and moderate effects would be considered to be significant in the context of the EIA Regulations.

Assessment of Visual Effects

- 3.3.40. Visual effects are experienced by people at different locations around the Study Area, at static locations (for example from settlements or from selected viewpoints) and sequentially when travelling along routes. It is usually considered that grouping people related to 'status' (e.g. residents, visitors/ tourists/ motorist) or the 'activity' they are engaged in (sport, informal recreation, commuting) will help the assessment of sensitivity and lead to findings which can be

⁷ Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition. London. Routledge.

considered representative. Assessment of the visual effects of the Proposed Development on receptors will be based on analysis of the ZTVs, field studies and assessment of representative viewpoints. Proposed viewpoints have been listed in **Table 3.4** above. Some more distant key views may be provided with wirelines to illustrate potential visibility, even if no significant effects are likely to occur.

- 3.3.41. GLVIA³⁷ states that the nature of visual receptors, commonly referred to as their 'sensitivity', should be assessed in terms of the susceptibility of the receptor to change in views/ visual amenity and the value attached to particular views. The magnitude of the effect will be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered in forming a judgement regarding the overall effect and whether this is judged to be significant.
- 3.3.42. Significance of visual effects, considering receptor sensitivity and the magnitude of change as set out above, will identify the level of effect using four categories: major, moderate, minor, and negligible. Major and moderate effects would be considered to be significant in the context of the EIA Regulations.

Aviation Lighting

- 3.3.43. In the interests of aviation safety, Civil Aviation Authority (CAA) guidance⁸ states that turbines over 150 m to tip height are required to incorporate visible lighting. An assessment of the visual effects of aviation lighting on the proposed wind turbines will be carried out as part of the LVIA and included within the assessment.
- 3.3.44. The night-time context at viewpoint locations will be described, with the related sensitivity and magnitude of change arising from the proposed aviation lighting drawn upon to assess the likely visual effects of aviation lighting and to provide general comment on the likely effects across the wider Study Area.
- 3.3.45. Night-time photomontages, using photographs taken shortly after dusk (with due consideration of safety of photographers), will be produced for two to three viewpoints to illustrate the potential appearance of aviation lights on turbines relative to the existing night-time baseline. The selection of viewpoints to be represented will be agreed with consultees on completion of a design freeze and upon agreement of the scope of aviation lighting, but based on the scoping layout the following are suggested:
- VP4: A702 Road;
 - VP5: Watermeetings; and
 - VP12: Southern Upland Way – Daer Reservoir.

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

Residential Visual Amenity Assessment

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

⁸ CAA (2017) Policy Statement - Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level. Available at: <https://www.caa.co.uk/publication/download/16178> [Accessed August 2024]

- 3.3.48. The RVAA will be carried out in accordance with the Landscape Institute guidance⁹.

Visualisations

- 3.3.49. Visualisations and graphics used to support the assessment will include:

- ZTV maps analysing visibility of the proposed wind turbines to tip and hub heights as well as combined ZTV maps with other wind farms;
- photographs of existing views from the selected viewpoints;
- wireline images to illustrate theoretical visibility of the Proposed Development;
- photomontages to illustrate the predicted changes to views; and
- night-time photomontages for two to three viewpoints to illustrate the appearance of aviation lighting after dark.

- 3.3.50. Wirelines will include cumulative schemes and will be produced in accordance with NatureScot guidance³.

Assessment of Cumulative Effects

- 3.3.51. The LVIA will consider operational wind farms and those under construction as part of the existing baseline.
- 3.3.52. The cumulative assessment (CLVIA) will consider the current pattern of wind farms across the wider landscape and include consented and applications schemes. For schemes that have been submitted for scoping the assessment will include commentary on the effect of the inclusion of known scoping schemes where they have a known timescale to planning submission and where they have potential to play an important part in the cumulative effects of wind energy development. More distant scoping proposals and schemes with turbines below 50 m to blade tip height will not be included in the assessment.
- 3.3.53. Cumulative data will initially be collected for wind farms within 45 km of the Proposed Development. The assessment of effects will focus on those with the potential to have significant cumulative relationships with the Proposed Development and based on professional judgement, the cumulative Study Area will focus on consented and application sites located within 25 km Study Area from the outer turbines of the Proposed Development.
- 3.3.54. The CLVIA will assess the combined visual effects of the Proposed Development with other existing or reasonably foreseeable wind farms within the Study Area. The CLVIA will consider operational and consented schemes, and those which have undetermined applications or appeals. The CLVIA will seek to focus detailed assessment on the cumulative effects of the Proposed Development with developments most likely to have cumulative relationships with the Proposed Development that result in significant effects.
- 3.3.55. As noted above, the research to collect cumulative data will be undertaken using the Council's planning portal and ECU websites. A 'cumulative cut-off date' of 3 months prior to the Proposed Development submission is proposed to allow figures and assessment to be completed and to ensure that the most up to date information is illustrated.
- 3.3.56. The CLVIA will be carried out in accordance with the principles contained in NatureScot guidance on cumulative assessment¹⁰. This methodology assesses different development scenarios with increasing levels of 'uncertainty'. Cumulative scenarios would include:

⁹ Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA). Technical Guidance Note 2/19. Available from: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf> [Accessed May 2024]

¹⁰ NatureScot (2021). Guidance-Assessing the cumulative impact of onshore wind energy developments. Available from: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments> [Accessed May 2024]

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

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

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

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

Designated Landscapes

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

Limitations and Assumptions

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

- Limitations to the LVIA include a reliance on bare-ground modelling for wireframes and ZTVs used in graphics, which does not take account of potential screening by buildings and vegetation. The theoretical visibility indicated by the bare-ground models is therefore an over-estimation of visibility. Actual visibility would be identified for receptors based on fieldwork and will also be illustrated in photomontages.
- It should be noted that illustrations and modelling cannot replace the need for site visits and can only be used to represent what people may see from the viewpoint. Whilst accuracy of modelling is essential, modelling can only be as accurate as the data used and cannot be used to replace field visits. It is noted also that the movement of the turbines may render them more noticeable in the view than static photographs/ photomontages can portray.
- Limitations to the cumulative assessment include the uncertainty of whether the proposed wind farms would be built in the future. This includes consented schemes that may or may not be built. The assessment will also rely on data available at the 'cut-off' date, and it should be noted that the locations and specifications of turbines may change for proposed and consented schemes before they are actually built, through redesign and/ or micro-siting.

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

Questions to Consultees

Table 3.5: Questions to Consultees

LV1	Do consultees agree with the extent of the Study Areas proposed?
LV2	Are consultees content with the proposed methodology for the LVIA?
LV3	Are consultees content with the proposed approach to undertaking viewpoint photography and preparing visualisations?
LV4	Are consultees content with the proposed viewpoints identified in Table 3.4, and could they advise of any additional viewpoints they consider necessary to assess the effects of the Proposed Development or indeed any that you think are not required?
LV5	Are consultees content with the proposed approach to the cumulative assessment and could they advise of any specific cumulative sites they consider should be included in the assessment?
LV6	Do consultees agree that there are unlikely to be significant effects from decommissioning of the Proposed Development and accordingly this will be scoped out of the LVIA?

3.4. Cultural Heritage

Overview

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

Study Area

3.4.2. Two Study Areas will be used for the cultural heritage assessment.

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

Baseline Conditions

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

Inner Study Area

- 3.4.4. There is one Scheduled Monument within the Inner Study Area: Smithwood, Bastle House 900 m south-west of Daerside (SM 5647).
- 3.4.5. There are no Listed Buildings or Conservation Areas within the Inner Study Area, and no part of the Inner Study Area lies within an Inventory Garden and Designed Landscape (GDL) or Historic Battlefield. Within the Inner Study Area, there are no sites recorded in the Historic Environment Record (HER) that are classed as being of potential national importance.
- 3.4.6. There are 36 non-designated heritage assets within the Inner Study Area. These include evidence of prehistoric activity comprising five burnt mounds and a cluster of small cairns, along with evidence of post-medieval farming (farmsteads, enclosures and sheepfolds, and cultivation remains).

Outer Study Area

- 3.4.7. There are 33 scheduled monuments within the Outer Study Area. These monuments include prehistoric burial cairns and funerary sites, where long-distance views and intervisibility with other monuments are an important aspect of their settings, settlement remains and associated features of prehistoric, medieval and post medieval date, and Roman military sites. Four of these, a prehistoric platform settlement, a Roman fortlet, and two late medieval bastle houses are within 5 km of the indicative turbine locations.
- 3.4.8. There are also 12 HER Non-Statutory Register (NSR) sites of schedulable quality within the Outer Study Area. These include 11 prehistoric settlements and associated field systems, which are less likely to have long-distance views and intervisibility with other monuments as an important aspect of their settings. Two of these NSR prehistoric settlements are within 5 km of the indicative turbine locations.
- 3.4.9. Within the Outer Study Area there are 59 Listed Buildings (three Category A, 39 Category B, and 17 Category C). Of these, only four are within 5 km of the indicative turbine locations: one of Category A, one of Category B and two of Category C.
- 3.4.10. There are four Conservation Areas within the Outer Study Area: Leadhills, Wanlockhead, Durisdeer and Carronbridge. One, Durisdeer, is within 5 km of the indicative turbine locations.
- 3.4.11. There are two Inventory Garden and Designed Landscapes within the Outer Study Area: Drumlanrig Castle and Scot's Mining Company House. Neither are within 5 km of the indicative turbine locations.
- 3.4.12. There are no World Heritage Sites or Historic Battlefields within the Outer Study Area.

Potential Significant Effects

- 3.4.13. The Proposed Development has the potential to affect the scheduled monument within the Inner Study Area through direct or indirect construction impacts. The Proposed Development also has potential for direct or indirect construction impacts on non-designated heritage assets within the Inner Study Area.
- Direct construction impacts are likely to occur where the physical fabric of the asset is removed or damaged.
 - Indirect construction impacts occur where the fabric of an asset, or buried archaeological remains, are removed or damaged as an indirect result of the proposal, such as may occur as a result of changes to the hydrological regime within the Site boundary or through vibration or seismic activity associated with traffic movement or quarry blasting.

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

Assessment Methodology

- 3.4.15. The cultural heritage assessment will be carried out in accordance with the following guidance with reference to relevant legislation and policy:
- SNH and HES Environmental Impact Assessment Handbook¹¹.
 - Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA) 2014, Updated October 2020¹².
 - Principles of Cultural Heritage Impact Assessment in the UK (IEMA 2021)¹³.
 - Designation Policy and Selection Guidance (HES 2019)¹⁴.
 - Managing Change in the Historic Environment: Setting (HES 2016)¹⁵.
 - Planning Advice Note 1/2013: Environmental Impact Assessment (PAN 1/2013)¹⁶.
 - Planning Advice Note 2/2011: Planning and Archaeology (PAN 2/2011)¹⁷.
- 3.4.16. A detailed list of all relevant legislation, policy and guidance will be included in the EIAR.

Desk-based Assessment Method

- 3.4.17. A desk-based assessment will be conducted covering the Inner Study Area. The purpose will be to identify all known heritage assets, designated or otherwise, that could be directly affected by the Proposed Development, and to inform an assessment of the archaeological potential of the Site.
- 3.4.18. Sources to be consulted for the collation of data will include:
- South Lanarkshire Council (SLC) HER.
 - HES on-line GIS Spatial Data Warehouse¹⁸.
 - National Record of the Historic Environment¹⁹ (NRHE).
 - Historic maps held by National Library of Scotland²⁰.
 - Modern aerial photographic imagery available online.
 - Historic Land-Use Assessment Data for Scotland²¹ (HLAMap).
 - Lidar data available through Scottish Remote Sensing Portal²² (where available).
 - Any existing geotechnical data, including peat survey data if available.

11 SNH & Historic Environment Scotland (2018) 'Environmental Impact Assessment Handbook'. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=6ed33b65-9df1-4a2f-acbb-a8e800a592c0> [Accessed August 2024]

12 Chartered Institute for Archaeologists (2014, updated 2020) Standard and guidance for historic environment desk-based assessment. Available at: https://www.archaeologists.net/sites/default/files/CifAS%26GDBA_4.pdf [Accessed August 2024]

13 IEMA (2021) 'Principles of Cultural Heritage Impact assessment in the UK', Available at: https://www.archaeologists.net/sites/default/files/j30361_iema_principlesofchia_v8.pdf [Accessed August 2024]

14 HES (2019) Designation Policy and Selection Guidance. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=8d8bbaeb-ce5a-46c1-a558-aa2500ff7d3b> [Accessed August 2024]

15 Historic Environment Scotland (2016, updated 2020) 'Managing Change in the Historic Environment – Setting'. Available at: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=80b7c0a0-584b-4625-b1fd-a60b009c2549> [Accessed August 2024]

16 Scottish Government (2013, updated 2017) Planning Advice Note (PAN) 1/2013: Environmental Impact Assessment. Available at: <https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/> [Accessed August 2024]

17 Scottish Government (2011) Planning Advice Note (PAN) 2/2011: Planning and Archaeology. Available at: <https://www.gov.scot/publications/pan-2-2011-planning-archaeology/> [Accessed August 2024]

18 HES Spatial Data Warehouse. Available at: <http://portal.historicenvironment.scot/spatialdownloads>

19 HES, Canmore. Available at: <http://pastmap.org.uk/>

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

21 HES, Historic Land-Use Assessment for Scotland (HLAMap). Available at: <http://hلامap.org.uk/>

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

- Other readily accessible published sources, including any reports referenced in HER/NRHE records.

Field Survey Method

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

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

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

Assessment Method

3.4.21. The effects of the Proposed Development on heritage assets will be assessed on the basis of their type (direct effects, indirect impacts, setting impacts, and cumulative impacts) and nature (adverse or beneficial). The assessment will take into account the value/ sensitivity of the heritage asset, and its setting, and the magnitude of the predicted impact.

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

Assigning Sensitivity to Heritage Assets

3.4.22. Cultural heritage assets are assigned value/ importance through the designation process. Designation ensures that sites and places are recognised and protected by law through the planning system and other regulatory processes. The level of protection and how a site or place is managed varies depending on the type of designation and the laws and policies that apply to it¹⁴.

Criteria for Assessing the Significance of Effects

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

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

Assessment of Effects on Setting

3.4.25. The assessment will be in accordance with the guidance set out within the SNH and HES EIA Handbook¹¹ and Historic Environment Scotland's guidance document, *'Managing Change in the Historic Environment: Setting'*. This will ensure the assessment considers the context and setting of the identified heritage assets, as well as the potential change in cultural significance.

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

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

3.4.27. The SNH and HES EIA Handbook¹¹ Appendix 1, paragraph 43 advises that:

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

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

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

3.4.30. Consideration will be given to designated heritage assets beyond 10 km where long-distance views and intervisibility between monuments are an important aspect of their settings.

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

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

3.4.33. Where a significant effect on the setting of an asset is predicted as a result of change within its surroundings, an assessment will be made as to whether that effect would result in a significant adverse effect on the integrity of its setting (National Planning Framework 4 (NPF4) Policy 7(h)ii)²³. For the purposes of the assessment, the integrity of the setting will be considered to be maintained if the setting's contribution to the cultural significance of the monument, and its capacity to convey that significance to visitors, would not be compromised by the Proposed Development either alone or cumulatively.

Cumulative Assessment

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

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

Proposed Visualisation Viewpoint

3.4.36. Based on the scoping blade tip height ZTV (**Figure 3.3.1a** and **Figure 3.3.1b (Appendix A)**) and given the local topography and the distance of the Proposed Development from the majority of designated assets, one asset has been identified at scoping stage as requiring a photomontage visualisation to support the assessment in the EIAR; Smithwood, Bastle House 900 m south-west of Daerside (SM 5647). In addition to this, reference will be made to LVIA viewpoints (**Figure 3.3.4 (Appendix A)**) where these are helpful to the assessment in particular VP No 10 Drumlanrig Castle.

Questions to Consultees

Table 3.6: Questions to Consultees

CH1	Is the proposed assessment methodology, including proposed Study Areas, accepted?
CH2	Are there any additional assets beyond the proposed Study Areas that consultees consider significant effects are likely to occur?
CH3	The Smithwood, Bastle House 900 m south-west of Daerside (SM 5647) has been identified as an asset for a photomontage visualisation. Are there any additional assets for which consultees would like to see visualisations?

3.5. Ecology

Overview

3.5.1. This section provides an overview of the ecological context for the Proposed Development and sets out the proposed approach to the assessment of potential effects associated with the Proposed Development on ecological features.

²³ Scottish Government (2023) National Planning Framework for Scotland 4. Available at: <https://www.gov.scot/publications/national-planning-framework-4/> [Accessed August 2024]

Study Area

3.5.2. The ecological assessment will incorporate the following Study Areas:

- Designated sites (including ancient woodland) – the Site and 5 km buffer from the Site boundary.
- Protected and notable species Study Area(s) – the Site and 5 km buffer from the Site boundary, or industry standard species-specific buffer(s) from the proposed turbines/ BESS (and other infrastructure).
- Fish – limited to watercourses within the Site, and downstream as deemed relevant.
- Habitats and potential Groundwater Dependent Terrestrial Ecosystems (GWDTE) – limited to within the Site boundary.
- Bat roost features – the sum of the proposed turbine blade length, plus 200 m, from the proposed turbines (as per NatureScot et al. 2021²⁴).
- Bat collisions – limited to the proposed turbine locations; static bat data will be processed through Ecobat²⁵.
- Cumulative assessment (if required) – the Site and 5 km buffer from the Site boundary.

Baseline Conditions

3.5.3. An initial review of the baseline conditions is summarised below noting that the baseline conditions will be further reviewed and updated as described in the 'Assessment Methodology' below. Sources which have been/ are to be utilised to inform the ecological baseline conditions include:

- ecological surveys undertaken between April and September 2023;
- ecology surveys undertaken between April and October 2024;
- a desk study to confirm the location and qualifying features of designated sites²⁶ and ancient woodland²⁷ within the relevant Study Area(s).
- information from the National Biodiversity Network (NBN) Atlas²⁸ on ecological records within 5 km of the Site within the last 15 years (since 2009);
- information from the Carbon and Peatland Map 2016²⁹;
- results of the peat probing survey (see section 3.7 below);
- information from the Deer Distribution Survey by the British Deer Society³⁰;
- information from the Saving Scotland's Red Squirrels website³¹ for red and grey squirrel sightings; and
- any Environmental Statements (ES), EIARs or technical reports from other developments or proposed developments in the local area, relevant to the Study Area(s).

²⁴ NatureScot, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT), (2021). Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation. Available at: <https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation>. [Accessed May 2024]

²⁵ The Mammal Society (2017). Ecobat. Available at: www.ecobat.org.uk <https://www.mammal.org.uk/2017/12/making-sense-of-clicks-and-squeaks-mammal-society-launches-ecobat/> [Accessed May 2024].

²⁶ NatureScot Sitelink. Available at: <https://sitelink.nature.scot/home> [Accessed July 2024]

²⁷ Ancient Woodland Inventory (Scotland). Available at: <https://www.spatialdata.gov.scot/geonetwork/srv/api/records/A091F945-F744-4C8F-95B3-A09E6EF6AE33> [Accessed July 2024]

²⁸ National Biodiversity Network Atlas Scotland (2024). Available at: <https://scotland.nbnatlas.org/> [Accessed July 2024]

²⁹ Scotland's Soils. Available at: https://map.environment.gov.scot/Soil_maps/?layer=10# [Accessed July 2024]

³⁰ British Deer Society - Deer Distribution Survey. Available at: <https://bds.org.uk/science-research/deer-surveys/deer-distribution-survey/> [Accessed May 2023]

³¹ Scottish Squirrels - Sightings of Red and Grey Squirrels across Scotland. Available at: <https://scottishsquirrels.org.uk/squirrel-sightings/> [Accessed July 2023].

Baseline Surveys

3.5.4. The following baseline ecological surveys have been undertaken to date (2023 and up to end October 2024).

- Electrofishing and fish habitat suitability surveys on watercourses within the Site (upstream and downstream), in line with guidance^{32, 33, 34} and undertaken by the Clyde River Foundation (CRF); completed in June 2023 and July 2024.
- Seasonal static bat detector (Anabat) surveys, 13 Anabat detectors have been deployed around the Site following NatureScot guidelines²⁴ with the deployments beginning in April 2023 and concluding in September 2023. A further five Anabat detectors were deployed around the Site in May 2024 and these were concluded in September 2024. The locations were selected based on an indicative layout provided at the time of survey commencement and positioned to cover the area in which the turbines are proposed to be located.
- Protected species walkover surveys were undertaken in June 2023 and May 2024.
- National Vegetation Classification (NVC) surveys, incorporating Phase 1 Habitat and potential Groundwater Dependent Terrestrial Ecosystem (GWDTE) habitat characterisation were undertaken in June 2023 and October 2024^{35,36}.

Designated Sites – Desk Study

3.5.5. There is one statutory site designated for ecological features located within 5 km of the Proposed Development: Shiel Dod SSSI. This is listed in **Table 3.7** and shown in **Figure 3.5.1 (Appendix A)**.

Table 3.7: Designated Sites with Ecological Qualifying Features within 5 km of the Site

Designated Site	Notified Natural Features	Condition of Feature (and Date Monitored)	Distance from Site (km)
Shiel Dod SSSI	Biological: Upland habitats: Upland assemblage Assemblage of upland vegetation communities	Favourable Maintained (16 October 2005)	0 km (lies partially within the Site)

3.5.6. The Site overlaps with the Shiel Dod SSSI, however it should be noted that it is not proposed to introduce development of any kind within Shiel Dod SSSI. From a desk-based review of the area surrounding the Shiel Dod SSSI, there is very limited potential for any development directly to the north of Shiel Dod SSSI to impact the SSSI as this area drains into Carsehope Burn which hydrologically separates the SSSI from the rest of the Site. Effects on the Shiel Dod SSSI will be assessed as part of the EIA process.

Ancient Woodland – Desk Study

3.5.7. The Ancient Woodland Inventory (AWI)²⁷ shows there are no stands of ancient woodland located within the Site. There are 12 parcels of ancient woodland located between 4.1 km and 5 km to the west of the Site, and one parcel located approximately 3.7 km to the north of the Site (**Figure**

32 Marine Directorate (2021b) Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme. Available at: <https://www.gov.scot/publications/monitoring-watercourses-in-relation-to-onshore-wind-farm-developments-generic-monitoring-programme/> [Accessed August 2024]

33 Marine Directorate (2018) Onshore Renewables Interactions. Available at: <https://www.gov.scot/publications/onshore-renewables-interactions/> [Accessed August 2024]

34 Marine Directorate (2021a) Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines. Available at: [Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/freshwater-and-diadromous-fish-and-fisheries-associated-with-onshore-wind-farm-and-transmission-line-developments-generic-scoping-guidelines-gov.scot/) [Accessed August 2024]

35 Rodwell, J.S. (Ed), et al. (1991 – 2000). British Plant Communities (5 volumes).

36 Rodwell, J.S. (2006). NVC Users' Handbook.

3.5.1 (Appendix A)). The woodland is a mixture of Ancient (of semi-natural origin) and Long-Established (of plantation origin).

Habitat and Species-specific - Desk Study

3.5.8. A search of the NBN Atlas identified that the following protected or notable species were recorded within 5 km of the Site since 2009²⁸.

- Brown hare (*Lepus europaeus*)^{37, 38}.
- Common lizard (*Zootoca vivipara*)³⁹.
- Common pipistrelle (*Pipistrellus pipistrellus*)^{40, 41}.
- Red squirrel (*Sciurus vulgaris*)^{37, 42}.
- Mountain hare (*Lepus timidus*)^{37, 38}.
- Natterer's bat (*Myotis nattereri*)^{40, 41}.
- River lamprey (*Lampetra fluviatilis*)^{40, 43}.
- Soprano pipistrelle (*Pipistrellus pygmaeus*)^{40, 41}.

3.5.9. The following invasive non-native species were also returned by these search parameters.

- Grey squirrel (*Sciurus carolinensis*)^{37, 42}.
- Signal crayfish (*Pacifastacus leniusculus*)^{40, 44}.

3.5.10. No sightings of red or grey squirrels have been recorded on Saving Scotland's Red Squirrels³¹ within 5 km of the Site in the past 13 years. However, this dataset does show consistent sightings of both red and grey squirrels around Moffat to the east and Thornhill to the south-west; as this dataset is composed of incidental public sightings, there is a bias of data towards more populated areas.

3.5.11. The Deer Distribution Survey results³⁰ identified that the following deer species are likely to be present or have previously been recorded in the wider area of the Site.

- fallow deer (*Dama dama*).
- red deer (*Cervus elaphus*).
- roe deer (*Capreolus capreolus*).
- sika deer (*Cervus nippon*).

3.5.12. As per **Figure 3.5.1 (Appendix A)**, the Carbon Peatland Map 2016²⁹ shows a several areas of Class 1⁴⁵ peatland throughout the Site. None of the current proposed turbine locations are located within these areas of Class 1 peatland. Class 3⁴⁶ soils form the largest proportion of the Site, with some smaller areas of Class 5⁴⁷ and Class 4⁴⁸ soils also present. Areas of Class 0⁴⁹ Mineral soil are shown as being present at Rodger Law and Comb Law in addition to the northern and eastern

37 Licence: CC-BY. Creative Commons with Attribution 4.0 (CC-BY) <https://creativecommons.org/licenses/by/4.0/>. Accessed on: 23 May 2024.

38 Mammal Society (2024). Mammal Mapper App Sighting Records.

39 Amphibian and Reptile Conservation and Biological Records Centre (2024). Records verified via iRecord.

40 Licence: OGL. Open Government Licence (OGL) <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>. Accessed: 23 May 2024.

41 Newson, S.E., Evans, H.E., Gillings, S., Jarrett, D. & Wilson, M.W. (2017). A survey of high-risk bat species across southern Scotland. Scottish Natural Heritage Commissioned Report No. 1008.

42 Scottish Wildlife Trust (2024). The Scottish Squirrel Database. Occurrence dataset accessed through the NBNAtlas.

43 Scottish Environment Protection Agency 2015, licensed under the Open Government Licence v3.0.

44 Records provided by Invasive non-native species records from SEWeb, accessed through NBN Atlas website.

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

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

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

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

49 Class 0 – Mineral soil, peatland habitats are not typically found on such soils.

slopes of Watchman’s Brae and the majority of the Site north of Hitteril (refer to **Figure 3.7.4, Appendix A**).

Field Surveys

- 3.5.13. Field surveys were completed in 2023 and 2024, concluded in October 2024. The section below discusses findings based on the analysis of the data at the point of writing.
- 3.5.14. Based on the habitat surveys, the Site is largely composed of wet heath/ acid grassland mosaic (D6), marshy grassland (B5), and wet dwarf shrub heath (D2), including mosaics with blanket bog (E1.6.1), wet modified bog (E1.7) and acid/ neutral flush (E2.1). Other significant habitats include blanket bog (E.1.6.1) which is present in rather fragmented patches across the Site, and wet modified bog (E1.7).
- 3.5.15. Based on the initial evidence provided through the NVC survey, it is considered unlikely that any near-natural peat is present within the Site. Based on long-term grazing, combined with evidence of drainage, hags and commercial forestry, it is considered unlikely that peatland of national interest is present within the Site and it is proposed that a Peatland Condition Assessment, as per the guidance⁵⁰, can be scoped out.
- 3.5.16. Areas of potential GWDTEs were found throughout the Site. To determine actual groundwater dependency will require a hydrological assessment (refer to section 3.7); as such, GWDTE are identified as potential only at this stage based on NVC habitat classification.
- 3.5.17. Protected and notable species evidence of otter, water vole, reptile, bat (roosting potential) and freshwater fish have been identified. No evidence of badger, red squirrel or pine marten has been recorded to date.
- 3.5.18. Static bat activity surveys carried out between May 2023 and September 2023, with 13 Anabat locations recording over a total of 43 survey nights, indicated the presence of seven bat species and one genus: common pipistrelle, soprano pipistrelle, noctule (*Nyctalus noctula*), Leisler (*Nyctalus leisleri*), Nyctalus spp, Daubenton’s bat (*Myotis daubentonii*), Natterer’s bat and brown long-eared bat (*Plecotus auritus*).
- 3.5.19. Freshwater surveys of 2023 and 2024 recorded a total of three fish species on the Site: brown trout (*Salmo trutta*), minnow (*Phoxinus phoxinus*) and stone loach (*Barbatula barbatula*). Multiple year-classes of trout were present at the majority of survey points, with the presence of young-of-the-year (0+) fish indicating successful spawning during the previous winter in the vicinity of the survey points.
- 3.5.20. Invasive, non-native American signal crayfish (*Pacifastacus leniusculus*) were found in watercourses in the north of the site.

Potential Significant Effects

- 3.5.21. Impacts on Important Ecological Features (IEFs) to be considered for the construction and decommissioning phases, will include:
 - temporary and permanent habitat loss/ alteration/ fragmentation/ drainage associated with the Proposed Development, specifically the above ground infrastructure;
 - pollution impacts on watercourses within the Site;
 - loss of shelter, breeding or foraging habitat for protected species;
 - displacement of deer;

⁵⁰ NatureScot (SNH) (2018). Advising on carbon-rich soils, deep peat and priority peatland habitat in development management. Available at: <https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management> [Accessed August 2024]

- risk of injury or death to protected species from collisions with construction traffic; and
- visual and noise disturbance to protected species associated with construction activities.

3.5.22. Impacts on IEFs to be considered for the operational phase, will include:

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

3.5.23. A summary of the IEFs to be considered, and the phases for which they are likely to be scoped in or out for, are presented in **Table 3.8**. At the time where the ecological baseline surveys are complete and the data is fully analysed, the assessment scope will be revisited and a final proportionate scope will be developed, in consultation with stakeholders, for assessment within the EIAR.

Table 3.8: Summary of IEFs to be considered within the EIAR

Features	Scoped In*		Justification
	C / D	O	
Protected and notable species (including bats)	✓	✓	Protected species cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution of ecological features in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood.
Habitats on Annex I to the Habitats Directive	✓	✓	Habitats on Annex I to the Habitats Directive cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution of such habitats in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood.
Habitats not on Annex I to the Habitats Directive and species not on Annex II to the Habitats Directive and habitats or species not protected by other legislation (e.g., The Wildlife and Countryside Act 1981 (as amended), the Nature Conservation (Scotland) Act 2004 or The Protection of Badgers Act).	×	×	On the basis of the results of the desk-based work undertaken to date, the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, generally common and widely distributed habitats or species which do not fall within the categories listed in the feature column will be scoped out of the assessment.
Wild deer population	✓	×	The desk-based study will collate relevant information on the deer populations in the locality to inform whether this should be scoped out at the construction phase or assessed further in the EIAR. It is considered that the operational activities of the Proposed Development are unlikely to result in an adverse impact upon deer population and are scoped out of the assessment.

Features	Scoped In*		Justification
	C / D	O	
Designated sites	✓	×	<p>The Proposed Development extends into the northern section of the Shiel Dod SSSI. The design layout shows the location of turbines in relation to the SSSI; no turbines will be located within the SSSI.</p> <p>The Proposed Development is separated from Shiel Dod SSSI by Carsehope Burn which forms the northern boundary of the SSSI.</p> <p>The proximity of turbines 15 and 16 to the SSSI has the potential to result in adverse impacts during construction upon the notified ecological features of the designated site and are scoped into the assessment at this stage.</p> <p>Through the adoption of embedded mitigation (including the design and layout of the Site), it is considered that the notified ecological features of the SSSI are unlikely to be affected by the operational activities of the Proposed Development; as such, impacts upon the SSSI during the operational phase can be scoped out of the assessment at this stage.</p>
Migratory salmonids and resident fish	✓	×	<p>Migratory salmonids are scoped out of the assessment. Migratory salmonids are not able to access the Site or local area due to impassable barriers much further downstream in the Clyde catchment (i.e., the Falls of Lanark).</p> <p>Impacts on resident fish populations during construction cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution species and suitable habitats relation to the planned infrastructure and activities associated with the Proposed Development are fully understood.</p> <p>The operational activities of the Proposed Development are unlikely to provide an adverse impact upon the resident fish populations during the operational phase, and are scoped out of the assessment at this stage.</p>

*C= Construction D=Decommissioning and O=Operation.

Potential Mitigation

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

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

- development of an Outline Biodiversity Enhancement Management Plan (BEMP), for the operational phase, and agreed with consultees, to mitigate or enhance habitat for IEFs and to provide wider biodiversity benefits; and
- a Biodiversity Net Gain (BNG) assessment of the Proposed Development. Based upon habitat surveys undertaken in 2023 and to be undertaken in 2024, biodiversity enhancement measures for the Site may include, but not be limited to, options such as peatland restoration, heathland restoration, grassland management, hedgerow creation and tree planting.

3.5.25. Where unmitigated significant effects on IEFs are identified, additional measures to prevent and reduce these adverse impacts would be proposed, in order to conclude a non-significant residual impact.

Assessment Methodology

3.5.26. The assessment will be carried out in accordance with the principles contained within the following guidance documents with reference to relevant legislation and policy as required:

- Chartered Institute of Ecology and Environmental Management (CIEEM) (2018⁵¹) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (version 1.1).
- Collins, J. (2016⁵²) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust.
- South Lanarkshire Council (2024) South Lanarkshire Biodiversity Strategy 2024-2030⁵³.
- European Commission (2020) Guidance document on wind energy developments and EU nature legislation⁵⁴.
- JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012⁵⁵) UK Post-2010 Biodiversity Framework.
- Joint Nature Conservation Committee (JNCC) (2013⁵⁶) Guidelines for selection of biological Sites of Special Scientific Interest (SSSI).
- NatureScot, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT) (2019, with minor updates 2021²⁴). Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation.
- NatureScot (2024⁵⁷) Pre-application Advice for Onshore Wind Farms.
- NatureScot (2023⁵⁰) Advising on peatland, carbon-rich soils and priority peatland habitats in development management.

51 CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Available at: <https://cieem.net/wp-content/uploads/2019/02/Combined-EcIA-guidelines-2018-compressed.pdf> [Accessed August 2024]

52 Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust. Available at: <https://www.bats.org.uk/news/2016/02/bat-surveys-for-professional-ecologists-good-practice-guidelines-3rd-edition> [Accessed August 2024]

53 South Lanarkshire Council (2024) South Lanarkshire Biodiversity Strategy 2024-2030. Available at: https://www.southlanarkshire.gov.uk/downloads/file/16574/biodiversity_strategy_2024_-_2030 [Accessed August 2024]

54 European Commission (2020). Guidance document on wind energy developments and EU nature legislation. Available at: https://ec.europa.eu/environment/nature/natura2000/management/docs/wind_farms_en.pdf. Accessed July 2023

55 Joint Nature Conservation Committee and DEFRA (on behalf of the Four Countries' Biodiversity Group) (2012). UK Post-2010 Biodiversity Framework (July 2012). Available at: <https://jncc.gov.uk/our-work/uk-post-2010-biodiversity-framework/>. Accessed May 2024

56 Joint Nature Conservation Committee (2013). Guidelines for selection of biological Sites of Special Scientific Interest (SSSI). Available at: <https://jncc.gov.uk/our-work/guidelines-for-selection-of-sssis/>. Accessed May 2024

57 NatureScot (2024). Pre-application Advice for Onshore Wind Farms. Available at: <https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms> [Accessed August 2024]

- Scottish Badgers (2018⁵⁸) Surveying for Badgers: Good Practice Guidelines. Version 1.
- Scottish Executive (2000⁵⁹) Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995.
- Scottish Environment Protection Agency (SEPA) (2017⁶⁰) Land Use Planning System Guidance Note 4 - Planning guidance on on-shore windfarm developments.
- SEPA (2017⁶¹) Land Use Planning System Guidance Note 31 - Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems.
- Scottish Government (2001⁶²). European Protected Species, Development Sites and the Planning Systems: Interim guidance for local authorities on licensing arrangements.
- Scottish Government (2006⁶³). European Protected Species – terms of guidance: Chief Planner letter.
- Scottish Government (2013⁶⁴) Scottish Biodiversity Strategy: It's in Your Hands (2004)/2020 Challenge for Scotland's Biodiversity.
- Scottish Government (2016⁶⁵) Draft Peatland and Energy Policy Statement.
- Scottish Government (2013¹⁶) Planning Advice Note 1/2013 - Environmental Impact Assessment, Revision 1.0.
- Scottish Government (2017⁶⁶) Planning Circular 1/2017: Guidance on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.
- Scottish Government (2018⁶⁷) Climate Change Plan: Third Report on Policies and Proposals 2018-2032.

58 Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1. Available at: https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf. [Accessed May 2024].

59 Scottish Executive (2000). Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds. Revised guidance updating Scottish Office Circular no. 6/1995. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/foi-eir-release/2020/01/foi-201900008726/documents/foi-201900008726-information-released-a/foi-201900008726-information-released-a/govscot%3Adocument/FOI%2B-%2B201900008726%2B-%2BInformation%2Breleased%2B-%2BCircular%2B6-1995%2BNature%2BConservation%2B-%2B%2527The%2BHabitats%2Band%2BBirds%2BDirectives%2527%2B%2528Updated%2BJune%2B2000%2529..PDF>. Accessed July 2023

60 Scottish Environment Protection Agency (2017). Land Use Planning System Guidance Note 4 – Planning guidance on on-shore windfarm developments. Available at: <https://www.sepa.org.uk/media/136117/planning-guidance-on-on-shore-windfarms-developments.pdf>. Accessed May 2024

61 Scottish Environment Protection Agency (2017). Land Use Planning System Guidance Note 31 – Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Available at: <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf>. Accessed May 2024

62 Scottish Government (2001). European Protected Species, Development Sites and the Planning Systems: Interim guidance for local authorities on licensing arrangements. Available at: <https://www.webarchive.org.uk/wayback/archive/20150220012946/http://www.gov.scot/Publications/2001/10/10122/File-1>. Accessed May 2024

63 Scottish Government (2006). European Protected Species – terms of guidance: Chief Planner letter. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/correspondence/2006/05/european-protected-species-chief-planner-letter/documents/ec-directive-92_43_eec-conservation-natural-habitats-wild-flora-fauna-pdf/ec-directive-92_43_eec-conservation-natural-habitats-wild-flora-fauna-pdf/govscot%3Adocument/EC%2BDirective%2B92_43_EEC%2BOn%2Bthe%2BConservation%2Bof%2BNatural%2BHabitats%2Band%2Bof%2BWild%2BFlora%2Band%2BFauna.pdf. Accessed May 2024

64 Scottish Government (2013). Scottish Biodiversity Strategy: It's in Your Hands (2004)/2020 Challenge for Scotland's Biodiversity (2013). Available at: <https://www.gov.scot/publications/scotlands-biodiversity---its-in-your-hands/>. Accessed May 2024

65 Scottish Government (2016). Draft Peatland and Energy Policy Statement. Available at: <https://www.gov.scot/publications/peatland-and-energy-draft-policy-statement/>. Accessed May 2024

66 Scottish Government (2017). Planning Circular 1/2017: Guidance on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.gov.scot/publications/planning-circular-1-2017-environmental-impact-assessment-regulations-2017/>. [Accessed May 2024].

67 Scottish Government (2018). Climate Change Plan: Third Report on Policies and Proposals 2018-2032. Available at: <https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018/>. Accessed May 2024

- Scottish Government (2020⁶⁸) Scottish biodiversity strategy post-2020: statement of intent.
- Scottish Government (2023²³) National Planning Framework 4.
- SNH (2015⁶⁹) Scotland's National Peatland Plan.
- SNH (2016a⁷⁰) Planning for Development: What to consider and include in deer assessments and management at development sites (Version 2).
- SNH (2016b⁷¹) Planning for Development: What to consider and include in Habitat Management Plans. Version 2.
- NatureScot (2018⁵⁰). Advising on carbon-rich soils, deep peat and priority peatland habitat in development management.
- SNH and HES (2018¹¹) Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.
- Scottish Renewables, SNH, SEPA, Forestry Commission (Scotland), HES, AEECoW (2019⁷²) Good Practice During Windfarm Construction (4th Edition).

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

Assessment Method

3.5.28. The EIAR will include an Ecological Impact Assessment (EcIA) which will consider the potential direct, indirect and cumulative impacts that the construction, operation and decommissioning phases of the Proposed Development could have on IEFs, as per CIEEM guidance⁵¹. The assessment will be supported by technical appendices that will include details of survey methodologies and all survey data.

3.5.29. The assessment will include the following elements:

- baseline conditions;
- scoping in/ out of ecological features and impacts;
- assessment of potential impacts and effects on IEFs during construction and operational phases;
- cumulative effects;
- mitigation; and
- summary of significant residual effects.

3.5.30. Effects on IEFs will be assessed in relation to the species' reference population or habitat extent, conservation status, range, and distribution. The assessment of potential effects will be informed by guidelines published by CIEEM⁵¹ and SNH¹¹. The assessment involves the following stages.

- identifying potential impacts of the Proposed Development;
- considering the likelihood of occurrence of potential impacts;

68 Scottish Government (2020). Scottish biodiversity strategy post-2020: statement of intent. Available at: <https://www.gov.scot/publications/scottish-biodiversity-strategy-post-2020-statement-intent/>. Accessed May 2024

69 SNH (2015). Scotland's National Peatland Plan. Available at: <https://www.nature.scot/doc/scotlands-national-peatland-plan-working-our-future>. Accessed May 2024

70 SNH (2016a). Planning for Development: What to consider and including in deer assessments and management at development sites (Version 2). Available at: <https://www.nature.scot/doc/guidance-planning-development-what-consider-and-include-habitat-management-plans>. Accessed May 2024

71 SNH (2016b). Planning for Development: What to consider and including in Habitat Management Plans. (Version 2). Available at: <https://www.nature.scot/doc/guidance-planning-development-what-consider-and-include-habitat-management-plans>. Accessed May 2024

72 Scottish Renewables, SNH, SEPA, Forestry Commission (Scotland), HES, AEECoW (2019). Good Practice During Windfarm Construction (4th Edition). Available at: <https://www.nature.scot/doc/guidance-good-practice-during-wind-farm-construction>. Accessed May 2024.

- defining the Nature Conservation Value (NCV) and conservation status of relevant populations for each IEF to determine overall sensitivity;
- establishing the magnitude of the likely impact (both spatial and temporal) on each IEF;
- based on the above information, making a judgement as to whether or not the consequent potential effect would be significant with respect to the EIA Regulations;
- if a potential effect is determined to be significant, measures to avoid or reduce the significance of effects are considered;
- considering opportunities for enhancement where appropriate; and
- concluding residual potential effects after considering mitigation, compensation and enhancement.

3.5.31. An assessment of relevant cumulative impacts will be undertaken following published guidance⁷³. Where determined that a cumulative assessment is necessary, impacts will be assessed with other wind farm projects subject to the EIA process within 5 km of the Site, and their effects on a relevant reference population; for example, at a watercourse, watershed or Natural Heritage Zone (NHZ) level. The scope of the cumulative assessment will be agreed in consultation with NatureScot.

Questions to Consultees

Table 3.9: Questions to Consultees

ECO1	Are there any other relevant consultees who should be consulted, or other sources of information that should be considered?
ECO2	Do consultees agree that the suite of field surveys in addition to a desk study are sufficient to inform a robust impact assessment?
ECO3	Do consultees agree that the methodology and scope of assessment is appropriate?
ECO4	Do consultees agree with the features proposed to be scoped out from further assessment as detailed in Table 3.8?

3.6. Ornithology

Overview

3.6.1. This section provides an overview of the ornithological context for the Proposed Development and sets out the proposed approach to the assessment of potential significant effects associated with the Proposed Development on Important Ornithological Features (IOFs).

Study Area

3.6.2. The Study Area for existing ornithological information extends out to 20 km from the Site for statutory designated sites with ornithological interests and 2 km for species listed on Annex 1 of NatureScot guidance⁷⁴, and 6 km for eagle species, which is in accordance with NatureScot guidance⁷⁵.

⁷³ SNH (2012) Assessing the Cumulative Impact of Onshore Wind Energy Developments. Guidance Series
⁷⁴ SNH (2018) Assessing significance of impacts from onshore wind farms outwith designated areas. Available at: <https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected> [Accessed July 2024];
⁷⁵ SNH (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> [Accessed August 2024]

3.6.3. Field survey areas have been defined on the basis of the largest possible layout of turbines and ancillary infrastructure within the Site, and species or species group-specific buffers as set out in NatureScot guidance⁷⁵.

3.6.4. The EIAR will adopt the following Study Areas which will all be buffered from the finalised turbine and BESS infrastructure (and access track/ other infrastructure if relevant/ required).

- Designated sites: the final layout of the Proposed Development and a 20 km buffer⁷⁶;
- Collision risk modelling: the results of the flight activity surveys will be used to inform collision risk modelling. A Collision Risk Analysis Area (CRAA) will be created using GIS Delaunay triangulation from final proposed turbine locations to create a wind farm area which will then be buffered out to 500 m;
- Scarce⁷⁷ breeding birds: the final layout of the Proposed Development and a 2 km buffer (800 m for access tracks)⁷⁵;
- Moorland breeding birds: the final layout of the Proposed Development and a 500 m buffer⁷⁵;
- Black grouse: the final layout of the Proposed Development 1.5 km buffer (750 m for access tracks)⁷⁵; and
- Cumulative assessment: the NHZ level is considered practical and appropriate for breeding species not connected to designated sites⁷⁸. The relevant NHZ for the Proposed Development will be the 'Western Southern Uplands and Inner Solway' (NHZ 19) and within which the Site is located.

Baseline Conditions

3.6.5. Baseline ornithological studies to inform the Proposed Development commenced in September 2022 and concluded in August 2024. These studies comprise a desk-based review of existing ornithological information relevant to the Proposed Development and two full consecutive years of ornithological field surveys, undertaken in accordance with NatureScot guidance⁷⁵.

3.6.6. This section provides a summary of baseline studies/ surveys that have been completed to date and includes the results of any surveys completed up to March 2024⁷⁹, over the 2022/2023 and 2023/2024 non-breeding seasons and 2023 breeding season.

3.6.7. Full details of all baseline studies including full details of ornithological survey methods and conditions will be presented within the EIAR and associated technical appendices.

3.6.8. Information pertaining to the locations of breeding sites of birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) will be restricted to a Confidential Volume of the EIAR in accordance with NatureScot guidance⁸⁰. This Volume of the EIAR will not be made publicly available but will be provided to NatureScot and Royal Society for the Protection of Birds (RSPB) Scotland to inform their own appraisal of the Proposed Development.

Desk Study

3.6.9. The following key sources have been consulted for existing ornithological information within proximity to the Proposed Development:

⁷⁶ SNH (2016) Assessing connectivity with Special Protection Areas. Available at: <https://www.nature.scot/doc/assessing-connectivity-special-protection-areas> [Accessed July 2024].
⁷⁷ Scarce breeding birds are those listed on Annex 1 of the EU Birds Directive or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and in the case of the Development consists of any raptor and owl species listed on either Annex 1 or Schedule 1.
⁷⁸ SNH (2018). Assessing the cumulative impacts of onshore wind farms on birds. Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds> [Accessed July 2024].
⁷⁹ Survey data from April to August 2024 is still under analysis at the time at submission of this scoping report.
⁸⁰ SNH (2016). Environmental Statements and Annexes of environmentally sensitive bird information: Guidance for developers, consultants and consultees Available at: <https://www.nature.scot/doc/environmental-statements-and-annexes-environmentally-sensitive-bird-information> [Accessed July 2024].

- NatureScot Sitelink²⁶; and
- British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) data⁸¹.

3.6.10. Consultation with the following key sources will also be undertaken as part of the EIA:

- RSPB Scotland;
- South Strathclyde Raptor Study Group (SSRSG) and Dumfries and Galloway Raptor Study Group (DGRSG); and
- South of Scotland Golden Eagle Partnership (SSGEP).

3.6.11. EIA documentation and/ or operational monitoring data from relevant nearby wind farm developments together with peer-reviewed literature will also be referred to where relevant and made available, and referenced within the EIAR.

Ornithological Field Surveys

3.6.12. Target species for survey and recording were identified in accordance with NatureScot guidance^{74 75}, knowledge of bird-habitat associations at the locale and across Scotland and preliminary survey visits.

3.6.13. The following ornithological field surveys have been completed between September 2022 and August 2024:

- Flight activity surveys (2023 and 2024 breeding seasons and 2022/2023 and 2023/2024 non-breeding seasons), from a total of eight Vantage Points (VPs);
- Scarce breeding bird surveys (2023 and 2024 breeding seasons);
- Black grouse surveys (2023 and 2024 breeding seasons);
- Breeding bird surveys (2023 and 2024 breeding seasons); and
- Winter walkover surveys (2022/2023 and 2023/2024 non-breeding seasons).

3.6.14. All field surveys have followed methodologies recommended by NatureScot⁷⁵ and relevant species-specific survey methodologies^{82, 83}.

3.6.15. Vantage Points and their associated viewsheds, together with distribution survey areas are illustrated on **Figures 3.6.1 and 3.6.2 (Appendix A)**.

3.6.16. It is clarified that the locations of VPs used for flight activity surveys have been amended over the course of baseline surveys, in response to changes in turbine layouts. A summary of observational effort (hours) completed to the end of August 2024 is provided in **Table 3.10**.

Table 3.10: VP flight activity survey summary

Survey Period	Survey Effort (Hours)							
	VP1	VP2	VP3	VP4	VP5	VP6	VP7	VP 8
2022/2023 Non-breeding season	36	36	36	36	36	-	-	-
2023 Breeding season	36	36	36	36	-	-	-	-
2023/2024 Non-breeding season	-	-	-	-	-	36	36	36
2024 Breeding season	-	-	-	-	-	36	36	36

81 Woodward, I.D., Calbrade, N.A., Birtles, G.A., Peck, K., Wotton, S.R., Shaw, J.M., Balmer, D.E. and Frost, T.M. (2024) Waterbirds in the UK 2022/23: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.
82 Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B., & Thompson, D. (2013). Raptors: a field guide for surveys and monitoring (3rd edition). The Stationery Office, Edinburgh.
83 Gilbert, G., Gibbons, D. W., & Evans, J. (1998). Bird Monitoring Methods. Royal Society for the Protection of Birds (RSPB), Sandy.

3.6.17. With the exception of turbines T6 to 8, T11 and T13, VP viewsheds will provide two years of flight activity survey coverage over the Proposed Development turbine layout. A single year of survey coverage will be provided for Turbines T6 to 8, T11 and T13.

3.6.18. Given the overall extensive survey coverage afforded over the flight activity survey area required for the Proposed Development, including two years of survey coverage over immediately adjacent and comparable moorland habitats, this is not considered a limitation to subsequent assessment. The approach to the estimation of collision morality risks over the two-year baseline survey period will be set out within the EIAR, including that for the 2022/2023 non-breeding and 2023 breeding season and which may for example, extrapolate flight activity recorded from VP6 during the 2024 breeding season.

Designated Sites

3.6.19. The Site is located within 20 km of three statutory designated sites for nature conservation with ornithological qualifying interests, as summarised in **Table 3.11** and illustrated in **Figure 3.6.3 (Appendix A)**.

3.6.20. Distances specified in **Table 3.11** are taken from the Site boundary to the designation boundary at its nearest point.

3.6.21. In review of the designations' qualifying interests, and on the basis of the core foraging ranges set out in NatureScot guidance⁷⁶ for breeding golden plover (3 km), hen harrier (2 km), merlin (5 km), peregrine (2 km) and short-eared owl (2 km) there is considered to be no potential for connectivity between the Proposed Development and any ornithological statutory designated site.

Table 3.11: Ornithological designated sites within 20 km

Designation	Distance	Qualifying Interests
Muirkirk and North Lowther Uplands SPA	13.55 km	Golden plover (breeding) Hen harrier (breeding) Hen harrier (non-breeding) Merlin (breeding) Peregrine (breeding) Short-eared owl (breeding)
North Lowther Uplands SSSI	13.55 km	Hen harrier (breeding) Hen harrier (non-breeding) Short-eared owl (breeding) Breeding bird assemblage ⁸⁴
Tweedsmuir Hills SSSI	18.41 km	Breeding bird assemblage ⁸⁵

Flight Activity

3.6.22. Flight activity surveys completed between September 2022 and March 2024 recorded flight activity for a total of 15 target species comprising: curlew, golden eagle, golden plover, goshawk, greylag goose, hen harrier, herring gull, lapwing, merlin, osprey, peregrine falcon, pink-footed goose, red kite, short-eared owl and white-fronted goose.

Scarce Breeding Birds

3.6.23. No breeding sites of any species of raptor listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were recorded within the Site or within 750 m of the Proposed Development

84 Amongst the species present are hen harrier, short-eared owl, merlin, peregrine, golden plover, red grouse, raven, dunlin, snipe, teal, curlew, redshank, whinchat and wheatear.
85 Which includes red grouse, black grouse, golden plover, curlew, dunlin, common snipe, ring ouzel, whinchat, stonechat and wheatear. Several Schedule 1 species also use the site for foraging while breeding off-site, in winter or on passage.

during scarce breeding bird surveys in 2023. Barn owl and red kite were however established to be breeding within 2 km of the Site.

- 3.6.24. Consultation will be undertaken with RSPB Scotland, the SSRSG and DGRSG, and a review of available information from nearby wind farm developments, to identify any additional existing relevant records of scarce breeding raptors and owls within the wider study area.

Moorland Breeding Birds

- 3.6.25. The breeding bird survey undertaken in 2023 established a moorland breeding bird assemblage within the survey area comprising common sandpiper, curlew, golden plover, lapwing, oystercatcher, redshank, ringed plover and snipe.
- 3.6.26. A single observation of turnstone on passage in May 2023 was also recorded.
- 3.6.27. Consultation will be undertaken with RSPB Scotland, and a review of available information from nearby wind farm developments, to identify any additional existing relevant records of breeding waders within the Study Area.

Black Grouse

- 3.6.28. Surveys to identify areas of black grouse activity, locate lek locations and establish lek sizes were conducted in April and May 2023.
- 3.6.29. No lek sites were recorded although possible lekking calls, east of Daer Reservoir, were heard during VP flight activity surveys in May 2023.
- 3.6.30. Consultation will be undertaken with RSPB Scotland, and a review of available information from nearby wind farm developments, to identify any additional existing records of black grouse within the Study Area.

Non-breeding Birds

- 3.6.31. Winter walkovers were undertaken over the 2022/2023 and 2023/2024 non-breeding seasons to record any aggregations of target species, with reference to Annex 1 of NatureScot guidance⁷⁴ and the potential for Schedule 1 raptor winter roosts within the Site.
- 3.6.32. No evidence of winter raptor roost locations was recorded within the Site or wider survey area.
- 3.6.33. Consultation will be undertaken with RSPB Scotland, the SSRSG and DGRSG, and a review of available information from nearby wind farm developments, to identify any additional existing relevant records of roosting Schedule 1 raptors within the wider study area.
- 3.6.34. The open moorland habitats within the Site are considered unsuitable for foraging migratory swans and geese.
- 3.6.35. In review of WeBS data for the Daer Reservoir Elvanfoot⁸⁶, located to the east of the Site, the reservoir is not known to be an important site for migratory waterfowl but has previously been recorded to support small numbers of common species over the wintering period including cormorant, goosander, goldeneye, tufted duck, teal and mallard.

Potential Significant Effects

- 3.6.36. The assessment will consider the potential for significant effects upon IOFs, during the construction, operation and decommissioning of the Proposed Development as set out below. Where appropriate, these construction and operational impacts will also be considered in a cumulative assessment.

⁸⁶ Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2022/23 © copyright and database right 2024. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers and previous support from WWT.

- 3.6.37. The key ornithological sensitivities identified from completed baseline studies to date include breeding moorland waders, for which breeding territories have been recorded within the Site.

- 3.6.38. The design of the Proposed Development will therefore seek to avoid existing suitable habitats for species including curlew. Opportunities to provide positive management for breeding waders will also be identified within the Site and wider area as part of the Proposed Development, in consultation with relevant landowners and stakeholders as necessary.

Construction

- 3.6.39. During construction of the Proposed Development, in the absence of specific mitigation, it is anticipated that potentially significant effects upon IOFs could arise from:
- nesting and foraging habitat loss, fragmentation or alteration associated with the Proposed Development infrastructure; and
 - disturbance to and loss of nest sites, eggs and/ or dependent young.

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

- 3.6.41. Impacts would likely to be greatest during the breeding season (generally between March and August, depending upon the species), but are considerably variable between locations and species. The potential for disturbances to occur to breeding sites of specific species will therefore be assessed on the basis of best available species guidance, including that provided by Goodship and Furness⁸⁷ which will be referred to within the EIAR.

- 3.6.42. Overall construction disturbance would be considered temporary and would occur only when construction activities are taking place. Furthermore, construction would be not expected to take place across the whole of the Site at once, but phased within smaller defined working areas across the Site.

Operation

- 3.6.43. The operation of the Proposed Development, including maintenance activities, has the potential to cause disturbance and displacement of birds from nesting or foraging habitats throughout the Proposed Development's operational lifetime. The extent of displacement is, however, highly variable between species and species-group and therefore a species-specific assessment will take place on the basis of baseline studies.

- 3.6.44. The potential for disturbances to occur to specific species, will therefore be assessed on the basis of best available species guidance, including that provided by Goodship and Furness⁸⁷ and which will be referred to within the EIAR.

- 3.6.45. The operation of the Proposed Development also has the potential to result in the risk of collisions with operational wind turbine blades or any other permanent infrastructure. Where the level of flight activity data justifies it, the NatureScot collision risk model⁸⁸ will be used to provide an estimate of collision rates of target species.

Decommissioning

- 3.6.46. The potential for impacts upon IOFs resulting from the decommissioning, including the removal of infrastructure from the Site, are considered to be similar to those identified for the construction

⁸⁷ Goodship, N. M., & Furness, R. W. (2022). Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283. Available at: <https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance> [Accessed July 2024].

⁸⁸ Band, W., Madders, M. & Whitfield, D.P. (2007) Developing field and analytical methods to assess avian collision risk at wind farms.

phase. Associated effects will therefore not be assessed exclusively within the EIAR, but assessed with reference to construction phase effects.

Matters to be Scoped Out

- 3.6.47. CIEEM ecological impact assessment guidelines⁵¹ stipulate that it is not necessary to carry out a detailed assessment of impacts upon ornithological features that are sufficiently widespread, unthreatened and/ or resilient to impacts of a development proposal.
- 3.6.48. NatureScot guidance^{74,57} similarly advises that there are some species, which with standard mitigation measures, are unlikely to experience a significant environmental effect as a result of the construction and/ or operation of onshore windfarms. This includes species that do not require surveys to inform the EIA but may require appropriate mitigation to ensure legislative compliance, such as breeding passerine species. As such, the assessment within the EIAR will be restricted to consideration of the effects upon ornithological features which are considered 'important' (i.e., the IOFs) on the basis of relevant guidance and professional judgement.
- 3.6.49. Where ornithological features are unlikely to be so important in the context of the Proposed Development as to warrant a detailed assessment or where they would be unlikely to be significantly affected at a population level on the basis of established baseline information, it is proposed that these are 'scoped out' of the impact assessment process. Embedded and/ or specific mitigation measures for such features may however, still be outlined as appropriate within the EIAR, to reduce and/ or avoid any potentially adverse effects, or to enable legislative compliance during construction/ decommissioning or operational maintenance works.
- 3.6.50. It is therefore proposed that the following species will be 'scoped out' since significant effects are unlikely:
- Common and/ or low conservation species not recognised in statute as requiring special conservation measures (i.e., not listed as Annex 1/ Schedule 1 species);
 - Common and/ or low conservation species not included in non-statutory lists (i.e., not listed as a Red-listed Birds of Conservation Concern species⁸⁹), showing birds whose populations are at some risk either generally or in parts of their range; and
 - Passerine species, not generally considered to be at risk from wind farm developments⁷⁵, unless being particularly rare or vulnerable at a national level.
- 3.6.51. Following the review of designated sites containing ornithological features within 20 km of the Site, there is considered to be no connectivity between the Site and any ornithological statutory designated site. Impacts upon species cited as qualifying interests of those designations listed in **Table 3.11** will therefore be considered as necessary against the species' wider countryside populations (e.g. NHZ populations⁹⁰).
- 3.6.52. A small number of golden eagle observations have been recorded during baseline ornithological surveys to March 2024 and consultation with the SSGEP is proposed in relation to the presence of any known breeding records for the species in the wider surrounding area. However, on the basis of the very low levels of species activity recorded and review of known and predicted spatial use of golden eagles in the area⁹¹, the Site is not identified as being likely to form an important part of any future active range. The potential for significant impacts upon golden eagle is therefore proposed to be scoped out of assessment within the EIAR.

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

90 Wilson, M. W., Austin, G. E., Gillings S., & Wernham, C. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504. pp72.

91 Fielding, A.H., Anderson, D., Barlow, C., Benn, S., Reid, R., Tingay, R., Weston, E.D. and Whitfield, D.P. (2024) Golden Eagle Populations, Movements, and Landscape Barriers: Insights from Scotland. *Diversity*, 16, pp. 195.

- 3.6.53. Baseline studies have also not identified the importance of the Site for species susceptible to elevated risks to collisions with lit turbines⁹² and as such impacts upon ornithological features relating to turbine, or any other infrastructure lighting where this is proposed, will not be assessed within the EIAR.

Scoped In Features

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

Cumulative effects

- 3.6.55. An assessment of cumulative effects will be undertaken following published guidance⁷⁸. Cumulative effects on each IOF relevant to the Proposed Development will be assessed in relation to other projects and activities subject to the EIA process within a relevant search area and their effects on a relevant reference population; for example, at an NHZ level for breeding species.

Approach to Mitigation

- 3.6.56. Significant effects on birds will be avoided/ minimised where possible during the design process, based on the locations of any established nest, roost and lek sites, key foraging areas, likely sensitivities of species identified and the adoption of suitable bird disturbance distances⁸⁷.
- 3.6.57. Good practice measures, as set out in NatureScot guidance⁹³ during construction/ decommissioning and operation of the Proposed Development will also be implemented (and the assessment undertaken on this basis). This will include the following:
- A Bird Disturbance Management Plan (BDMP) would be implemented as part of a CEMP or similar during the construction phase, to ensure that all reasonable precautions are taken to enable legislative compliance with regards the protection afforded to wild birds;
 - Pre- and during- construction/ decommissioning surveys carried out by an ECoW or suitably qualified ornithologist would take place as part of the BDMP; and,
 - A Biodiversity Enhancement Management Plan (BEMP) will be developed for the operational phase and agreed in consultation with relevant consultees, to enhance habitat for important ornithological features and to provide wider biodiversity improvements.

- 3.6.58. Where unmitigated potentially significant effects on IOFs are identified, additional measures to prevent, reduce and where possible offset these adverse effects will be proposed, in order to conclude a non-significant residual effect.

Assessment Methodology

Legislation, Policy and Guidance

- 3.6.59. The assessment will be carried out in accordance with the following guidance with reference to relevant legislation and policy:
- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018)⁵¹;

92 NatureScot (2020). The Effect of Aviation Obstruction Lighting on Birds at Wind Turbines, Communications Towers and Other Structures. NatureScot Information Note. Available at: <https://www.nature.scot/doc/information-note-effect-aviation-obstruction-lighting-birds-wind-turbines-communication-towers-and> [Accessed August 2024].

93 SNH (2016). Dealing with construction and birds [Online]. Available at: <https://www.nature.scot/doc/dealing-construction-and-birds> [Accessed July 2024].

- Developing field and analytical methods to assess avian collision risk at wind farms (Band et al., 2007⁸⁸);
- Bird monitoring methods (Gilbert et al., 1998⁸³);
- Disturbance distances review: An updated literature review of disturbance distances of selected bird species (Goodship and Furness, 2022⁸⁷);
- Raptors: a field guide to survey and monitoring (Hardey et al., 2013⁸²);
- Standing advice for planning consultations – Birds (NatureScot, 2022⁹⁴);
- Pre-application advice for onshore wind farms (NatureScot, 2024⁵⁷);
- Calculating a theoretical collision risk assuming no avoiding action (SNH, 2000⁹⁵);
- Assessing connectivity with Special Protection Areas (SNH, 2016⁷⁶);
- Environmental Statements and Annexes of environmentally sensitive bird information: Guidance for developers, consultants and consultees (SNH, 2016⁸⁰);
- Dealing with construction and birds (SNH, 2016⁹³);
- Recommended bird survey methods to inform impact assessment of onshore wind farms (SNH, 2017⁷⁵);
- Assessing significance of impacts from onshore wind farms outwith designated areas (SNH, 2018⁷⁴);
- Assessing the cumulative impacts of onshore wind farms on birds. Scottish Natural Heritage (SNH, 2018⁷⁸);
- Avoidance rates for the onshore SNH wind farm Collision Risk Model (SNH, 2018⁹⁶);
- Birds of Conservation Concern 5 (Stanbury et al., 2021⁸⁹); and
- Natural heritage zone bird population estimates (Wilson et al., 2015⁹⁰).

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

Assessment Method

- 3.6.61. The assessment will be undertaken adopting an established approach to the assessment of onshore wind farm developments in Scotland, as recommended in NatureScot guidance⁷⁴ and impact assessment guidance published by the Chartered Institute of Environmental and Ecological Management (CIEEM)⁵¹.
- 3.6.62. The assessment will consider in detail only those impacts upon IOFs considered sensitive to wind farm developments, as set out in Annex 1 of NatureScot guidance⁷⁴, and upon which potentially significant effects may occur.
- 3.6.63. The assessment will consider the following three main potential impacts to birds:
- direct displacement/ habitat loss through wind farm construction;
 - mortality through collision with operational turbines/ other infrastructure; and,
 - indirect displacement/ habitat loss through the avoidance of operational wind farm infrastructure.
- 3.6.64. The assessment will be supported by technical appendices and figures as appropriate and will include the following stages:

94 NatureScot (2022) Standing Advice for Planning Consultations – Birds. [Online]. Available at: <https://www.nature.scot/doc/standing-advice-planning-consultations-birds#:~:text=A%20bird%20survey%20should%20be,to%20a%20protected%20area%20for> [Accessed July 2024].

95 SNH (2000) Calculating a theoretical collision risk assuming no avoiding action. Available at: <https://www.nature.scot/doc/wind-farm-impacts-birds-calculating-theoretical-collision-risk-assuming-no-avoiding-action>. [Accessed August 2024].

96 SNH (2018) Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model. [Online]. Available at: <https://www.nature.scot/doc/wind-farm-impacts-birds-use-avoidance-rates-naturescot-wind-farm-collision-risk-model> [Accessed July 2024].

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

3.6.65. The approach to assessment will take account of existing guidance and published scientific literature in relation to birds and windfarms, together with professional judgement and experience of wind farm EIAs.

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

Cumulative Impacts

3.6.67. The assessment will include a cumulative impact assessment, in accordance with NatureScot guidance^{10 78} concerning the potential for significant:

- operational collision mortality risks; and
- operational displacement.

3.6.68. For cumulative assessments the NHZ level is considered practical and appropriate for breeding species not connected to designated sites and where sufficient information is available. In this case, the cumulative assessment for IOFs is proposed to be primarily undertaken at the NHZ 19 Western Southern Uplands and Inner Solway, within which the Site is located and where this is considered to provide a meaningful assessment. Where an alternative population level is considered more appropriate, e.g. a defined regional population, this will be set out with sufficient justification with the EIAR.

3.6.69. NatureScot will be consulted prior to the completion of the cumulative assessment for its record of cumulative impacts to ornithological features arising from onshore wind farm proposals at the NHZ 19 scale.

Questions to Consultees

Table 3.12: Questions to Consultees

ORN1	Do consultees agree that the range of ornithology surveys carried out are sufficient and appropriate?
ORN2	Do consultees agree that the survey areas and buffers adopted for each ornithology survey are appropriate?
ORN3	Are there any other relevant consultees who should be consulted, or other sources of available information that should be considered?
ORN4	Do consultees agree with the features/ impacts proposed to be scoped out from further assessment?

3.7. Hydrology, Hydrogeology and Geology

Overview

- 3.7.1. This Section provides an overview of the hydrology, hydrogeology, soils and geology context of the Proposed Development and sets out the proposed approach to the assessment of the potential effects associated with the Proposed Development in relation to hydrology, hydrogeology, soils and geology.

Study Area

- 3.7.2. The Study Area, in respect of potential impacts on water resources, will include the Site extent plus a 2 km buffer. Additionally, the assessment will consider potential hydrological downstream connectivity to areas extending beyond this buffer.
- 3.7.3. The Study Area, in respect of potential impacts on peat and carbon rich soils, considers land within the Site boundary.

Baseline Conditions

Hydrology

- 3.7.4. The south of the Site (approximately 50% of the total Site area) is within the catchment of Daer Water, upstream of Daer Reservoir. The central area of the Site (approximately 30% of the total Site area) drains to Kirkhope Cleuch which in turn flows to Daer Reservoir with the west of the central catchment draining directly to Daer Reservoir. The north of the Site (approximately 15% of the total Site area) drains via Meikle and Calf Burn to Daer Water downstream of the reservoir. A very small area (<5% of the total Site area) drains in a north westerly direction to Potrail Water.
- 3.7.5. Larger waterbodies to which the Site discharges have been assessed by SEPA under the Water Framework Directive (WFD) classification system⁹⁷ as follows:
- Daer Water (upstream of Daer Reservoir): Good Overall Condition
 - Daer Reservoir: Good Overall Condition
 - Daer Water (downstream of Daer Reservoir): Moderate Overall Condition
 - Potrail Water: Good Overall Condition
- 3.7.6. The surface water features in relation to the Site are shown on **Figure 3.7.1 (Appendix A)**.

Flood Risk

- 3.7.7. SEPA Flood Risk maps⁹⁸ show that only lower lying land in close proximity to watercourses on the Site is at risk of flooding from rivers, including areas at a high risk of flooding (1 in 10 (10%) annual probability). The majority of the site is assessed by SEPA to be at very low likelihood (>1 in 1,000 (0.1%) Annual Exceedance Probability).
- 3.7.8. SEPA mapping shows that the Site is at a very low risk of surface water flooding (less than a 1 in 1,000 (0.1%) annual probability). Flood risk in relation to the Site is shown on **Figure 3.7.2 (Appendix A)**.

⁹⁷ SEPA Water Framework Directive. Available at: <https://www.sepa.org.uk/data-visualisation/water-environment-hub> [Accessed July 2024]

⁹⁸ SEPA Flood Maps. Available at: <https://www.sepa.org.uk/environment/water/flooding/flood-maps/> [Accessed July 2024]

Water Resources

- 3.7.9. According to British Geological Society (BGS) 1:625 hydrogeological mapping⁹⁹, the majority of the Proposed Development is underlain by an aquifer of the Gala Group which is classified by the BGS as a Low productivity aquifer.
- 3.7.10. Following a request for information by Ramboll, SLC have confirmed that there are two PWS location in the south of the site and one PWS near the north boundary. However, these locations are outside of a 250m buffer from the Proposed Development. Further private water supplies identified in the surrounding area are not in potential hydrological/hydrogeological connection to the Site. The location of PWS will be confirmed through the site walkover and any additional PWS which are not recorded by SLC would be identified.
- 3.7.11. Approximately 30% of the Site is within the Daer Water Drinking Water Protected Area (DWPA, Surface). This DWPA also includes Daer Reservoir itself and it is assumed that public water supply is provided from the Daer Water Treatment Works, which are situated adjacent to and downstream from the reservoir. The southern area of the Site is within the catchment of Daer Water, upstream of Daer Reservoir, and there is therefore in hydrological connection to the Daer Water DWPA.
- 3.7.12. The location of the DWPA is shown on **Figure 3.7.3 (Appendix A)**.

Geology and Soils

- 3.7.13. According to BGS 1:50,000 geological mapping¹⁰⁰, areas of the Site are underlain by superficial deposits of diamicton and alluvial deposits on areas in close connection to watercourses (approximately 5% of the total Site area). Small areas are underlain by superficial deposits of peat (>5% of the total site area). Superficial geology is not recorded by the BGS on remaining areas of the Site indicating the absence of superficial deposits in these areas, where shallow soils may directly overlay the bedrock geology.
- 3.7.14. The Site is further underlain by bedrock geology of the Mindork Formation (Metasandstone and Metamudstone) in the north-west, a small area of Ballencleuch Law Granite (Granite) in the centre of the Site and Gala Unit 4 (Wacke) in the south-east.
- 3.7.15. According to the Scottish Government's carbon and Peatland Map (2016)²⁹ areas of Class 3 peat are present across approximately 75% of the Site. Smaller areas of Class 1 peat are recorded in the centre and south of the Site forming approximately 10% of the total Site area. The remaining areas are comprised of Class 5 peat or where no peat soils are recorded.
- 3.7.16. An extract of the Carbon and Peatland Map in relation to the Site is shown on **Figure 3.7.4 (Appendix A)**.
- 3.7.17. A Stage 1 peat depth survey was undertaken at the Site in June 2024. This comprised a peat depth probe measurement taken at 100 m intervals across the Site, with a total of 677 probing locations taken. A total of 839.82 ha of the Site was covered by the peat interpolation and, of this, the survey found that 22.99% of the surveyed Site was found to have peat >0.5 m depth present, with the deepest peat recorded at 2.7 m at the location 293817.4857, 605759.8712 within the Site. An interpolated peat depth plan is shown on **Figure 3.7.5 (Appendix A)**.

GWDTE

- 3.7.18. There is the potential that areas of habitat within the Site may be classified as potentially groundwater dependent, based on NVC habitat surveying. The presence of potential NVC communities will be established through ecological surveying (refer to section 3.5) and where such

⁹⁹ BGS Hydrological Mapping. Available at: <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/> [Accessed July 2024]

¹⁰⁰ BGS Geological Mapping. Available at: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> [Accessed July 2024]

habitats are identified, hydrological assessment will be carried out to determine the actual likelihood of groundwater dependency and the sensitivity of such habitats.

Potential Significant Effects

Impacts Scoped In

3.7.19. Based on the baseline conditions described above, it is anticipated that the following potentially significant effects could occur as a result of the Proposed Development:

- Alteration to in-channel or overland flow regimes through excavations, disruption to artificial drains, exposure of bare earth or rock, alteration to field drains and the construction of watercourse crossings.
- Increase in erosion and transport of sediment to watercourses as a result of constructing watercourse crossings, vegetation and soil stripping, excavations and dewatering activities. Potential effects include indirect effects on aquatic ecology, fluvial morphology and PWS.
- Impact on receiving soils, groundwater and watercourse quality through the release of contaminated water and stored chemicals used on-site during construction works. Potential effects include those on water quality and indirect effects on aquatic ecology.
- Permanent alteration or disruption to shallow groundwater flow, in particular through the construction of tracks, drainage measures and turbine foundations.
- The peat erosion potential of any peat disturbed may also be exacerbated as a consequence of localised drying of the peat and resultant oxidation.
- Excavation of soil and bedrock during the construction phase could cause localised disruption and interruption to groundwater flow. Interruption of groundwater flow would potentially reduce the supply of groundwater to GWDTE thereby causing an alteration/ change in the quality or quantity of and/ or the physical or biological characteristics of the GWDTE. Contamination of groundwater may also cause physical or chemical contamination to the GWDTE.
- Potential for loss/ disturbance to peat and carbon rich soils.

3.7.20. As the Site is located within the Daer Water DWPA, the EIAR will set out measures to ensure that the quality of water supply to Daer Reservoir would not be affected by the Proposed Development. Best practice measures to protect controlled waters during the construction phase will be set out in an outline CEMP as part of the EIAR and the design of the layout will be developed to minimise the potential impact to watercourses draining not the DWPA. However, consultation will be carried out with Scottish Water to determine any further suitable mitigation and water quality monitoring measures.

Impacts Scoped Out

3.7.21. Based on a review of SEPA Flood Maps, it is noted that flood risk is highly unlikely to increase as a result of the Proposed Development, either through development taking place on areas considered to be at risk of flooding or through an increase in flood risk downstream. It is therefore expected that the assessment of flood risk will form part of the EIA chapter, but without the need for separate reporting, including conceptual description of Sustainable Drainage System (SuDS) measures to be employed at the Site to ensure runoff rates from the Site are not increased.

3.7.22. A detailed assessment of potential flow rates at proposed watercourse crossing locations would be carried out by the contractor at the detailed design stage, such that all of the watercourse crossings identified for the Proposed Development would be designed in compliance with the requirements of The Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended. The design of watercourse crossings would also take account of the future 'with climate change' baseline

and (to avoid altering the flow regime) would be sized for a 1:200 year plus climate change flood event. As such, detailed flow rate calculations will not be carried out within the EIAR.

3.7.23. Local authority records indicate that PWS at the Site are outwith a 250 m buffer of infrastructure and construction activity of the Proposed Development, there will be no requirement for a separate detailed risk assessment for PWS abstractions (in line with SEPA Land Use Planning System (LUPS) SEPA Guidance Notes 4 and 31)⁶¹. If a very limited number of PWS are identified within this buffer, a risk assessment of the PWS will be incorporated into the hydrology assessment within the EIAR.

3.7.24. According to the BGS digital map and Hydrogeological and Groundwater Vulnerability Maps of Scotland (1:625,000)¹⁰¹, the Site overlies a Moderately productive and a Low productivity aquifer. If it is identified that potentially groundwater dependent vegetation communities (as identified by ecological surveying and classification of NVC communities) are not supported by groundwater supplies, in consultation with SEPA, it would be sought to scope out this assessment from the EIAR. The EIAR will provide a detailed assessment of potential effects the Proposed Development on surface water conditions supporting sensitive, non-groundwater dependent habitats.

Assessment Methodology

Baseline Characterisation

3.7.25. Publicly available SEPA data will be reviewed to confirm the sensitivity of receiving waters. Consultation with Scottish Water and SLC will be undertaken to confirm if there are public or private water supplies for potable water that are located within 2 km of the Site.

3.7.26. A Site walkover will be carried out to characterise the hydrology of the Study Area. The Site walkover will incorporate:

- a review of locations of PWS, as identified by desktop assessment and inspection of any further potential PWS locations as noted during the walkover;
- identification of smaller watercourses and hydrological features not identified through desktop assessment, where there is the potential for interaction with proposed infrastructure;
- surveying of existing and potential watercourse crossing locations in line with SEPA Guidance¹⁰² to provide information on crossing locations, Controlled Activities Regulations (CAR) requirements, channel dimensions and likely crossing types; and
- peat probing in accordance with good practice guidance and relevant methodologies¹⁰³. This will initially include a coarse resolution grid across the developable area of the Site, based on a 100 m grid (subject to access). The peat depth data will then be used to inform the design of the Proposed Development.

3.7.27. Peat surveys are to initially consist of a coarse resolution grid across the developable area of the Site, based on a 100 m grid (subject to access). If the initial survey confirms the presence of peat, a higher resolution peat probing survey will be undertaken, to include proposed infrastructure such as along proposed tracks (at 50 m intervals) and at 10 m crosshairs at turbine locations. This further peat probing will ensure that all infrastructure locations have sufficient peat depth information to support relevant studies on peat instability, peat excavation and reuse, and carbon calculations.

101 BGS Map Viewer. Available online: <https://www.bgs.ac.uk/geological-data/map-viewers/> [Accessed, July 2024]

102 SEPA (2010) Engineering in the Water Environment: good practice guide – River Crossings. Available at: <https://www.sepa.org.uk/media/151036/wat-sg-25.pdf> (Accessed July 2024)

103 Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland, on-line version only. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2018/12/peatland-survey-guidance/documents/peatland-survey-guidance-2017/peatland-survey-guidance-2017/govscot%3Adocument/Guidance%2Bon%2Bdevelopments%2Bon%2Bpeatland%2B-%2Bpeatland%2Bsurvey%2B-%2B2017.pdf> [Accessed August 2024]

3.7.28. Ecological surveying will determine the presence of any potentially GWDTE and both the desk based hydrological assessment and observations made during the site walkover will determine the extent to which groundwater is likely to support.

Method of Assessment

3.7.29. The assessment of the significance of impacts will be undertaken by determining the sensitivity of the specific attribute and the magnitude of the impact upon the attribute. Impacts will be assessed for all phases of the Proposed Development. Following the determination of impacts, mitigation measures will be identified, and residual impacts identified.

3.7.30. The assessment of potential impacts will inform the design of the Proposed Development and best practice measures would be implemented during the construction, operation and decommissioning of the Proposed Development, so that significant residual effects to the water and geological environment would be avoided. However, if potential significant residual effects to the water and geological environment are identified through the assessment process, suitable mitigation measures will be set out in the EIAR.

3.7.31. An outline CEMP will be included as a technical appendix to the EIAR which will include mitigation measures, environmental management requirements, outline method statements and environmental monitoring requirements.

3.7.32. The EIAR will consist of a baseline assessment (both desk-based and from fieldwork), the development of hydrological constraints, associated guidance and mitigation and an assessment of the impacts. Distinct and separate reports shall be provided, suitable for incorporation as technical appendices to the EIAR (as appropriate) covering:

- watercourse crossings description¹⁰⁴;
- GWDTE construction impact review⁶¹;
- peat survey results;
- Peat landslide hazard and risk assessment;
- Outline Peat Management Plan¹⁰⁵;
- borrow pit assessment; and
- Carbon Balance Report.

Cumulative Impacts

3.7.33. Potential cumulative environmental impacts to water, soils and geology resources will be assessed where concurrent proposed wind farm sites or construction activity may be in hydrological connection with the Proposed Development, or water resource receptors. Where potential cumulative impacts are identified, the same criteria as used for assessment of the Proposed Development will be employed.

¹⁰⁴ Assessment will be carried out in line with Scottish Government (2011, 2013, 2017) Water Environment (Controlled Activities) (Regulations) Scotland 2011 (CAR) and their further amendments of 2013 and 2017 Available at: <https://www.sepa.org.uk/regulations/water/> [Accessed July 2024]

¹⁰⁵ An outline Peat Management Plan will be prepared in accordance with SEPA guidance Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and Minimisation of Waste, Version 1 (2012). Scottish Renewables & SEPA. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2014/07/assessment-of-peat-volumes-reuse-of-excavated-peat-and-minimisation-of-waste-guidance/documents/guidance-on-the-assessment-of-peat-volumes-reuse-of-excavated-peat-and-the-minimisation-of-waste/govscot%3Adocument/Guidance%2Bon%2Bthe%2Bassessment%2Bof%2Bpeat%2Bvolumes%252C%2Breuse%2Bof%2Bexcavated%2Bpeat%252C%2BAnd%2Bthe%2Bminimisation%2Bof%2Bwaste.pdf> [Accessed July 2024]

Questions to Consultees

Table 3.13: Questions to Consultees

HYD1	Is the proposed assessment methodology, including proposed Study Areas, accepted?
HYD2	Are there any other relevant consultees who should be consulted, or other sources of information that should be considered?
HYD3	Do consultees agree with the features proposed to be scoped out from further assessment?

3.8. Traffic and Transport

Overview

3.8.1. This section provides an overview of the traffic and transport context for the Proposed Development and sets out the proposed approach to the assessment of potential effects associated with the Proposed Development on access, traffic and transport.

3.8.2. A Transport Assessment (TA) will be provided to review the impact of transport related matters associated with the Proposed Development. This will be appended to the EIAR and will be summarised into a traffic and transport chapter within the EIAR.

Study Area

3.8.3. The traffic, transport and access Study Area will be defined by the preferred abnormal load and general construction traffic routes to the Site.

3.8.4. The final choice of access route to Site has yet to be defined and will either be from the A702 or B7076. Access from either road will be described in detail in the EIAR once the access option has been confirmed.

3.8.5. The proposed Study Area that encompasses both access options includes the M74 between Junctions 13 and 15, the A702 between Junction 13 of the M74 through to Carronbridge, the B7076 from Junction 12 of the M74 through to Junction 15 and the Daer Water Road.

3.8.6. Access to the Site for AIL traffic will be from the M74 and the proposed access route will be clearly identified in the application submission.

3.8.7. All road links within the Study Area would be considered, along with active travel routes and core path routes directly affected by construction traffic movements.

Baseline Conditions

3.8.8. Traffic survey data for use in the assessment will be obtained from historic data sources that will include the UK Department of Transport (DfT) traffic survey database, Traffic Scotland database¹⁰⁶ and other public datasets that are available for the M74.

3.8.9. Automatic Traffic Count (ATC) surveys will be undertaken on the remaining network, depending upon the access solution adopted.

3.8.10. Future traffic flows will be factored from surveyed data using Low Growth factors estimated from National Road Traffic Forecasts¹⁰⁷.

¹⁰⁶ Available at: <https://roadtraffic.dft.gov.uk/regions/3> [Accessed August 2024]

¹⁰⁷ Available at: <https://www.gov.uk/government/publications/national-road-traffic-projections> [Accessed August 2024].

- 3.8.11. Further traffic data will be obtained from Crashmap UK¹⁰⁸ for the Study Area to inform the accident review for the immediate road Study Area.
- 3.8.12. A review of active travel routes and facilities will also be undertaken and will include SLC Core Path Plan¹⁰⁹ and Sustrans' National Cycle Route Map¹¹⁰.

Potential Significant Effects

- 3.8.13. Potential impacts that may arise during the assessment for users of the road and those residents along the delivery routes may include the following: severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents and safety.
- 3.8.14. The impacts on receptors within the Study Area will be reviewed during the construction phase, with a peak construction period assessment undertaken. This will review the maximum impact and present a robust assessment of the effects of construction traffic on the local and trunk road networks.
- 3.8.15. The effects that will be considered will be based upon percentage increases in traffic flow and reviewed against the impacts noted above.

Issues Scoped Out

- 3.8.16. Once operational, it is envisaged that the level of traffic associated with the Proposed Development would be minimal. Regular monthly or weekly visits would be made to the Site for maintenance checks. The vehicles used for these visits are likely to be 4x4 vehicles and there may also be the occasional need for an HGV to access the Site for specific maintenance and/ or repairs. It is considered that the effects of operational traffic would be negligible and therefore no detailed assessment of the operational phase is proposed.
- 3.8.17. The traffic generation levels associated with the decommissioning phase will be less than those associated with construction as some elements such as access roads would be left in place on the Site. As such, the construction phase is considered the worst-case assessment to review the impact in the Study Area. An assessment of the decommissioning phase would therefore not be undertaken, although a commitment to reviewing the impact of this phase would be made immediately prior to decommissioning works proceeding.

Assessment Methodology

Legislation, Policy and Guidance

- 3.8.18. The assessment will be carried out in accordance with the following guidance with reference to relevant legislation and policy:
- Transport Assessment Guidance (Transport Scotland, 2012)¹¹¹; and
 - Environmental Assessment of Traffic and Movement (IEMA, 2023)¹¹².
- 3.8.19. A detailed list of all relevant guidance, legislation and policy will be included in the EIAR.

¹⁰⁸ Available at: <https://www.crashmap.co.uk/> [Accessed August 2024]

¹⁰⁹ Available at: https://www.southlanarkshire.gov.uk/info/200166/getting_outdoors/1002/outdoor_access/3 [Accessed August 2024]

¹¹⁰ Available at: <https://explore.osmaps.com/?lat=51.641136&lon=-2.923634&zoom=8.4445&style=Standard&type=2d&overlays=os-ncn-layer> [Accessed August 2024]

¹¹¹ Transport Scotland (2012): Transport Assessment Guidance. Available at: https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management_dpmtag_ref_17_-_transport_assessment_guidance_final_-_june_2012.pdf [Accessed August 2024]

¹¹² IEMA (2023): Environmental Assessment of Traffic and Movement. Available at: <https://www.iema.net/resources/blogs/2023/07/12/iema-guidance-ea-of-traffic-and-movement/> [Accessed August 2024]

Method of Assessment

- 3.8.20. The Environmental Assessment of Traffic and Movement (IEMA, 2023)¹¹² sets out a methodology for assessing potentially significant environmental effects. In accordance with this guidance, the scope of assessment will focus on:
- potential impacts (of changes in traffic flows) on local roads and the users of those roads; and
 - potential impacts (of changes in traffic flows) on land uses and environmental resources fronting these roads, including the relevant occupiers and users.
- 3.8.21. The main transport impacts will be associated with the movement of general Heavy Goods Vehicle (HGV) traffic travelling to and from the Site during the construction phase of the Proposed Development.
- 3.8.22. The following rules taken from the guidance will be used as a screening process to define the scale and extent of the assessment.
- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%).
 - Rule 2: Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.
- 3.8.23. Increases below these thresholds are generally considered to be insignificant given that daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flow below this level predicted, as a consequence of the Proposed Development, will therefore be assumed to result in no discernible environmental impact and as such no further consideration will be given to the associated environment effects.
- 3.8.24. The estimated traffic generation of the Proposed Development will be compared with baseline traffic flows, obtained from new and existing traffic survey data, in order to determine the percentage increase in traffic.
- 3.8.25. Potentially significant environmental effects will then be assessed where the thresholds as defined above are exceeded. Suitable mitigation measures will be proposed, where appropriate. Standard mitigation measures that are likely to be included in the assessment are:
- Construction Traffic Management Plan (CTMP);
 - the design of suitable access arrangements with full consideration given to the road safety of all road users;
 - Staff Sustainable Access Plan; and
 - Framework Abnormal Load Transport Management Plan.
- 3.8.26. It is not anticipated that a formal TA will be required as these are not generally considered necessary for temporary construction works. Instead, a reduced scope TA would be provided and this will include a Route Survey Report for AIL.
- 3.8.27. Detailed swept path analysis will be undertaken for the main constraint points on the route from the port of entry (likely to be KGV Docks in Glasgow) through to the Site access junction to demonstrate that the turbine components can be delivered to Site and to identify any temporary road works which may be necessary. Each turbine is likely to require between 11 and 13 abnormal loads to deliver the components to Site. The components will be delivered on extendable trailers which will then be retracted to the size of a standard HGV for the return journey.

Cumulative impacts

3.8.28. A cumulative assessment will take place where a development has planning consent and would have a significant impact on the study network (i.e. over 30% increase in traffic flows). These traffic flows will be included into the baseline flows used within the assessment. Planning proposals that are in scoping and those which do not have planning consent are not considered, for the purposes of this assessment, to be committed development and as such these will not be included in the traffic and transport cumulative assessment.

Questions to Consultees

Table 3.14: Questions to Consultees

TT1	Do consultees agree with the proposed Study Area?
TT2	Do consultees agree that operational and decommissioning impacts can be scoped out of the EIA?

3.9. Noise and Vibration

Overview

3.9.1. This section provides an overview of the noise and vibration context for the Proposed Development and sets out the proposed approach to the assessment of potential effects associated with noise and vibration emitting activities of the Proposed Development on noise and vibration receptors.

Study Area

3.9.2. The Proposed Development is located within a rural location. There are a number of scattered residential properties around the Proposed Development with the closest properties being to the east (approximately 1 km) of the indicative turbine locations (based on the scoping layout as shown on **Figure 1.2, Appendix A**).

3.9.3. There are a number of operational wind farm developments near to the Proposed Development, including Clyde and its extension and Harestanes. There are two nearby consented wind farm developments in Crookedstane Wind Farm and Lion Hill Wind Farm. In addition, there are also several proposed wind developments including Dear Wind Farm, Harestanes South Wind Farm and Rivot Wind Energy Hub.

Baseline Conditions

3.9.4. The nearest Noise Sensitive Receptors (NSRs) surrounding the Proposed Development will be considered within the noise assessment, as well as receptors located in proximity to cumulative wind farm developments, as required.

3.9.5. Cumulative wind farm developments within 10 km of the Proposed Development will be considered within the cumulative operational noise assessment (although it may be possible to scope out some developments within that area if predicted noise levels at the nearest NSRs are low).

Potential Significant Effects

3.9.6. Where noise levels resulting from the construction, operation or decommissioning of the proposed wind farm are likely to be above the relevant limit levels, there is the potential for significant effects to occur.

3.9.7. Careful site design which considers the potential for noise impacts to occur will be implemented throughout all stages of the design of the Proposed Development.

Issues Scoped Out – Vibration

3.9.8. Given the nature of construction activities proposed and the relative distances from residential receptors, the risk of ground borne vibration impacting on residential receptors is considered very low, as such a vibration assessment is not proposed and this will be scoped out of the EIAR.

Issues Scoped Out - BESS Construction Noise

3.9.9. Construction noise effects associated with the BESS element of the Proposed Development are likely to be temporary in nature, with noise levels from construction activities varying over time as activities and plant start, stop and move around the Site. Construction activities that would generate noise include site preparation, the laying of hardstanding and the installation of plant.

3.9.10. The construction phase will be temporary with noise levels varying continually throughout this period. It is therefore not considered necessary to carry out specific construction noise assessment for the BESS aspect of the Proposed Development and on this basis it is proposed to be scoped out of the EIAR.

Issues Scoped Out - Decommissioning Noise

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

Issues Scoped Out - Low-Frequency Noise

3.9.12. In February 2023 [updated in May 2023, Rev 4], WSP was commissioned by the (former) UK Government Department for Business, Energy and Industrial Strategy (BEIS) to undertake a review of noise guidance for onshore wind turbines¹¹³ (the WSP/ BEIS Report). The primary aim of the review was to make a recommendation on whether, in view of Government policies on noise and Net Zero and available evidence, the existing guidance requires updating. Low-frequency noise and infrasound was also considered within this report.

3.9.13. The report considered a number of studies which investigated claimed links between adverse health symptoms and infrasound emissions from wind turbines. The report notes on page 116 that;

'It has been demonstrated in controlled experiments, including the involvement of participants self-reporting to be sensitive to wind turbine infrasound, that exposure to infrasound at levels representative of wind turbine immissions at dwellings is not associated with physiological or psychological health effects, whereas the expectation of effects from being exposed to wind turbine infrasound, and positive or negative messages influencing that expectation, can affect health symptom reporting.

Overall, the findings from the existing evidence base indicate that infrasound from wind turbines at typical exposure levels has no direct adverse effects on physical or mental health, and reported symptoms of ill-health are more likely to be psychogenic in origin.

It is expected that further evidence from ongoing studies into wind turbine infrasound effects will emerge soon, in particular from the NHMRC studies in Australia. However, based on the existing scientific evidence, it does appear probable that the above findings will not be contradicted by newer evidence.'

¹¹³ WSP (2023). A Review of Noise Guidance for Onshore Wind Turbines [Online] Available at: <https://www.wsp.com/en-gb/insights/wind-turbine-noise-report> [Accessed: August 2024]

3.9.14. Since the publication of this report, the National Health and Medical Research Council of Australia (NHMRC) study¹¹⁴ was presented in the Environmental Health Perspectives (EHP) journal, which was published by the United States National Institute of Environmental Health. This study aimed to test the effect of exposure to 72 hours of infrasound (designed to simulate a wind turbine infrasound signature) exposure on human physiology, particularly sleep; it concluded that, 'Our findings did not support the idea that infrasound causes WTS¹¹⁵. High level, but inaudible, infrasound did not appear to perturb any physiological or psychological measure tested in these study participants.'

3.9.15. It is therefore not considered necessary to carry out specific assessments of low frequency noise and infrasound and that they should be scoped out of the EIAR.

Issues Scoped Out - Amplitude Modulation

3.9.16. In its simplest form, Amplitude Modulation (AM), by definition, is the regular variation in noise level of a given noise source. This variation (the modulation) occurs at a specific frequency, which, in the case of wind turbines, is defined by the rotational speed of the blades (i.e. it occurs at the rate at which the blades pass a fixed point (e.g. the tower)), known as Blade Passing Frequency.

3.9.17. The WSP/ BEIS report¹¹³ discusses AM, and on page 119 states that; 'At present, it seems evident that reliable predictions of AM in the context of development planning and noise assessment guidance are unlikely to be practically feasible in the near future.'

3.9.18. At time of writing there is no agreed methodology which can be used to predict the occurrence of AM or an agreed methodology which can be used to determine whether the effects of AM, should it occur, are likely to be significant. On that basis it is considered therefore that AM should be scoped out of the EIAR.

Assessment Methodology

3.9.19. In line with IOA Good Practice Guidance¹¹⁶, separate consultation with SLC's Environmental Health Department will be undertaken prior to commencement of the noise assessment to agree the assessment methodology, background noise monitoring locations and the approach to the cumulative assessment. The proposed noise monitoring locations will be presented to SLC's Environmental Health Department as part of this separate consultation.

Construction Noise

3.9.20. A construction noise assessment will be undertaken to determine the potential noise impacts during the construction of the wind turbines and ancillary infrastructure for the Proposed Development. The construction noise assessment will be undertaken in accordance with BS5228-1: 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Noise' ¹¹⁷.

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

¹¹⁴ The Health Effects of 72 Hours of Simulated Wind Turbine Infrasound: A Double-Blind Randomized Crossover Study in Noise-Sensitive, Healthy Adults. Available at: The Health Effects of 72 Hours of Simulated Wind Turbine Infrasound: A Double-Blind Randomized Crossover Study in Noise-Sensitive, Healthy Adults - PMC (nih.gov)

¹¹⁵ WTS stands for Wind Turbine Syndrome which is a term for adverse human health effected related to the proximity of wind turbines.

¹¹⁶ Institute of Acoustics (2013). A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise.

¹¹⁷ BSI. (2014) BS 5228-1:2009 (amended 2014) 'Code of practice for noise and vibration control on construction and open sites - Part 1: Noise'

Operational Wind Turbine Noise

3.9.22. The Scottish Government's Planning Advice Note PAN1/2011 'Planning and Noise' ¹¹⁸ refers to the 'Onshore Wind Turbines' web-based document which in turn states that ETSU-R-97 'The Assessment of Rating of Noise from Windfarms'¹¹⁹ should be used by Planning Authorities 'to assess and rate noise from wind energy developments until such time that an update is available.' The web-based document also refers to the Institute of Acoustics (IOA) 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise'¹¹⁶ (IOA GPG) as a source, which provides:

'significant support on technical issues to all users of the ETSU-R-97 method for rating and assessing wind turbine noise, and should be used by all IOA members and those undertaking assessments to ETSU-R-97. The Scottish Government accepts that the guide represents current industry good practice.'

3.9.23. As referred to above, the aim of the WSP/ BEIS Report was to make a recommendation on whether, in view of Government policies on noise and Net Zero, and available evidence, the existing guidance requires updating. The report concluded that current guidance would benefit from further review and recommended updates in a number of areas.

3.9.24. The UK Government Department for Energy Security and Net Zero (DESNZ) has recently issued (May 2024) a tender seeking support to update ETSU-R-97. At the present time there are no set timescales for such an update to be published or adopted. In relation to the guidance that should be used to assess the Proposed Development, the Scottish Government Guidance is clear; the Onshore Wind Policy Statement 2022¹²⁰ states:

'3.7.1. 'The Assessment and Rating of Noise from Wind Farms' (Final Report, Sept 1996, DTI), (ETSU-R-97) provides the framework for the measurement of wind turbine noise, and all applicants are required to follow the framework and use it to assess and rate noise from wind energy developments.'

'3.7.4. Until such time as new guidance is produced, ETSU-R-97 should continue to be followed by applicants and used to assess and rate noise from wind energy developments.'

3.9.25. Therefore, in line with the recommendations contained within PAN1/ 2011, operational wind farm noise from the Proposed Development will be assessed in line with ETSU-R-97 and the IOA GPG.

3.9.26. ETSU-R-97 details a methodology for establishing noise limits for proposed wind farm developments and these limits should not be exceeded. ETSU-R-97 states that noise limits should be set relative to existing background noise levels at the nearest receptors and that these limits should reflect the variation in both turbine source noise and background noise with wind speed. Separate noise limits apply for quiet daytime and for night-time periods. Quiet daytime limits are chosen to protect a property's external amenity, and night-time limits are chosen to prevent sleep disturbance indoors, with windows open.

3.9.27. ETSU-R-97 recommends that wind farm noise for the quiet daytime periods should be limited to 5 dB(A)¹²¹ above the prevailing background or a fixed minimum level within the range 35 - 40 dB LA90,10min, whichever is the higher. The precise choice of criterion level within the range 35 -

¹¹⁸ Scottish Government. (2011) Planning Advice Note 1/2011: Planning and Noise [Online] Available at: <https://www.gov.scot/publications/planning-advice-note-1-2011-planning-noise/> (Accessed May 2023)

¹¹⁹ The Working Group on Noise from Wind Turbines (1996) The Assessment & rating of Noise from Wind Farms. Available at: https://assets.publishing.service.gov.uk/media/5a798b42ed915d07d35b655a/ETSU_Full_copy__Searchable_.pdf [Accessed August 2024]

¹²⁰ Available at: <https://www.gov.scot/publications/onshore-wind-policy-statement-2022/>

¹²¹ A logarithmic scale is used in noise level measurements because of this wide range. The scale used is the decibel (dB) scale which extends from 0 to 140 decibels (dB) corresponding to the intensity of the sound level. The correction factor is called 'A Weighting' and the resulting measurements are written as dB(A). The dB(A) is internationally accepted and has been found to correspond well with people's subjective reaction to noise.

40 dB(A) depends on a number of factors, including the number of dwellings in the neighbourhood of the wind farm (relatively few dwellings suggest a figure towards the upper end), the effect of noise limits on the number of Kilowatt-hour (kWh) generated (larger sites tend to suggest a higher figure) and the duration and level of exposure to any noise. These factors will be taken into account with justification for deriving suitable noise limits included in the noise assessment.

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

3.9.29. A background noise survey may not be required for situations where predicted wind turbine noise levels at the nearest noise sensitive properties is limited to an LA90,10min of 35 dB(A) up to wind speeds of 10 metres per second (m/s) at 10 m, as the protection of the amenity of those properties can be controlled through a simplified noise condition as detailed in ETSU-R-97. ETSU-R-97 states that:

'For single turbines or wind farms with very large separation distances between the turbines and the nearest properties, a simplified noise condition may be suitable. If the noise is limited to an LA90,10min of 35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity, and background noise surveys would be unnecessary.'

3.9.30. Where background noise levels are predicted to exceed the simplified noise criteria (or if cumulative noise has the potential to constrain development) then background noise monitoring will be undertaken at key representational noise monitoring locations around the Study Area for the Proposed Development. Noise limits will be set relative to existing background noise levels at the nearest receptors and these limits will reflect the variation in background noise with wind speed.

3.9.31. As noted above, consultation will be undertaken with SLC's Environmental Health Department prior to the commencement of the noise assessment to agree the proposed assessment methodology and preliminary noise monitoring locations.

3.9.32. As noted above, there are several operational wind farms in the area which will need to be considered very carefully with regards to undertaking the baseline noise survey as contamination from the operational schemes could influence and invalidate measurements (ETSU-R-97 makes it clear that background noise levels should be determined in the absence of wind turbine noise).

3.9.33. Section 5.2.3 of the IOA GPG provides four potential options for measuring suitable background noise levels where there are operational wind turbines in proximity to a given receptor and these are summarised as follows.

- Option 1 – switching off the existing wind farm during the background noise level survey (with associated significant cost implications).
- Option 2 – accounting for the contribution of the existing wind farm in the measurement data (e.g. directional filtering (only including background data when it is not influenced by the existing turbines (e.g. upwind of the receptor), but mindful of other extraneous noise sources (e.g. motorways), or subtracting a prediction of noise from the existing wind farm from the measured noise levels.
- Option 3 – utilising an agreed proxy location removed from the area acoustically affected by the existing wind farm/s.
- Option 4 - utilising existing background noise level data as presented within the EIARs for the existing wind farm(s) (the suitability of the background noise level data should be established).

3.9.34. Detailed consultation will be undertaken with the Environmental Health Department at SLC at an early stage in order to discuss the most appropriate approach to determining appropriate background noise levels and to discuss any alterations to the proposed approach set out in this report.

3.9.35. Where a survey is undertaken, equipment for measuring meteorological conditions will be installed at the Site for the duration of the noise assessment to collect wind speed and direction data at various heights. Depending on the monitoring equipment used data will be either measured directly at hub height or data collected at two different heights will be used to determine the wind speed at turbine hub height in accordance with the guidance in the IOA GPG. A series of simultaneous ten-minute measurements will be taken by the wind monitoring equipment over a period of at least two weeks.

3.9.36. The noise assessment for the Proposed Development will be undertaken in three stages.

- Stage one: Determine the 'Total ETSU-R-97 Noise Limits' which are applicable to the operation of all schemes in the area.
- Stage two: Undertake a cumulative assessment (where required) to determine whether predictions from all cumulative schemes meet the 'Total ETSU-R-97 Noise Limits'.
- Stage three: Derive a set of site-specific noise limits (for the Proposed Development) and undertake predictions to determine whether the Proposed Development can operate within the site specific noise limits.

3.9.37. The guidance contained in the IOA GPG will be used to establish suitable Site-Specific Noise Limits which fully take account of the proportion of the Total ETSU-R-97 Noise Limits which has been allocated too, and can realistically be used by, existing operational and consented wind farms/ turbines in the area.

3.9.38. The noise assessment will include predictions of likely wind turbine noise levels across a range of wind speeds to demonstrate compliance with the Total ETSU-R-97 and Site-Specific Noise Limits. A cumulative noise assessment will also be undertaken in order to consider the consented, operational and proposed (in planning) wind farms/ turbines within the vicinity of the Proposed Development. The assessment will be undertaken in accordance with ETSU-R-97 and the IOA GPG.

Battery Storage Noise

3.9.39. In respect to operational noise from non-wind developments, such as BESS, PAN 1/2011 refers to Assessment of Noise: Technical Advice Note (TAN)¹²². The TAN identifies BS 4142:2014+A1:2019 'Methods for Rating and Assessing Industrial and Commercial Sound'¹²³ and BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'¹²⁴ as appropriate methodologies for the assessment of environmental noise from proposed new developments or activities.

3.9.40. Noise from the operation of a BESS facility is generated from the use of multiple inverter units, transformers and battery cooling requirements, however, careful placement and mitigation measures can minimise noise impacts.

3.9.41. Depending on the final location of the BESS, an operational noise assessment may be required. Where necessary, an assessment will be undertaken in line with BS 4142:2014+A1:2019 and BS 8233:2014 as detailed above.

¹²² Scottish Government (2011) Assessment of Noise: technical advice note. Available at:

<https://www.gov.scot/publications/technical-advice-note-assessment-noise/> [Accessed August 2024]

¹²³ BSI (2014). Methods for Rating and Assessing Industrial and Commercial Sound. UK: BSI, 2014. BS4142:2014 + A1:2019.

¹²⁴ BSI (2014). Guidance on Sound Insulation and Noise Reduction for Buildings. UK: BSI, 2014. BS8233:2014.

Cumulative Impacts

- 3.9.42. Cumulative wind farm developments within 10 km of the Proposed Development will be considered within the cumulative operational noise assessment (although it may be possible to scope out some developments within that area if predicted noise levels at the nearest NSRs are low).

Questions to Consultees

Table 3.15: Questions to Consultees

NV1	Can the consultees confirm that they agree with the proposed assessment methodologies, specifically the use of ETSU-R-97 and the IOA GPG to assess operational wind turbine noise, BS 4142 and BS 8233 to assess BESS operational noise and BS 5228 to assess construction noise for the wind farm?
NV2	Can consultees agree that assessment of vibration, decommissioning noise, low-frequency noise and amplitude modulation be scoped out of the EIA?

3.10. Aviation

Overview

- 3.10.1. This section provides an overview of the aviation context for the Proposed Development and sets out the proposed approach to the assessment of potential effects associated with the Proposed Development on aviation and radar assets.

Study Area

- 3.10.2. The Study Areas are from the Site boundary and vary according to the aviation receptor as follows:
- 110 km for air defence and air traffic control Primary Surveillance Radars (PSRs);
 - 10 km for Secondary Surveillance Radars (SSRs);
 - 10 km for aeronautical radio navigation beacons;
 - 60 km for aerodromes with Instrument Flight Procedures (IFPs);
 - 20 km for all other licensed or certificated aerodromes;
 - 10 km for unlicensed aerodromes and landing sites; and
 - 25 km for meteorological office radars.

Baseline Conditions

- 3.10.3. The Site is located in uncontrolled airspace from ground level to 5,500 feet above sea level (asl). Above that level is the Class D controlled airspace of the Scottish Terminal Control Area (TMA), within which air traffic services are provided by the NATS En Route (NERL) Prestwick Centre. PSRs used to provide air traffic services to en route traffic in the vicinity of the Site include the following:
- Lowther Hill, 5 km north-west of the Site;
 - Great Dun Fell, 103 km south-east of the Site;
 - Cumbernauld, 65km north-west of the Site; and
 - Glasgow Airport, 72 km north-west of the Site.
- 3.10.4. Glasgow Airport is located 72 km north-west of the Site. It is equipped with two PSR's, one of which is designed and installed for the specific purpose of mitigating the effects of wind turbines on PSR. Glasgow Airport has IFPs for arrival to and departure from both runway directions at the airport. These are the subject of a current Airspace Change Proposal (ACP) to the CAA which includes Performance Based Navigation (PBN – satellite based) procedures.

- 3.10.5. Prestwick Airport is located 60 km north-west of the Site. It is equipped with two PSRs, one of which is designed and installed for the specific purpose of mitigating the effects of wind turbines on PSR. Prestwick Airport has IFPs for arrival to and departure from three of the four runway directions at the airport.
- 3.10.6. The Site is located in military Low Flying Area 20 (T), the Borders Tactical Training Area (TTA), where fixed wing military aircraft may be authorised to fly at less than 250 feet above ground level (agl) during daylight hours. For military night low flying the Site is located in Allocated Region 2B, for use primarily by fixed wing aircraft.

Potential Significant Effects

- 3.10.7. Wind turbines have the potential to reduce the performance of radars used for air traffic control, air defence and meteorological forecasting, and of aeronautical radio navigation and communications equipment. They may also pose an obstacle hazard to aircraft in the vicinity of aerodromes or engaged in low altitude flight.
- 3.10.8. The Proposed Development has the potential to cause significant effects on the aviation assets and activities listed below.
- NATS En Route Lowther Hill and Cumbernauld PSRs, as the Proposed Development is within the operational range of and has the potential to be detected by these radars. Impacts would occur only during the operational phase since stationary objects do not appear on PSRs used for air traffic control.
 - NATS En Route radio communications transmitter/ receiver equipment on Green Lowther, as the Proposed Development is within the statutory safeguarding zone of these facilities.
 - NATS En Route Distance Measuring Equipment (DME) on Green Lowther, as the Proposed Development is within the statutory safeguarding zone of these facilities.
 - Prestwick Airport IFPs, as the Site is within the area where the effects of tall constructions on IFPs are required to be assessed. Impacts may occur in the construction, operation and decommissioning phases.
 - Military low flying, as the Site is located in a specialist low flying area where flight at less than 250 feet agl is permitted.

Issues Scoped Out

- 3.10.9. The following aviation assets are proposed to be scoped out of the assessment.
- NATS En Route Great Dun Fell PSR and the Glasgow Airport and Prestwick Airport PSRs - the radar line of sight modelling demonstrates the line of sight to the Proposed Development for each asset will be blocked by terrain.
 - Glasgow Airport IFPs - the Site is further than 60 km from all such procedures.

Assessment Methodology

- 3.10.10. The aviation assessment of the Proposed Development will be conducted in accordance with the guidance set out in CAP 764, the Civil Aviation Authority (CAA) policy and guidance on wind

turbines¹²⁵; CAP 670, the CAA guidance on Air Traffic Services Safety Requirements¹²⁶; and CAP 785, the CAA guidance on instrument flight procedure design and safeguarding¹²⁷.

- 3.10.11. Radar line of sight assessment will be conducted using proprietary software and digital terrain data with an appropriate resolution. For radars found to have line of sight to the proposed turbines, an operational impact assessment will be carried out and options for mitigating any effects considered.
- 3.10.12. Effects on military low flying will be assessed by reviewing the location of the proposed turbines in relation to topography and other obstacles and avoidance features in the UK Military Low Flying System.
- 3.10.13. The proposed turbines will exceed 150 m in height and will therefore be subject to mandatory requirements for obstacle lighting under the Air Navigation Order. An aeronautical study will be conducted of the potential for an alternative lighting scheme in which not every turbine is fitted with lights. This will be submitted to the CAA for approval.
- 3.10.14. Consultations will be carried out with NATS En Route, the MoD, the CAA and Prestwick Airport.

Questions to Consultees

Table 3.16: Questions to Consultees

AV1	Do consultees agree with the methods proposed to determine the aviation baseline?
AV2	Do consultees agree with the aviation assets / issues proposed to be scoped into the assessment?
AV3	Do consultees agree with the aviation assets / issues proposed to be scoped out of the assessment?

3.11. Telecommunications

Overview

- 3.11.1. This section provides an overview of the telecommunications context for the Proposed Development and sets out the proposed approach to the assessment of potential effects associated with the Proposed Development on telecommunication infrastructure.

Study Area

- 3.11.2. The Study Area for fixed telecommunications links is a 1.5 km radius from the Site. The Study Area for television reception is a 70 km radius from the Site, in order to encompass all transmitters serving the area.

Baseline Conditions

- 3.11.3. The Office of Communications (Ofcom) is responsible for the licensing of two-way radio transmitters and holds a register, the Spectrum Information Portal¹²⁸, of most microwave links.
- 3.11.4. This portal shows six microwave links passing within 1.5km of the Site boundary. Terrestrial television signals in the area are received from the Black Hill and Caldbeck main transmitters.

¹²⁵ CAA (2016) CAP 764: Policy and Guidance on Wind Turbines. Available at: <https://www.caa.co.uk/publication/download/14561> [Accessed August 2024]

¹²⁶ CAA (2019) CAP 670: Air Traffic Services Safety Requirements. Available at: <https://www.caa.co.uk/publication/download/17362> [Accessed August 2024]

¹²⁷ CAA (2010) CAP 785B: Implementation and Safeguarding of Instrument Flight Procedures (IFPs) in the UK. Available at: <https://www.caa.co.uk/publication/download/13875> [Accessed August 2024]

¹²⁸ Available at: <https://www.ofcom.org.uk/spectrum/information/spectrum-information-system-sis/spectrum-information-portal> [Accessed August 2024]

- 3.11.5. Consultations with the Joint Radio Company (JRC), Atkins and Arqiva have determined that there are no other fixed radio telecommunications links with the potential to be affected by the Proposed Development.

Potential Significant Effects

- 3.11.6. Wind turbines can cause electromagnetic interference through physical and electrical interference, which has the potential to be significant if not appropriately mitigated. Physical interference can cut across electromagnetic signals resulting in ghosting effect which largely affects television signals and radar. Electrical interference arises as a result of the operation of the generator within the nacelle of the turbine and can affect communication equipment in proximity to the turbines.
- 3.11.7. The Proposed Development has the potential to cause significant effects on the six fixed telecommunications links identified as passing within 1.5km of the Site boundary.
- 3.11.8. Effects on terrestrial television reception may occur if the wind turbines are located between terrestrial television subscribers and the transmitters from which they receive their television signals.
- 3.11.9. Where possible, any potential effects on radio-communication links and television will be mitigated during the turbine layout design stage by the use of exclusion zones around any link paths. Where this is not feasible suitable mitigation measures will be agreed with the system operators.

Assessment Methodology

- 3.11.10. All microwave and UHF scanning telemetry links and television re-broadcast links with the potential to constrain the site will be mapped and modelled and appropriate buffers applied using (a) industry standard separations, (b) operator-requested separations and (c) Ofcom-recommended 'Bacon Formula' Fresnel Zone separations.
- 3.11.11. Potential impacts on terrestrial television reception will be assessed by applying BBC/ Ofcom-recommended buffer zones around the development and reviewing the presence of domestic properties in those zones. Data on the use of satellite TV vs terrestrial TV services in the area will also be reviewed.
- 3.11.12. The appropriate buffers will be fed into the design process of the Proposed Development, with the primary aim of preventing effects by siting turbine infrastructure outwith the respective safeguarding areas. Should turbines be proposed to be sited within the identified safeguarding areas, mitigation measures will be agreed with the relevant operator(s).

Questions to Consultees

Table 3.17: Questions to Consultees

TEL1	Do consultees agree with the methods proposed to determine the baseline?
TEL2	Do consultees agree with the telecommunications assets / issues proposed to be scoped into the assessment?
TEL3	Do consultees agree with the telecommunications assets / issues proposed to be scoped out of the assessment?

4. TOPICS SCOPED OUT OF THE ASSESSMENT

4.1. Socio-economics

- 4.1.1. Socio-economic and tourism assessments of onshore windfarms over the last decade have found no significant adverse effects in terms of the EIA regulations and there is no reason to expect significant adverse effects for the Proposed Development. Furthermore, tourism reports^{129 130} have concluded that there is 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 farms developments.
- 4.1.2. It is therefore proposed to scope socio-economics, recreation and tourism out of the EIAR.
- 4.1.3. However, it is recognised that socio-economic and tourism issues will be of interest to stakeholders and local authorities and so a separate Socio-Economic and Tourism Report will be provided to accompany the Application. This will include consideration of local tourism activity, direct effects such as employment generation and any indirect or induced effects from the Proposed Development.
- 4.1.4. The Socio-Economic and Tourism Report will consider the following Study Areas:
- Socio-economics - South Lanarkshire and the UK, with a focus on the electoral ward of the Site, Clydesdale East.
 - Tourism - 15 km radius of the Site, consistent with previous research of the relationship of tourism and onshore wind developments.
- 4.1.5. The socio-economic and tourism assessment will primarily be a desk-based study with consultation undertaken with the local community to further inform the baseline and inform any opportunities from the Proposed Development which arise therein.
- 4.1.6. The report will take into account the relevant local and national policy objectives for socio-economic and tourism, with the most relevant objectives expected to be included in the following strategies.
- Scotland's National Strategy for Transformation¹³¹.
 - Scotland's National Performance Framework¹³².
 - Scotland's Energy Strategy¹³³.
 - Onshore Wind Policy Statement 2022¹²⁰.
 - Scottish Tourism Alliance (2021), Scotland Outlook 2030¹³⁴.
 - South Lanarkshire Economic Strategy 2013-2023¹³⁵.
- 4.1.7. The report will also consider whether the Proposed Development maximises net economic benefit, in the context of NPF4 Policy 11(c). which states that "*development proposals will only be supported*

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

130 BiGGAR Economics. (2017). Wind Farms and Tourism Trends in Scotland: A Research Report.

131 Scottish Government (2022) Scotland's National Strategy for Economic Transformation. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/03/scotlands-national-strategy-economic-transformation/documents/delivering-economic-prosperity/delivering-economic-prosperity/govscot%3Adocument/delivering-economic-prosperity.pdf> [Accessed August 2024]

132 Scottish Government (2023) National Performance Framework. Available at: <https://blogs.gov.scot/national-performance-framework/> [Accessed August 2024]

133 Scottish Government (2023) Draft Energy Strategy and Just Transition Plan. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/01/draft-energy-strategy-transition-plan/documents/draft-energy-strategy-transition-plan/draft-energy-strategy-transition-plan/govscot%3Adocument/draft-energy-strategy-transition-plan.pdf> [Accessed August 2024]

134 Scottish Tourism Alliance (2021), Scotland Outlook 2030. Available at: <https://scottishtourismalliance.co.uk/wp-content/uploads/2020/03/Scotland-Outlook-2030.pdf> [Accessed August 2024]

135 South Lanarkshire Council (2013) South Lanarkshire Economic strategy 2013 -2023. Available at: https://www.southlanarkshire.gov.uk/downloads/file/8508/south_lanarkshire_economic_strategy_2013_-2023 [Accessed August 2024]

where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities".

- 4.1.8. There is no specific legislation or guidance available on the methods that should be used to assess the socio-economic impacts of the Proposed Development. The proposed method will however be based on established best practice, including that used in UK Government and industry reports on the sector. The assessment will draw from two studies by BiGGAR Economics on the UK onshore wind energy sector¹³⁶, a report published by RenewableUK and the Department for Energy and Climate Change (DECC) in 2012 on the direct and wider economic benefits of the onshore wind sector to the UK economy and a subsequent update to this report published by RenewableUK in 2015¹³⁷, as well as more recent industry data on the onshore wind sector and its supply chain, including evidence from South Lanarkshire.
- 4.1.9. The assessment will consider potential direct and indirect socio-economic impacts of each of the elements of the Proposed Development. Specifically, this will relate to the expenditure associated with the Proposed Development and the share of contracts that can be secured in the Study Area, and the level of activity/ employment that can be supported as a result.
- 4.1.10. There is also no formal legislation or guidance on the methods that should be used to assess the effects that wind farm development may have on tourism interests. The proposed method will consider specific attractions or tourism facilities that make the local area distinctive and attractive and identify the potential impact of the Proposed Development on these key features.
- 4.1.11. The assessment will also consider the extent to which nearby wind farms may have cumulative socio-economic effects, for example increasing the capacity of the local supply chain or contributing to community development in the area.
- 4.1.12. It is anticipated that the contents of the Socio-Economic and Tourism Report will include:
- an introduction, including scope of assessment and methodology;
 - economic development and tourism strategic context;
 - baseline socio-economic context;
 - baseline tourism and recreation context;
 - a socio-economic assessment;
 - a tourism and recreation impact assessment;
 - proposed measures and actions to maximise local economic and community impacts;
 - proposed measures and actions to mitigate any harmful effects (if required); and
 - summary of findings and a conclusion.

4.2. Population and Human Health

- 4.2.1. The EIA will consider "human health" in terms of amenity through the assessment of potential likely significant effects associated with water supplies, air quality, noise, traffic, visual amenity and shadow flicker. Low population density in proximity to the Proposed Development means impacts on the amenity of householders, through issues such as noise and visual impacts, will be minimised. No other sources or pathways for effects on human health have been identified.
- 4.2.2. The potential for likely significant effects on "population" will be considered within the Socio-Economic and Tourism Report which will accompany the Application (as described above).

136 BiGGAR Economics (2012) Onshore Wind: Direct & Wider Economic Impacts and BiGGAR Economics (2015) Onshore Wind: Direct and Wider Economic Benefits.

137 RenewableUK (2015), Onshore Wind: Economic Impacts in 2014. Available online: https://cdn.ymaws.com/www.renewableuk.com/resource/resmgr/publications/reports/onshore_economic_benefits_re.pdf [Accessed August 2024]

4.2.3. Appropriate control measures to ensure that potential construction effects on air, noise and water quality are managed appropriately will be addressed through an outline CEMP which will form a technical appendix to the EIAR. A similar decommissioning management plan would be prepared for the decommissioning phase in line with the relevant guidance requirements at that time.

4.2.4. As such, a separate human health impact assessment chapter and population impact assessment chapter will not be presented in the EIAR.

4.3. Risk of Major Accidents and/or Disasters

4.3.1. The construction, operation and decommissioning of the Proposed Development would be undertaken under relevant health and safety regulations including the requirements of the Construction (Design and Management) Regulations 2015¹³⁸. A risk assessment process will be followed by the Principal Designer during the design stage, which will ensure that all potential risks are identified at an early stage and appropriate mitigation is implemented.

4.3.2. The risk of a major accident or disaster occurring as a result of the Proposed Development is therefore considered to be low. During the operational phase, routine maintenance inspections would be completed in order to ensure compliance.

4.3.3. Accordingly, it is proposed to scope out an assessment of major accidents and disasters from the EIAR.

4.3.4. It should however be noted that, if required, a peat landslide risk assessment will be undertaken and included as a technical appendix to the EIAR.

4.4. Ice Throw

4.4.1. Standard mitigation for the risk of ice throw comprises off-site monitoring to enable the deactivation of turbines on sensing ice accumulation, as well as physical and visual warnings for both site personnel and third parties.

4.4.2. In line with current guidance a permanent warning sign at the Site entrance is proposed to alert the public to this issue.

4.4.3. As such, no detailed assessment of ice throw is proposed as part of the EIAR.

4.5. Air Quality

4.5.1. The Proposed Development is not considered likely to give rise to significant impacts on air quality. The main activities that could have potential impacts will be limited to construction works (e.g., dust from soil stripping and earthworks, from excavation, potentially including occasional blasting, and from vehicles running over unsurfaced ground) and exhaust emissions from fixed and mobile construction plant and construction vehicles.

4.5.2. Construction works would be localised, short term, intermittent and controllable through the application of good construction practice. Fixed and mobile plant would be limited in size and number and would operate for short periods. Measures to manage air quality during construction, such as dust management, will be included in the outline CEMP to be included as a technical appendix to the EIAR.

4.5.3. The contributions of exhaust emissions (NO₂ and PM₁₀) from construction vehicles would likely be low, and orders of magnitude below current UK Air Quality Strategy Objectives¹³⁹.

4.5.4. Once operational, the only source of emissions would be from occasional maintenance vehicles, and accordingly any impacts would be negligible.

¹³⁸ Available at: <https://www.legislation.gov.uk/ukxi/2015/51/contents/made> [accessed July 2024].

¹³⁹ Available at https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update_20230403.pdf [Accessed August 2024]

4.5.5. Therefore, it is proposed that air quality is scoped out of the EIAR.

4.6. Climate Change

Carbon Emissions

4.6.1. The Proposed Development itself will contribute positively to helping Scotland (and the UK) meet its targets for carbon reduction through the production of low carbon renewable energy and replacement of generating capacity that would otherwise be delivered by more carbon intensive generation sources.

4.6.2. However, it is acknowledged that the Proposed Development will still give rise to carbon emissions associated with its construction. A transparent account of carbon emissions for the Proposed Development throughout its lifecycle will be provided in the form of a Carbon Balance Assessment, which will be prepared and submitted as a technical appendix to the EIAR.

4.6.3. This report will include a calculation of the expected carbon savings over the lifetime of the Proposed Development and will be presented using the latest version of the Scottish Government's Carbon Calculator Tool¹⁴⁰. This remains the suitable standardised tool for use in relation to net carbon saving calculations for wind farm developments across the UK.

4.6.4. The assessment will be undertaken in accordance with the Scottish Government's recommended methodology¹⁴¹ and will present the carbon emissions associated with construction materials and the wind turbines themselves, including ground conditions, access preparations, foundation excavations, materials used on-site, the transportation of materials and components to Site, and any other carbon loss (e.g. through the degradation of peat/ peaty soils).

Climate Resilience

4.6.5. The vulnerability of the Proposed Development to climate change will be considered as part of the detailed design process, which will consider the potential consequences of climate change (e.g. increased flood risk potential and more extreme weather conditions).

4.6.6. The Proposed Development's response to climate resilience risks will be provided in the introductory chapters of the EIAR and description of the Proposed Development. Consideration will be given to proposed mitigation measures (both inherent and additional) to ensure the Proposed Development is resilient to a changing climate.

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

4.7. Shadow Flicker

4.7.1. Under certain combinations of geographical position, times of day and year, the sun may pass behind the turbine rotor and cast a shadow flicker over the windows of neighbouring buildings. When the blades rotate and the shadow passes a window, to a person within that room, the shadow appears to flick on and off; this effect is known as 'shadow flicker'. This effect occurs only within buildings where the flicker appears through a window aperture and in the UK this typically occurs only in buildings within 130 degrees either side of north relative to a turbine.

¹⁴⁰ Available at <https://informatics.sepa.org.uk/CarbonCalculator/index.jsp> [Accessed September 2024]

¹⁴¹ Nayak et. al., (2010) Scottish 'Calculating Carbon Savings from Wind Farms on Scottish Peatlands – A New Approach'. Available at: <https://www.gov.scot/publications/calculating-carbon-savings-wind-farms-scottish-peat-lands-new-approach/> [Accessed September 2024]

- 4.7.2. Scottish Government Onshore Wind Turbines: Planning Advice¹⁴² states that "*where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), 'shadow flicker' should not be a problem.*"
- 4.7.3. Once the final turbine layout and parameters have been selected, should any buildings be located within 10 rotor diameters and within 130 degrees either side of north relative to the proposed turbines, the potential for shadow flicker effects from the Proposed Development will be addressed through the design process.
- 4.7.4. The final turbine layout will aim for a 10-rotor diameter separation from as many residential properties as possible. If shadow flicker cannot be avoided through design, technical mitigation solutions would be implemented and a Shadow Flicker Mitigation Protocol would be proposed and agreed if required. It is anticipated that a suitably worded planning condition would be part of any consent that requires potential shadow flicker effects to be appropriately mitigated and avoided.
- 4.7.5. On this basis, shadow flicker will not be considered further in the EIAR.

4.8. Eskdalemuir Seismic Array

- 4.8.1. The Site is located between 27 km and 33 km west of the Eskdalemuir Seismic Array (EKA) and as such operation of the wind farm is anticipated to be subject to a Seismic Impact Limit (SIL).
- 4.8.2. The design of the Proposed Development will need to ensure that the SIL can be met.
- 4.8.3. Initial calculation of the anticipated likely seismic impact of a representative candidate turbine at an early layout has been undertaken. This has confirmed that it is anticipated that a wind farm can be delivered at the Site within an established SIL, on the assumption that an appropriate seismic budget allocation can be made available to the Proposed Development.
- 4.8.4. As such it is not anticipated that the Proposed Development would have a significant effect on the operation of the EKA and impacts on the EKA are proposed to be scoped out of the EIA.
- 4.8.5. A technical report demonstrating the anticipated performance of the Proposed Development in relation to the EKA will be provided as a technical appendix to the EIAR.

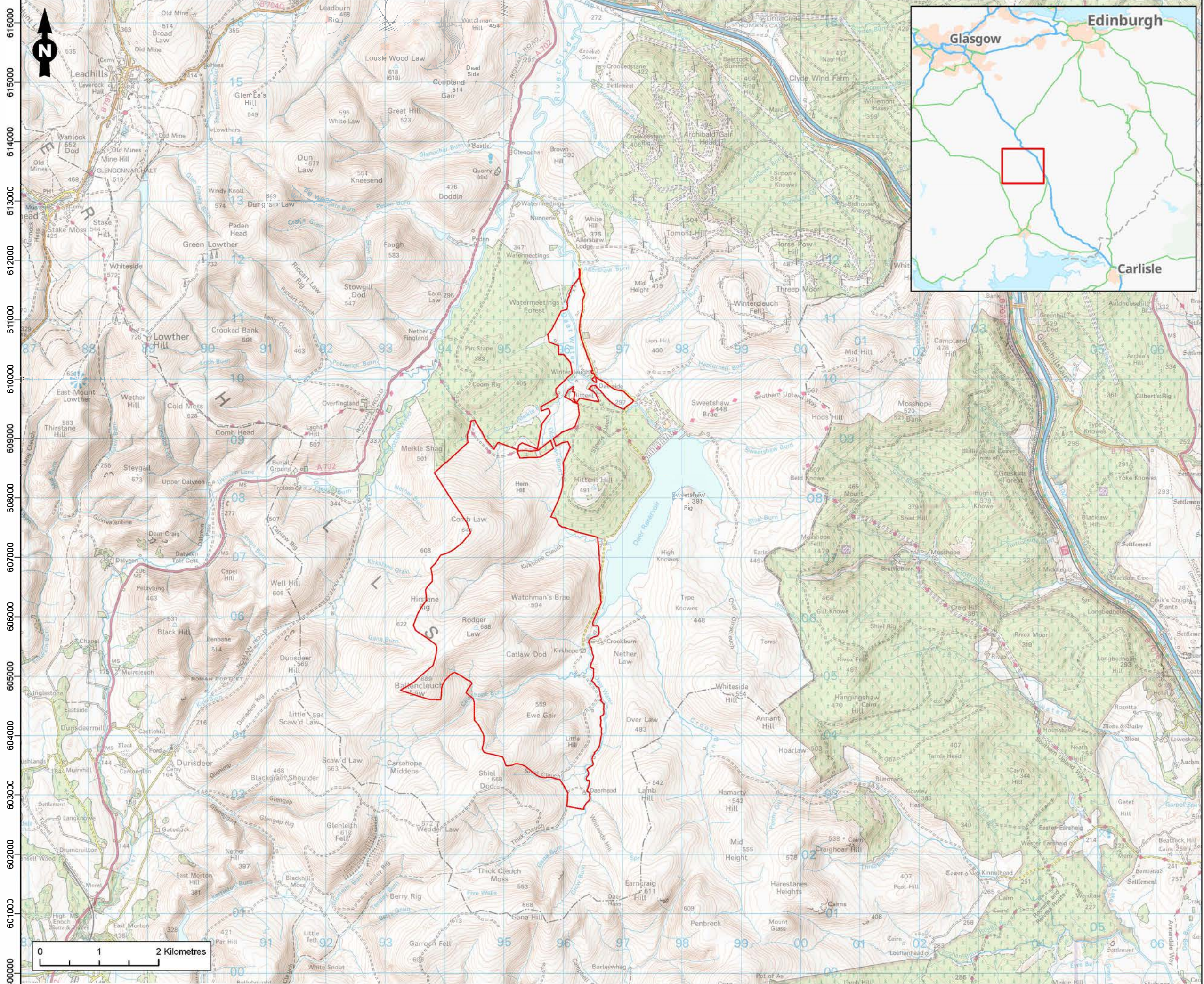
¹⁴² Scottish Government. Web Based Renewables Advice 'Onshore Wind Turbines'. Scottish Government. [Online] 2014. <http://www.gov.scot/Topics/Built-Environment/planning/Policy/SubjectPolicies/Utilities/Delivering-heat-electricity/renewables-advice> [accessed July 2024]

5. NEXT STEPS

- 5.1.1. This report is provided to support a request under Regulation 12 of the EIA Regulations for a 'Scoping Opinion' regarding the information to be provided within the EIAR which will accompany the Application.
- 5.1.2. Informing its opinion, the Scottish Ministers will seek the views of various organisations with an interest in the Proposed Development, inviting comments on the proposed scope of and approach to the EIA proposed herein.

APPENDIX A FIGURES

287000 288000 289000 290000 291000 292000 293000 294000 295000 296000 297000 298000 299000 300000 301000 302000 303000 304000 305000 306000



Legend

Site Boundary

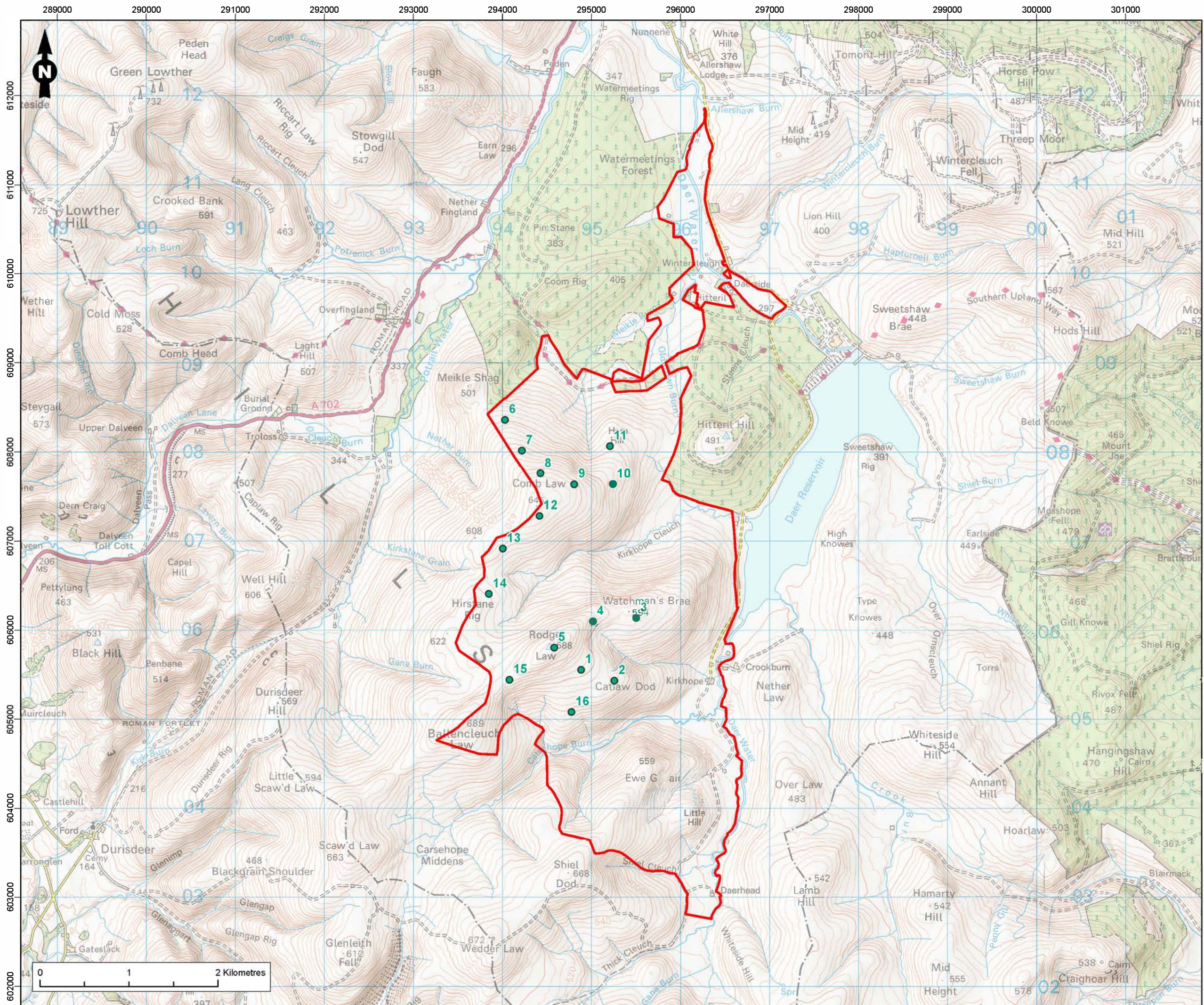
Figure Title
Scoping Report - Site Location

Project Name
Watchman Energy Park

Project Number 1620016964	Figure No. 1.1
Date October 2024	Prepared By MFT
Scale 1:60,000 @A3	Issue 2

Client
Watchman Energy Park Ltd

RAMBOLL



Legend


- Site Boundary
- Turbine Location (Scoping)

Figure Title
Scoping Report - Scoping Layout

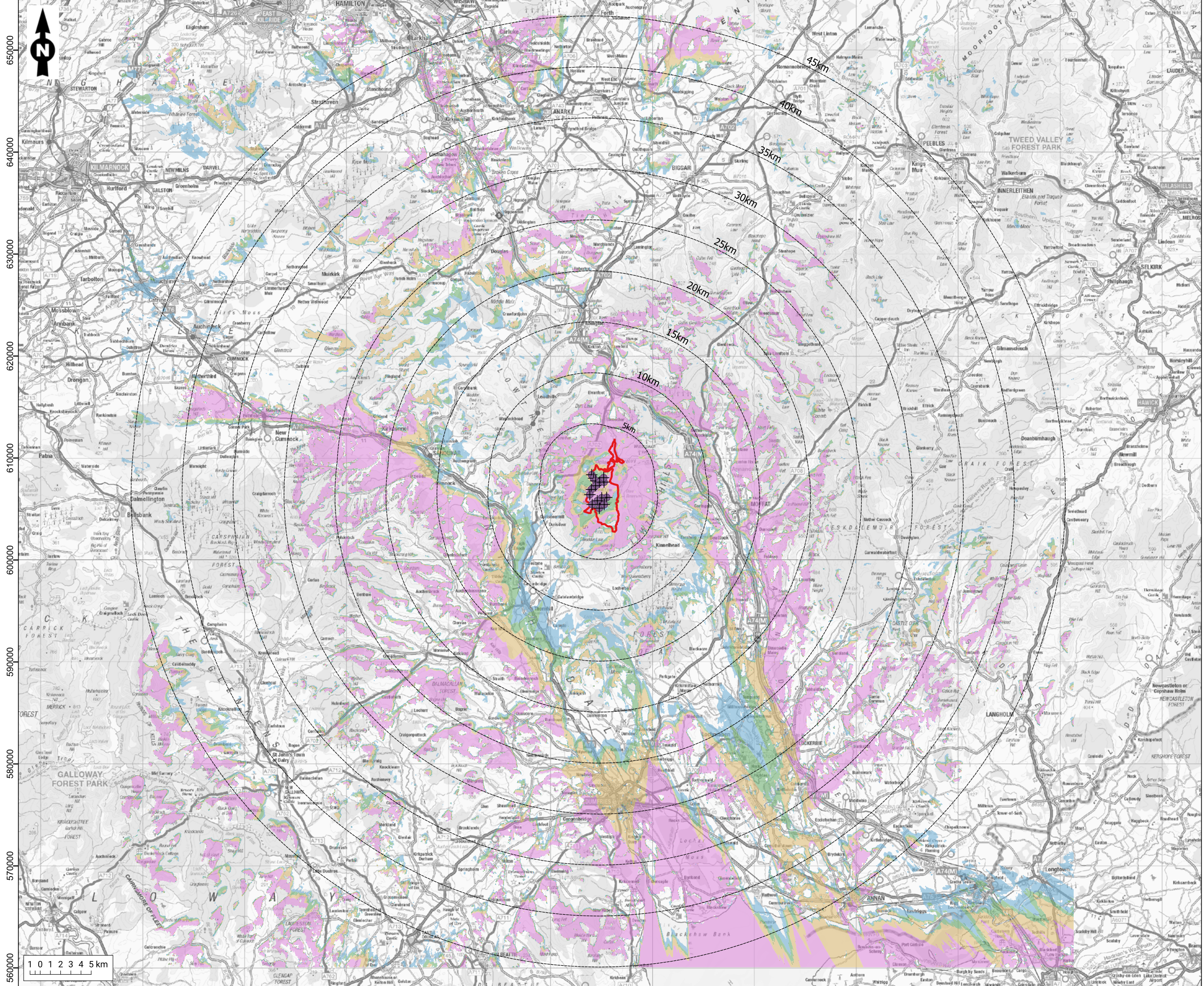
Project Name
Watchman Energy Park

Project Number 1620016964	Figure No. 1.2
Date October 2024	Prepared By MFT
Scale 1:40,000 @A3	Issue 2

Client
Watchman Energy Park Ltd



240000 250000 260000 270000 280000 290000 300000 310000 320000 330000 340000 350000



Legend

- Turbine locations (Scoping)
- Distance to turbines (scoping) (5km intervals)
- Site boundary

Zone of Theoretical Visibility

- 1 - 4 turbines visible
- 5 - 8 turbines visible
- 9 - 12 turbines visible
- 13 - 16 turbines visible

Notes: The ZTV is calculated to turbine tip heights of up to 240m, from a height of 2m above ground level. The terrain model is bare ground derived from OS Terrain 50 height data. Earth curvature and atmospheric refraction have been taken into account.

Figure Title
Scoping Report - Zone of Theoretical Visibility to 45km

Project Name
Watchman Energy Park

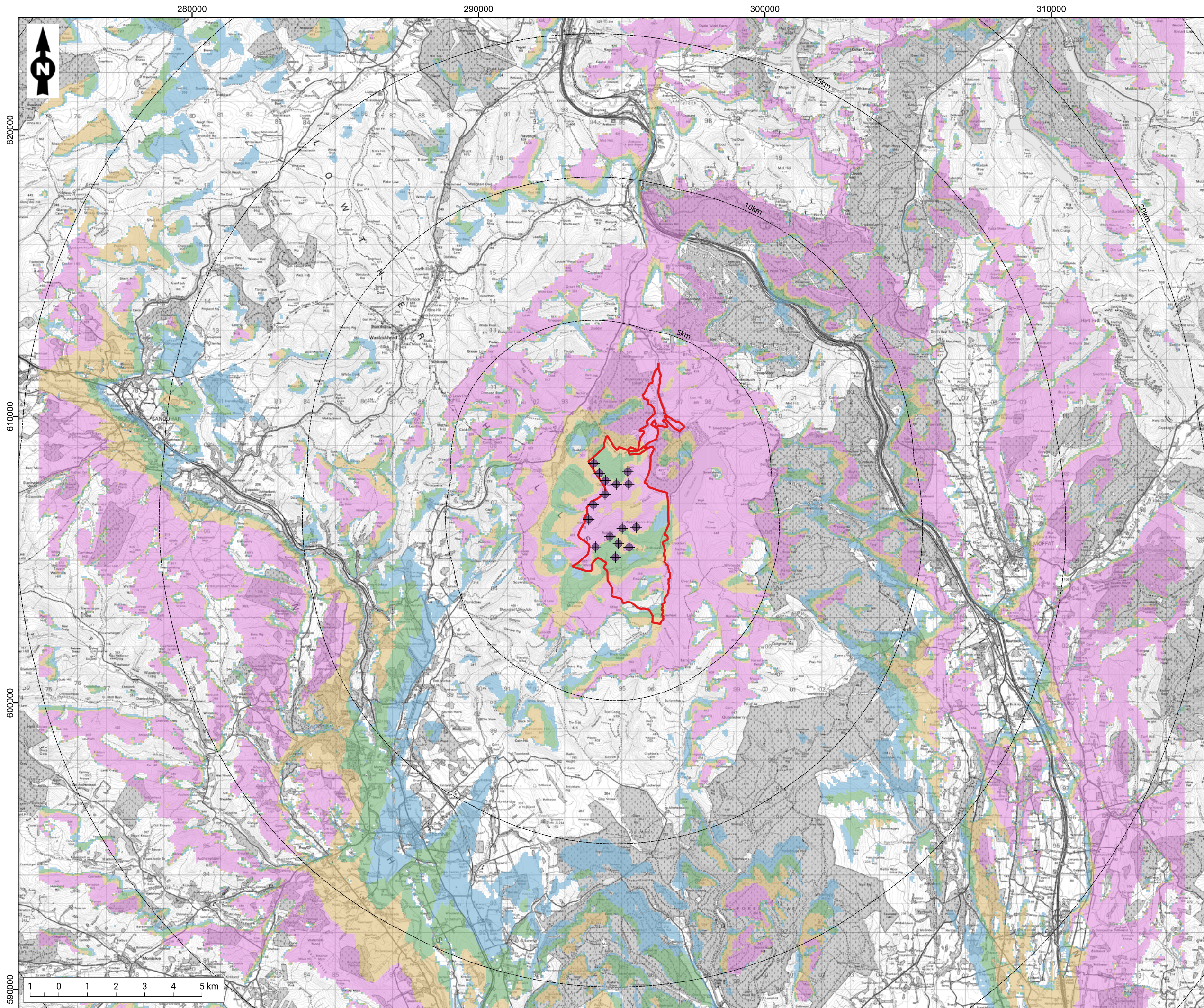
Project Number	24014	Figure No.	3.3.1a
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Date	24/10/2024	Prepared by	AS
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Scale	Scale @ A3: 1:350,000	Issue	r4
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Client
Watchman Energy Park Ltd





Legend

- Turbine locations (Scoping)
- Distance to turbines (scoping) (5km intervals)
- Site boundary

Zone of Theoretical Visibility

- 1 - 4 turbines visible
- 5 - 8 turbines visible
- 9 - 12 turbines visible
- 13 - 16 turbines visible

Notes: The ZTV is calculated to turbine tip heights of up to 240m, from a height of 2m above ground level. The terrain model is bare ground derived from OS Terrain 50 height data. Earth curvature and atmospheric refraction have been taken into account.

Figure Title
Scoping Report - Zone of Theoretical Visibility to 15km

Project Name
Watchman Energy Park

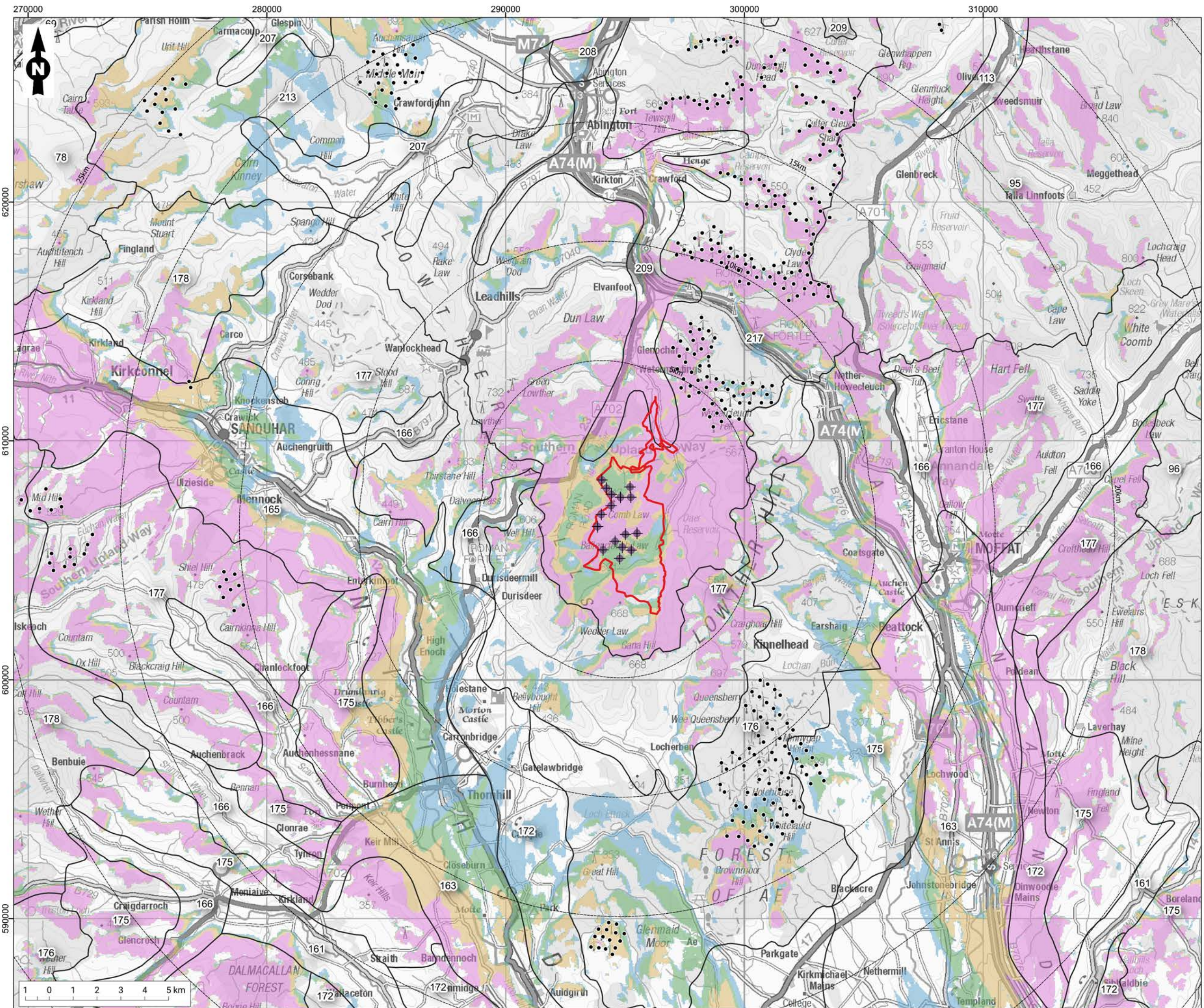
Project Number	24014	Figure No.	3.3.1b
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Date	24/10/2024	Prepared by	AS
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Scale	Scale @ A3: 1:125,000	Issue	r2
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Client
Watchman Energy Park Ltd





Legend

- Turbine locations (Scoping)
- Distance to turbines (scoping) (5km intervals)
- Site boundary
- Other turbines (to 25km):
- existing

Zone of Theoretical Visibility

- 1 - 4 turbines visible
- 5 - 8 turbines visible
- 9 - 12 turbines visible
- 13 - 16 turbines visible

Landscape Character Types

- 69 Upland River Valleys - Ayrshire
- 78 Plateau Moorland - Ayrshire
- 95 Southern Uplands - Borders
- 96 Southern Uplands with Forest - Borders
- 113 Upland Valley with Pastoral Floor
- 161 Pastoral Valley - Dumfries & Galloway
- 163 Middle Dale - Dumfries & Galloway
- 165 Upper Dale - Dumfries & Galloway
- 166 Upland Glens - Dumfries & Galloway
- 172 Upland Fringe - Dumfries & Galloway
- 175 Foothills - Dumfries & Galloway
- 176 Foothills with Forest - Dumfries & Galloway
- 177 Southern Uplands - Dumfries & Galloway
- 178 Southern Uplands with Forest - Dumfries & Galloway
- 207 Upland River Valley - Glasgow & Clyde Valley
- 208 Broad Valley Upland
- 209 Upland Glen - Glasgow & Clyde Valley
- 213 Plateau Moorlands - Glasgow & Clyde Valley
- 217 Southern Uplands - Glasgow & Clyde Valley

Notes: The ZTV is calculated to turbine tip heights of up to 240m, from a height of 2m above ground level. The terrain model is bare ground derived from OS Terrain 50 height data. Earth curvature and atmospheric refraction have been taken into account.

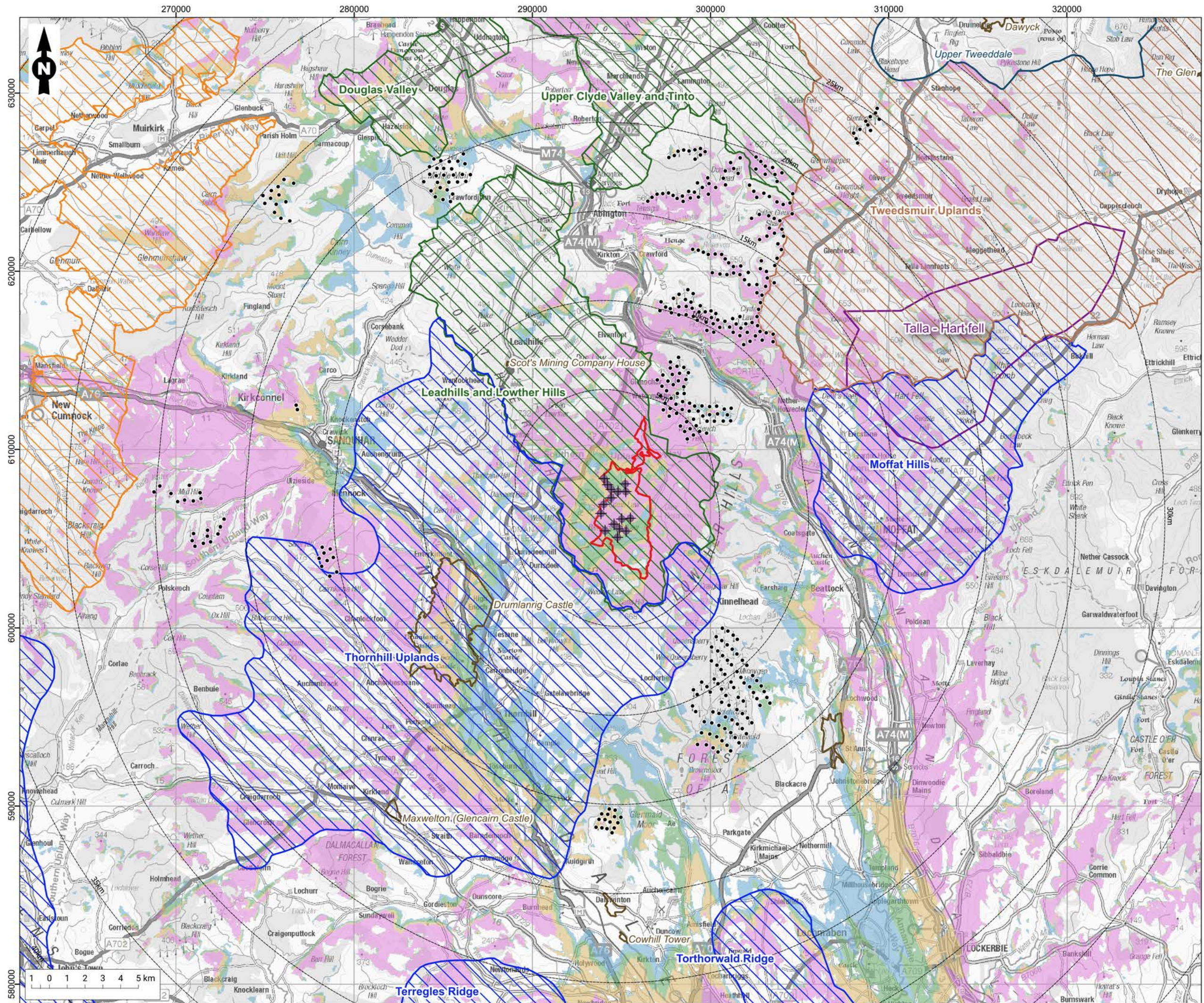
Figure Title
Scoping Report - Landscape Character Types

Project Name
Watchman Energy Park

Project Number	24014	Figure No.	3.3.2
Date	24/10/2024	Prepared by	AS
Scale	Scale @ A3: 1:150,000	Issue	r3

Client
Watchman Energy Park Ltd





Legend

- Turbine locations (Scoping)
- Distance to turbines (scoping) (5km intervals)
- Site boundary
- Other turbines (to 25km):
 - existing
- Zone of Theoretical Visibility
 - 1 - 4 turbines visible
 - 5 - 8 turbines visible
 - 9 - 12 turbines visible
 - 13 - 16 turbines visible
- National Scenic Area
 - National Scenic Area
 - Gardens & Designed Landscapes
 - Wild Land
- Local Landscape Designations:
 - South Lanarkshire
 - Scottish Borders
 - Dumfries & Galloway
 - East Ayrshire

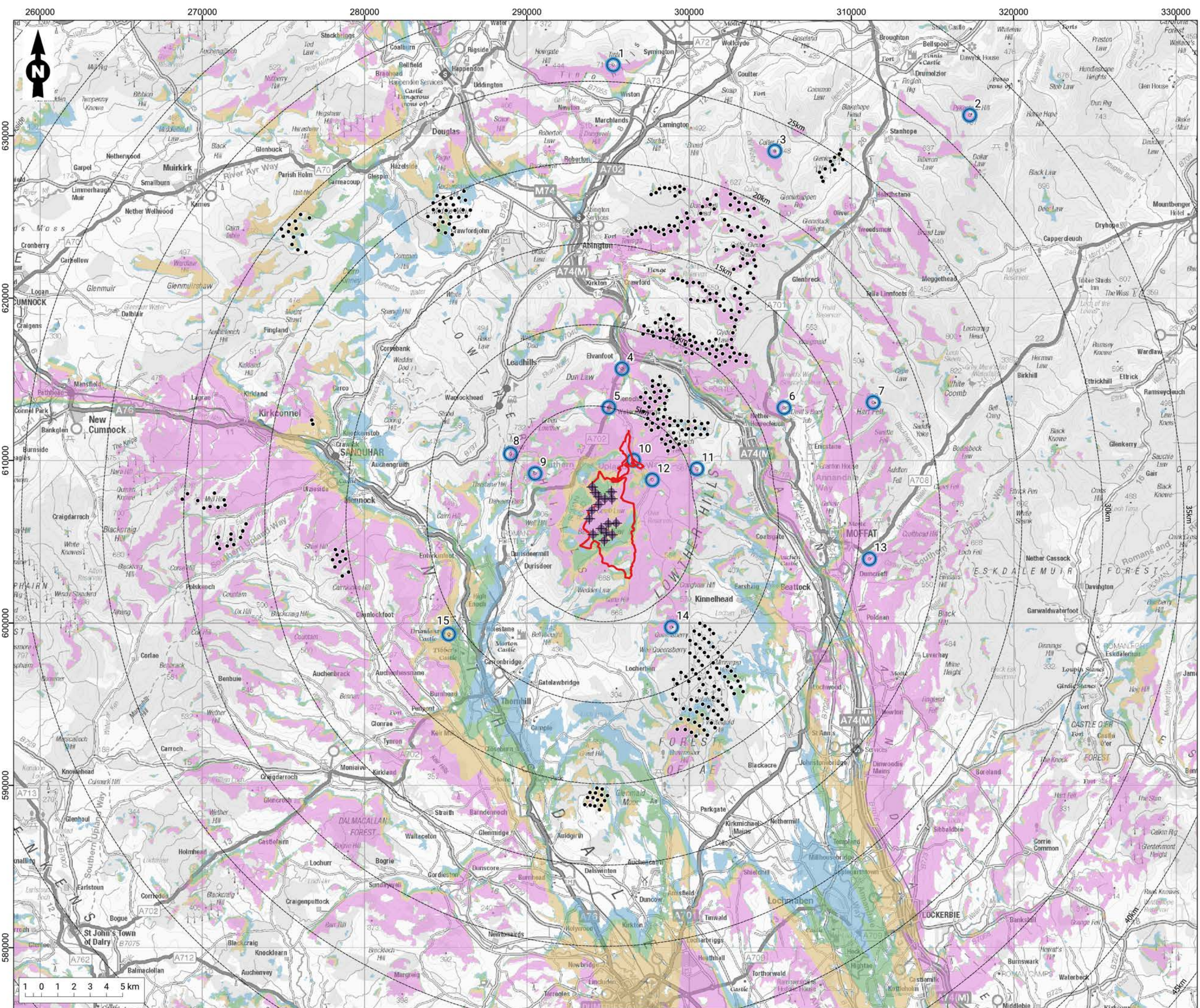
Notes: The ZTV is calculated to turbine tip heights of up to 240m, from a height of 2m above ground level. The terrain model is bare ground derived from OS Terrain 50 height data. Earth curvature and atmospheric refraction have been taken into account.

Figure Title
Scoping Report - Designated Landscapes

Project Name
Watchman Energy Park

Project Number	24014	Figure No.	3.3.3
Date	25/10/2024	Prepared by	AS
Scale	Scale @ A3: 1:200,000	Issue	r3

Client
Watchman Energy Park Ltd



Legend

- Turbine locations (Scoping)
- Distance to turbines (scoping) (5km intervals)
- Site boundary
- Other turbines (to 25km):
 - existing
- Zone of Theoretical Visibility
 - 1 - 4 turbines visible
 - 5 - 8 turbines visible
 - 9 - 12 turbines visible
 - 13 - 16 turbines visible
- Viewpoints

VP no.	Title
1	Tinto
2	Pykestone Hill
3	Culter Fell
4	A702 Road
5	Unclassified Road at Watermeetings
6	Annanhead Hill - Annandale Way
7	Hart Fell
8	Lowther Hill
9	Comb Head
10	Wintercleuch
11	Hods Hill - Southern Upland Way
12	Southern Upland Way - Daer Reservoir
13	Southern Upland Way, Roman Reivers
14	Queensberry
15	Drumlanrig Castle

Notes: The ZTV is calculated to turbine tip heights of up to 240m, from a height of 2m above ground level. The terrain model is bare ground derived from OS Terrain 50 height data. Earth curvature and atmospheric refraction have been taken into account.

Figure Title
Scoping Report - Zone of Theoretical Visibility & Proposed Viewpoints

Project Name
Watchman Energy Park

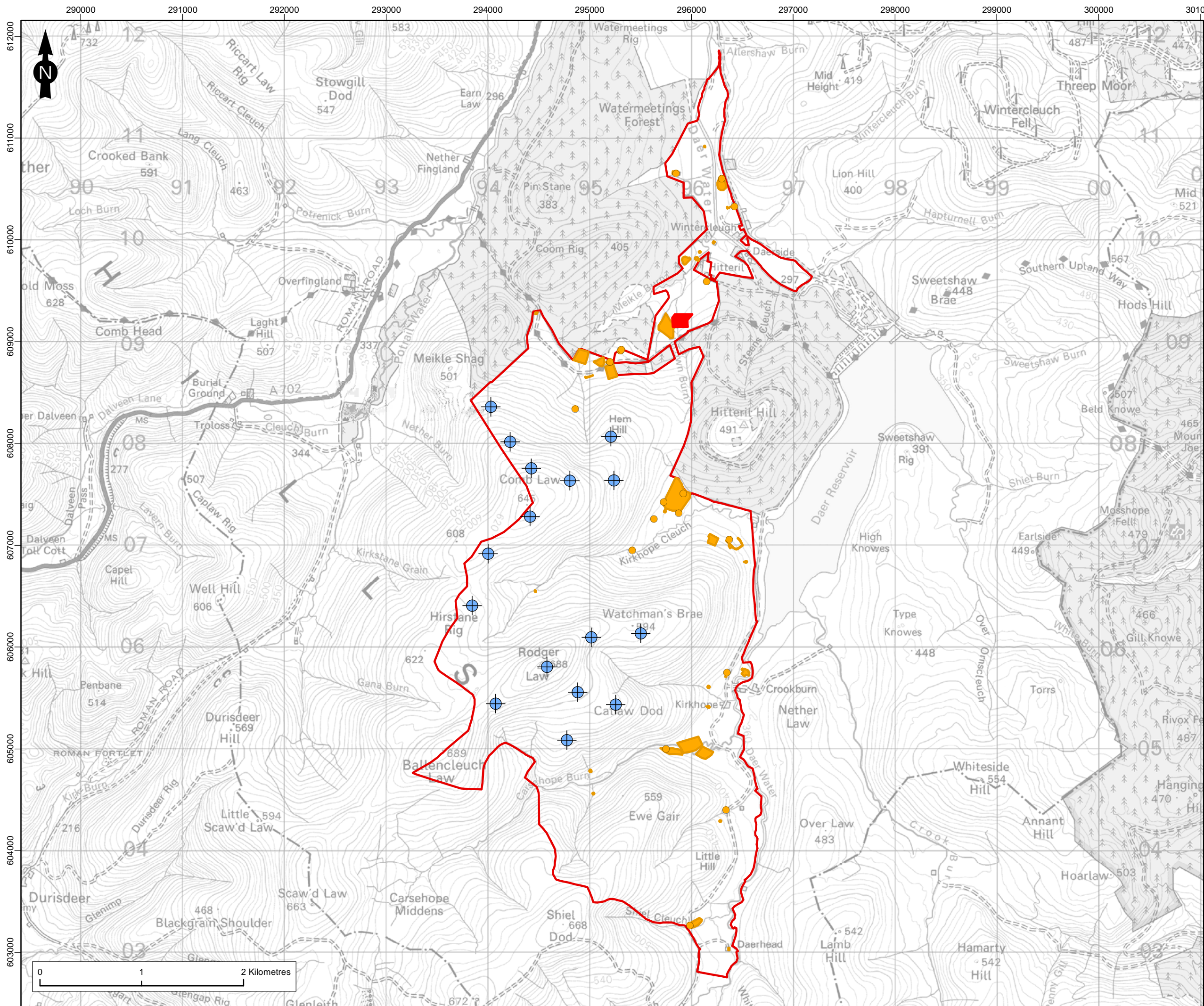
Project Number	24014	Figure No.	3.3.4
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Date	24/10/2024	Prepared by	AS
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Scale	Scale @ A3: 1:220,000	Issue	r3
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Client
Watchman Energy Park Ltd





Legend

- Site Boundary
- + Turbine Location (Scoping)
- Scheduled Monument
- Non-Designated Site (area)
- Non-Designated Site (point)



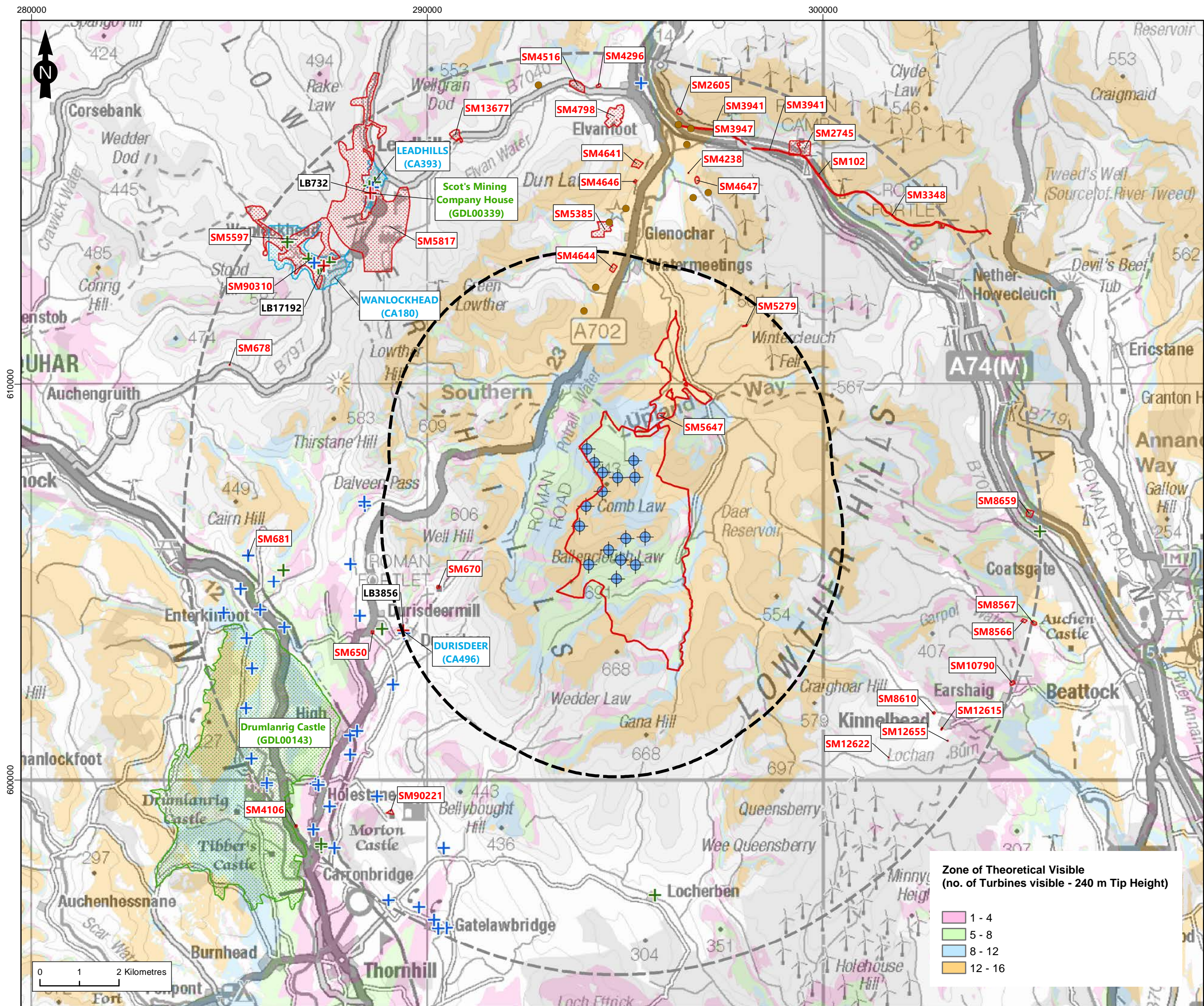
Figure Title
Scoping Report - Cultural Heritage: Inner Study Area

Project Name
Watchman Energy Park

Project Number 1620016964	Figure No. 3.4.1
Date October 2024	Prepared By LG
Scale 1:35,000 @ A3	Issue 4

Client
Watchman Energy Park Ltd





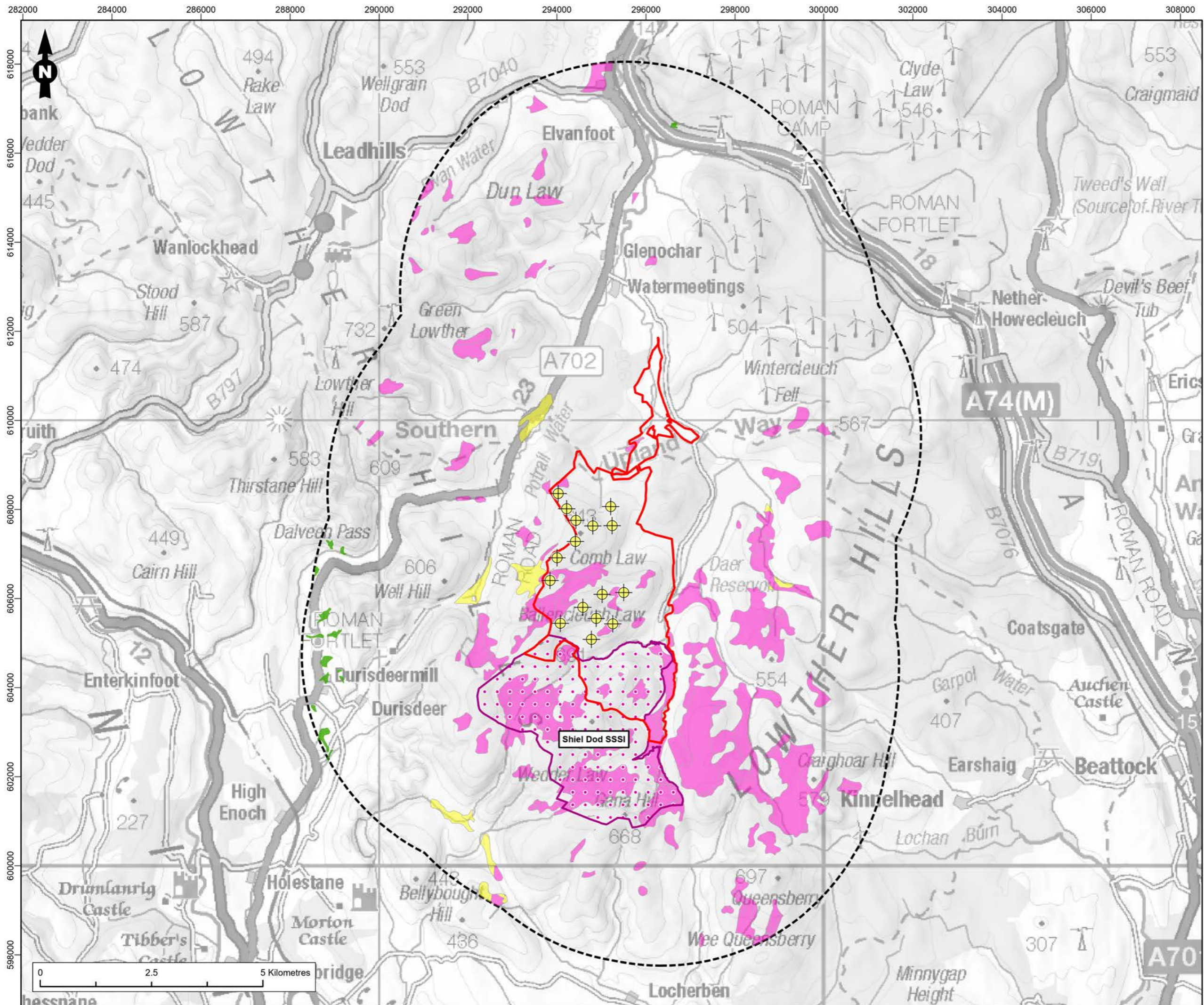
Legend

- Site Boundary (Inner Study Area)
- Outer Study Area (5km)
- Outer Study Area (10km)
- Turbine Location (Scoping)
- Scheduled Monument
- + Category A Listed Building
- + Category B Listed Building*
- + Category C Listed Building*
- NSR Site of Schedulable Quality*
- Inventory Garden and Designed Landscape
- Conservation Area

* NSR Sites of Schedulable Quality, Category B and C Listed Buildings not labelled due to density of assets



Figure Title	
Scoping Report - Cultural Heritage: Outer Study Area	
Project Name	
Watchman Energy Park	
Project Number	Figure No.
1620016964	3.4.2
Date	Prepared By
October 2024	LG
Scale	Issue
1:90,000 @ A3	3
Client	
Watchman Energy Park Ltd	



Legend

- Site Boundary
- Turbine locations (Scoping)
- Study Area (5 km from the Site Boundary for Designated Sites (including ancient woodland))
- Site of Special Scientific Interest (SSSI)
- Ancient Woodland

Carbon and Peatland 2016

- Class 1: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value
- Class 2: Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential

Figure Title
Scoping Report - Ecological Designated Sites, Ancient Woodland and Peatland within 5 km

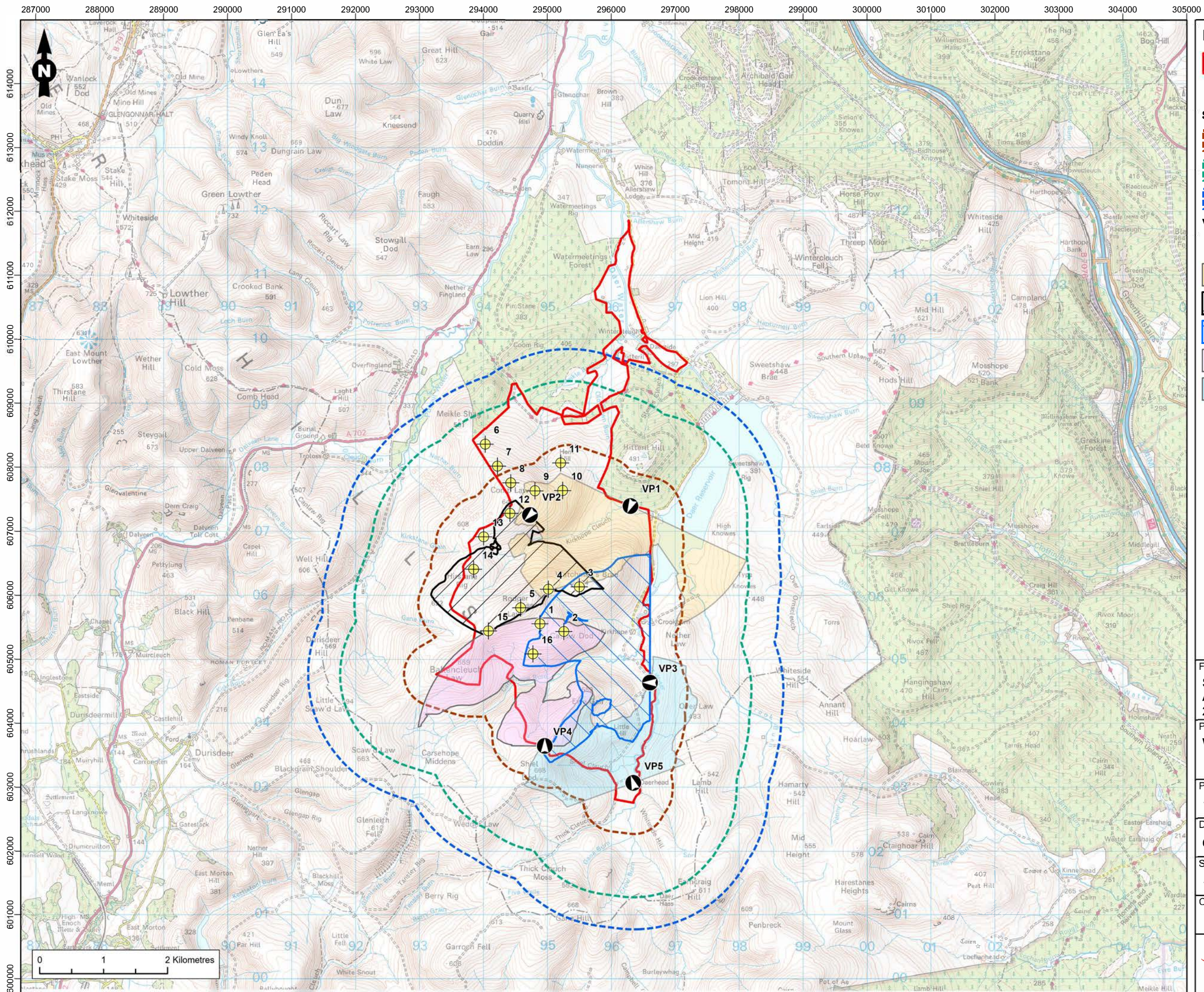
Project Name
Watchman Energy Park

Project Number 1620016964	Figure No. 3.5.1
Date October 2024	Prepared By LD
Scale 1:80,000 @A3	Issue 4

Client
Watchman Energy Park Ltd

MacArthur Green
PART OF SLR

RAMBOLL



Legend

- Site Boundary
- Turbine locations (Scoping)

Survey Areas

- Breeding Bird and Winter Walkover (500 m)
- Black Grouse (1.5 km)
- Scarce Breeding Bird (2 km)

Vantage Points and Viewsheds

- Vantage Point (VP)
- Visible Area from VP1
- Visible Area from VP2
- Visible Area from VP3
- Visible Area from VP4
- Visible Area from VP5

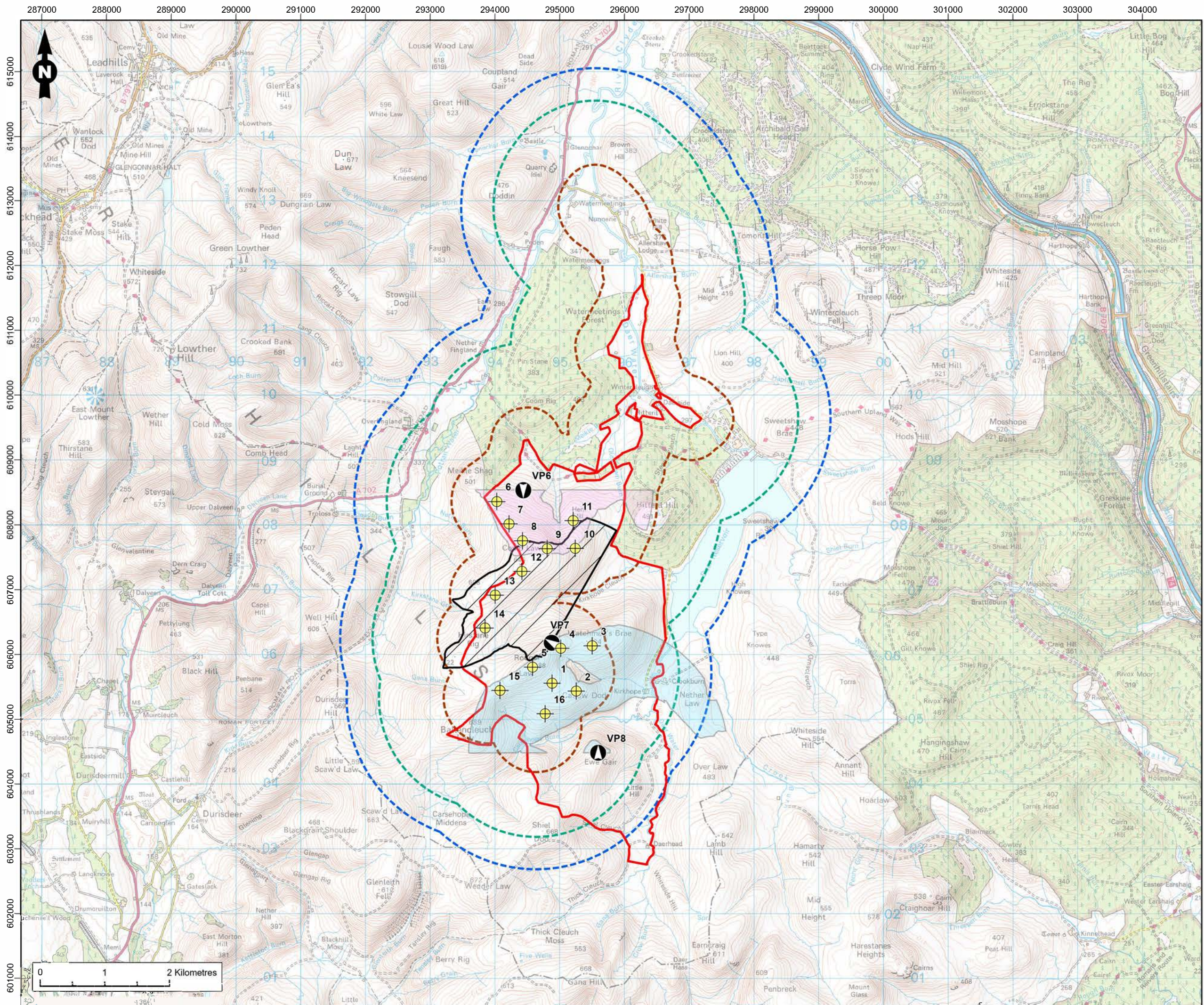
Figure Title
Scoping Report - Ornithological Survey Areas (2022/2023 Non-breeding and 2023 Breeding Seasons)

Project Name
Watchman Energy Park

Project Number 1620016964	Figure No. 3.6.1
Date October 2024	Prepared By LD
Scale 1:55,000 @A3	Issue 3

Client
Watchman Energy Park Ltd

MacArthur Green
 PART OF SLR



Legend

- Site Boundary
- Turbine locations (Scoping)

Survey Areas

- Breeding Bird and Winter Walkover (500 m)
- Black Grouse (1.5 km)
- Scarce Breeding Bird (2 km)

Vantage Points and Viewsheds

- Vantage Point (VP)
- Visible Area from VP6
- Visible Area from VP7
- Visible Area from VP8

Figure Title
Scoping Report - Ornithological Survey Areas (2023/2024 Non-Breeding and 2024 Breeding Seasons)

Project Name
Watchman Energy Park

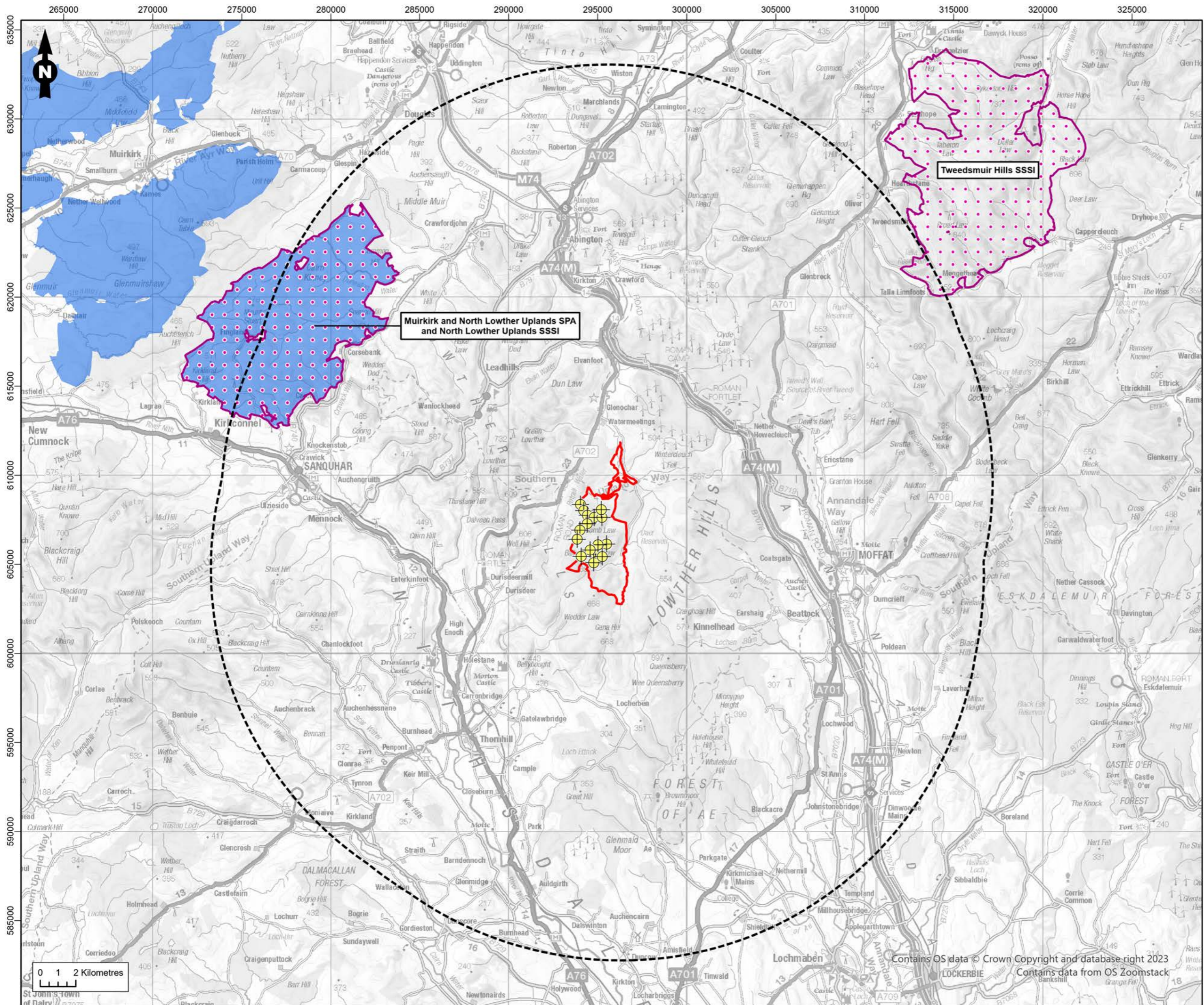
Project Number 1620016964	Figure No. 3.6.2
Date October 2024	Prepared By LD
Scale 1:55,000 @A3	Issue 3

Client
Watchman Energy Park Ltd

MacArthur Green

PART OF SLR

RAMBOLL



Legend

- Site Boundary
- Turbine locations (Scoping)

Study Areas

- Study Area (20 km from the Site Boundary for Designated Sites)

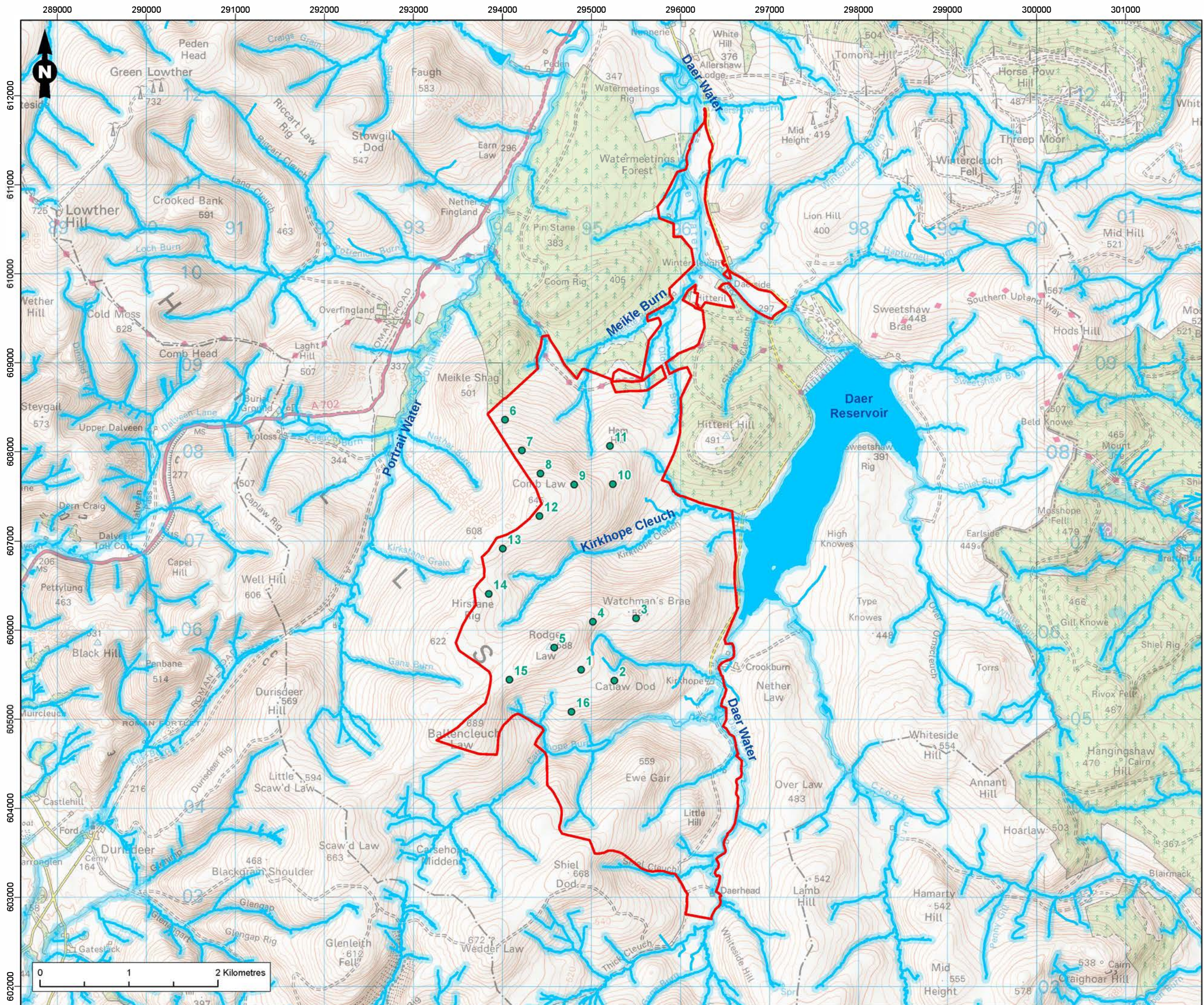
Designated Sites

- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

Figure Title	
Scoping Report - Ornithological Designated Sites within 20 km	
Project Name	
Watchman Energy Park	
Project Number	Figure No.
1620016964	3.6.3
Date	Prepared By
October 2024	LD
Scale	Issue
1:200,000 @A3	3
Client	
Watchman Energy Park Ltd	

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 Contains data from OS Zoomstack

MacArthur Green
 PART OF SLR RAMBOLL

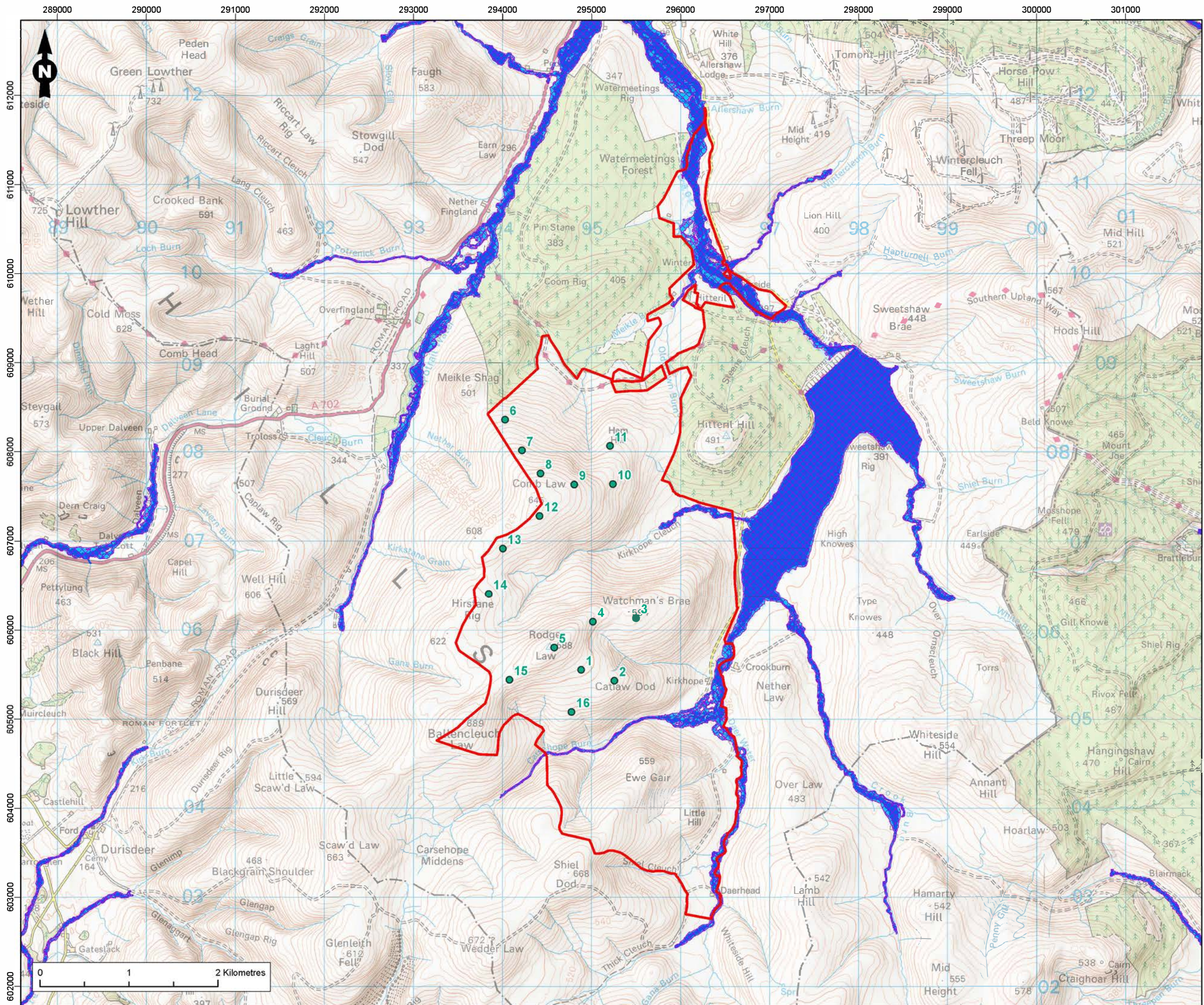


Legend

- Site Boundary
- Turbine Location (Scoping)
- Watercourse
- Waterbody
- Watercourse/body 50 m Buffer

Figure Title	
Scoping Report - Surface Water Features	
Project Name	
Watchman Energy Park	
Project Number	Figure No.
1620016964	3.7.1
Date	Prepared By
October 2024	MFT
Scale	Issue
1:40,000 @A3	2
Client	
Watchman Energy Park Ltd	





Legend

- Site Boundary
- Turbine Location (Scoping)

River Flooding

- High Likelihood - Each year this area has a 10% chance of flooding
- Medium Likelihood - Each year this area has a 0.5% chance of flooding
- Low Likelihood - Each year this area has a 0.1% chance of flooding

Surface Water Flooding

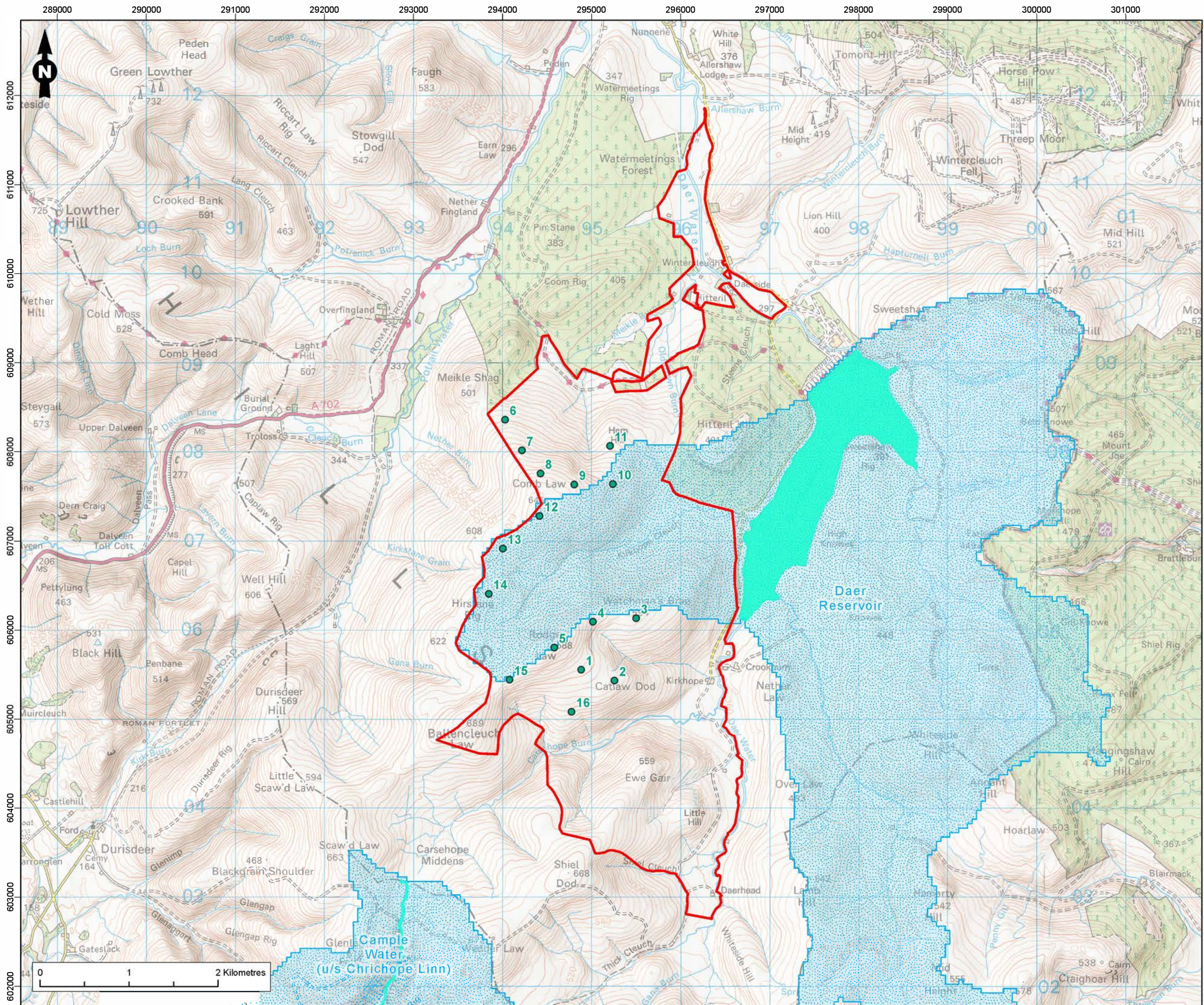
- Medium Likelihood - Each year this area has a 0.5% chance of flooding

Figure Title
Scoping Report - Flood Risk

Project Name
Watchman Energy Park

Project Number 1620016964	Figure No. 3.7.2
Date October 2024	Prepared By MFT
Scale 1:40,000 @A3	Issue 2

Client
Watchman Energy Park Ltd

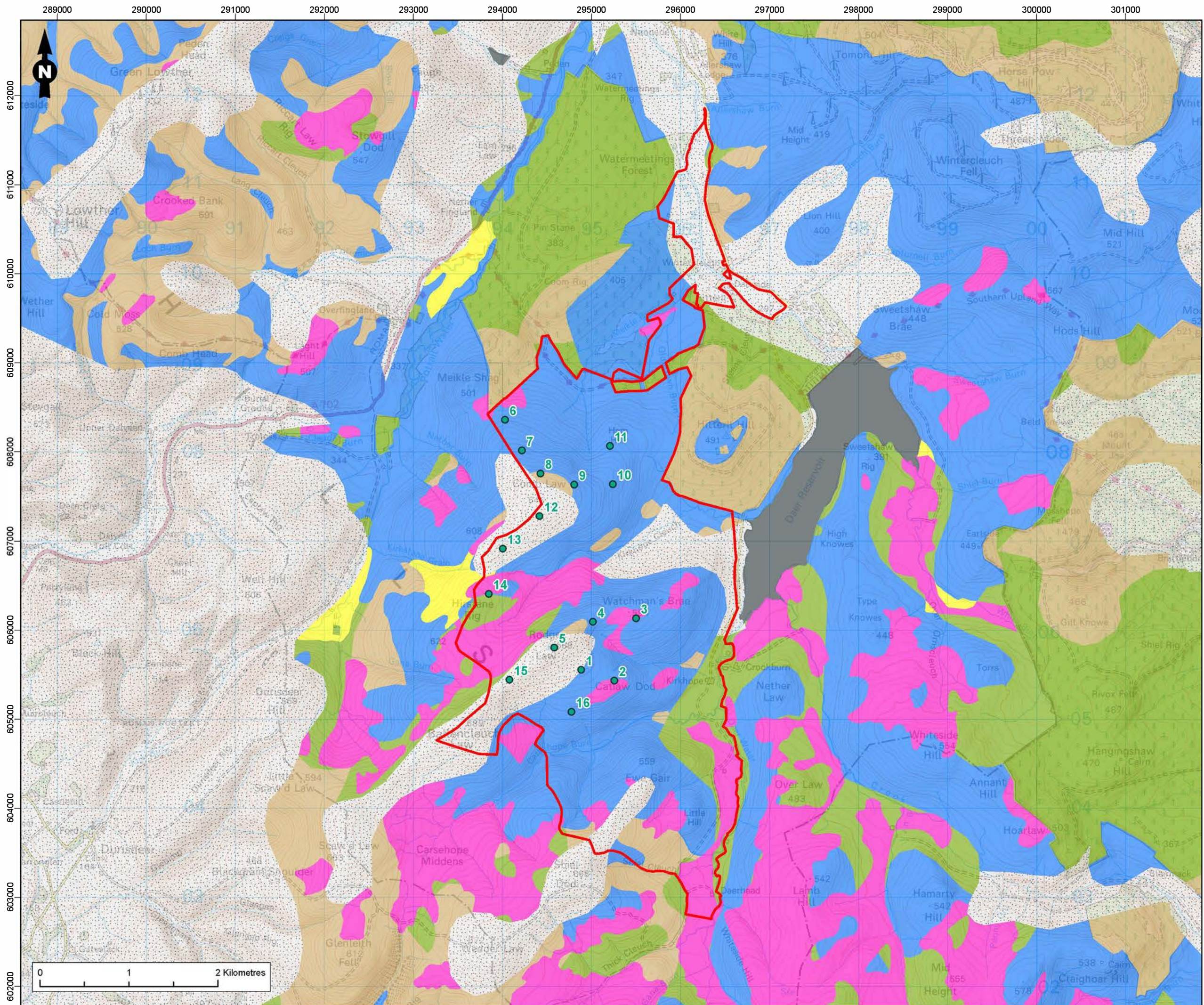


Legend

- Site Boundary
- Turbine Location (Scoping)
- Drinking Water Protected Area - River
- Drinking Water Protected Area - Loch
- DWPA Catchment Areas

Figure Title	
Scoping Report - Drinking Water Protected Area	
Project Name	
Watchman Energy Park	
Project Number	Figure No.
1620016964	3.7.3
Date	Prepared By
October 2024	MFT
Scale	Issue
1:40,000 @A3	2
Client	
Watchman Energy Park Ltd	





Legend

- Site Boundary
- Turbine Location (Scoping)

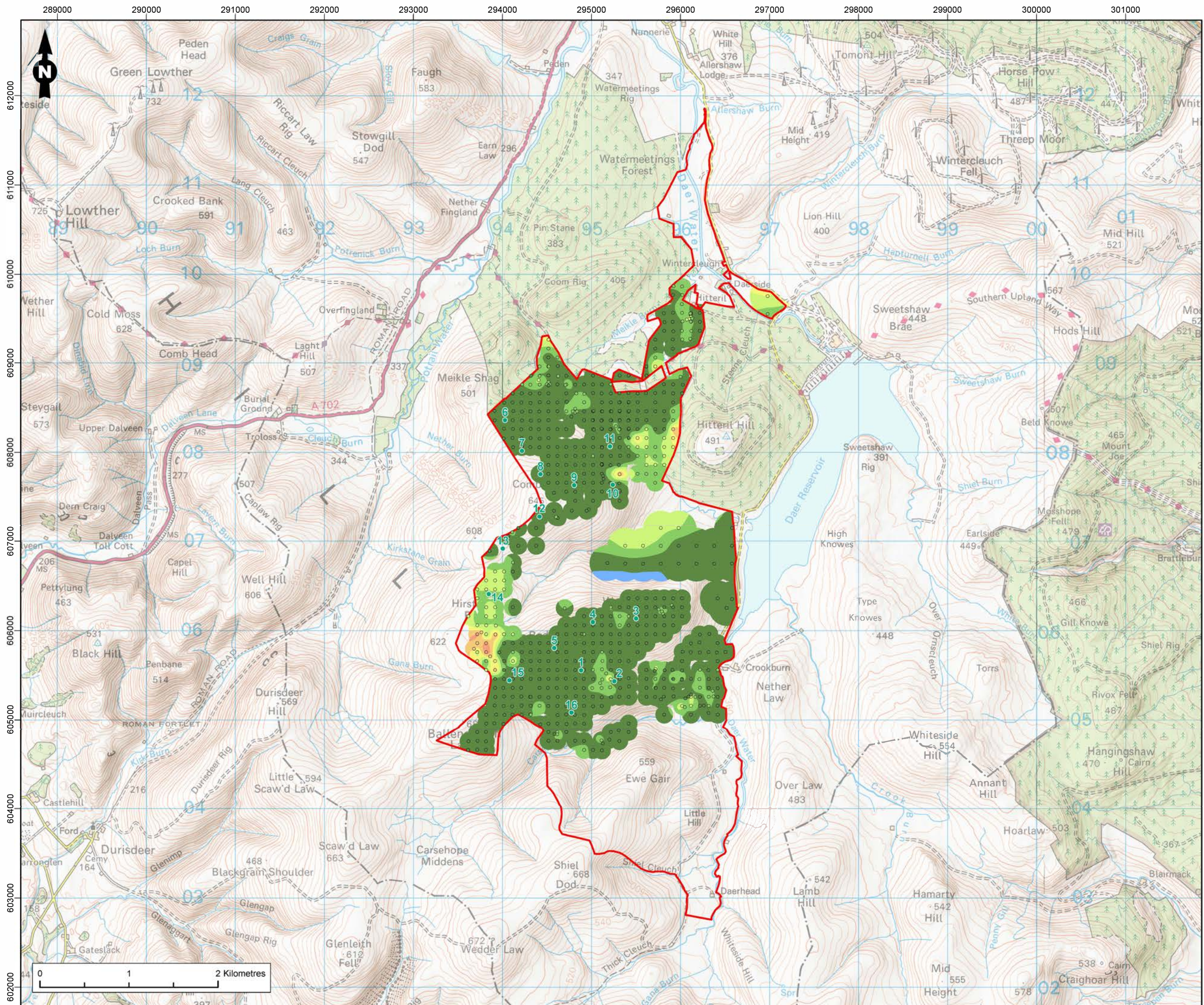
Carbon and Peatland Importance *

- Unknown soil type
- Mineral soils
- Class 1
- Class 2
- Class 3
- Class 4
- Class 5

* Data extracted from Scotland Government (2016) Carbon and Peatland Map - Available at: https://map.environment.gov.scot/Soil_maps/?layer=10

Figure Title	
Scoping Report - Peat Classification	
Project Name	
Watchman Energy Park	
Project Number	Figure No.
1620016964	3.7.4
Date	Prepared By
October 2024	MFT
Scale	Issue
1:40,000 @A3	2
Client	
Watchman Energy Park Ltd	





Legend

- Site Boundary
- Turbine Location (Scoping)

Peat Sample Location Depth (m)

- 0.10 - 0.49
- 0.50 - 0.99
- 1.00 - 1.49
- 1.50 - 1.99
- 2.00 - 2.49
- 2.50 - 2.99

Interpolated Peat Depth (m)

- No Peat
- 0.10 - 0.49
- 0.50 - 0.99
- 1.00 - 1.49
- 1.50 - 1.99
- 2.00 - 2.49
- 2.50 - 2.99

Figure Title	
Scoping Report - Peat Depth (Stage 1)	
Project Name	
Watchman Energy Park	
Project Number	Figure No.
1620016964	3.7.5
Date	Prepared By
November 2024	MFT
Scale	Issue
1:40,000 @A3	1
Client	
Watchman Energy Park Ltd	



APPENDIX B POLICY CONSIDERATIONS

POLICY CONSIDERATIONS

Project Need

The Proposed Development relates to the generation of electricity from renewable energy sources and comes as a direct response to national planning and energy policy objectives.

The Proposed Development would make a contribution to the attainment of emissions reduction, renewable energy and electricity targets at both the Scottish and UK levels.

The clear objectives of the UK and Scottish Governments relate to encouraging increased deployment and application of renewable energy technologies, consistent with sustainable development policy principles and national and international obligations on climate change.

In recent years UK and Scottish Government policies have focussed increasingly on concerns about climate change. Each tier of Government has developed targets, policies and actions to achieve targets to deal with the climate crisis and generate more renewable energy and electricity.

The UK Government retains responsibility for the overall direction of energy policy, although some elements are devolved to the Scottish Government. The UK Government has published a series of policy documents setting out how targets can be achieved with onshore wind generation, located in Scotland, identified as an important technology to achieve these targets.

The Statutory Framework

At this stage the Proposed Development is anticipated to have an installed capacity of over 50 MW and as such will require consent from the Scottish Ministers under the Electricity Act 1989 (the 'Electricity Act')¹. In such cases the Local Planning Authority is a statutory consultee in the development management process and procedures.

The provisions of Schedule 9 of the Electricity Act are relevant to the assessment of the Proposed Development and these set out a number of features to which regard must be had by the Scottish Ministers in reaching their decision on an application and such features are most appropriately addressed as part of the EIA process.

Scottish Ministers will determine the application having regard to the statutory duties in Schedule 9 of the Electricity Act, so far as relevant, and any other relevant material considerations, one of which will be the relevant aspects of the statutory Development Plan, which includes National Planning Framework 4 (NPF4)² and the relevant Local Development Plan (LDP).

Renewable Energy Policy Framework

The most relevant policy, legislative documents and more recent policy statements published by the Scottish Government in relation to the renewable energy and climate change include:

- The Scottish Energy Strategy (December 2017)³;
- The Scottish Government's declaration of a Climate Emergency (April 2019);
- The Scottish Climate Change Plan Update (2020)⁴;

¹ HM Government, the Electricity Act 1989 (1989). Available at: <https://www.legislation.gov.uk/ukpga/1989/29/contents>.

² Scottish Government, 'National Planning Framework 4 (NPF4)' (Local Government and Housing Directorate, 2023), Available at: <https://www.gov.scot/publications/national-planning-framework-4/>.

³ Scottish Government (2017). Scottish Energy Strategy: The future of energy in Scotland. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2017/12/scottish-energy-strategy-future-energy-scotland-9781788515276/documents/00529523-pdf/00529523-pdf/govscot%3Adocument/00529523.pdf>

⁴ Scottish Government (2020). Securing a green recovery on a path to net zero: climate change plan 2018–2032 – update. Available at: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/>

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- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019⁵ and the legally binding net zero target for 2045;
- The Onshore Wind Policy Statement (December 2022)⁶; and
- The Draft Energy Strategy and Just Transition Plan (January 2023)⁷.

The EIAR will summarise the objectives of the UK and Scottish Governments in relation to encouraging increased deployment and application of renewable energy technologies, consistent with sustainable development policy principles and national and international obligations on climate change.

Detailed reference to the renewable energy policy framework will be provided in the Planning Statement which will accompany the section 36 application.

National Planning Policy

NPF4 will be the key policy consideration in the determination of the section 36 consent application and forms part of the statutory Development Plan together with the Local Development Plan (LDP). NPF4 contains national level development management policies which are applied Scotland wide and also provides guidance to Planning Authorities with regard to the content and preparation of LDPs.

NPF4 sets out that the Proposed Development would be of national development status as it relates to '*Strategic Renewable Electricity Generation and Transmission Infrastructure*' over 50 MW in installed capacity.

The principal policy of NPF4 used in the assessment of wind energy developments is Policy 11: Energy. Other policies that may apply include:

- Policy 1: Tackling the Climate and Nature Crisis;
- Policy 3: Biodiversity;
- Policy 4: Natural Places;
- Policy 5: Soils;
- Policy 7: Historic Assets and Places.
- Policy 22: Flood Risk and Water Management; and
- Policy 33: Minerals.

National Planning Guidance

In terms of national planning guidance, reference will be made to relevant Planning Advice Notes (PANs), principally the following:

- PAN 1/2013 Environmental Impact Assessment⁸;
- PAN 60 (2000) Planning for Natural Heritage⁹;

⁵ Scottish Government (2019). The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. Available at: <https://www.legislation.gov.uk/asp/2019/15>.

⁶ Scottish Government (2022) Onshore Wind Policy Statement 2022. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/12/onshore-wind-policy-statement-2022/documents/onshore-wind-policy-statement-2022/onshore-wind-policy-statement-2022/govscot%3Adocument/onshore-wind-policy-statement-2022.pdf>.

⁷ Scottish Government (2023). Draft Energy Strategy and Just Transition Plan. Available at: <https://www.gov.scot/publications/draft-energy-strategy-transition-plan/documents/>

⁸ Scottish Government (2013a). Planning Advice Note 1/2013: Environmental Impact Assessment. Available at: <https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/>.

⁹ Scottish Government (2013b). Planning Advice Note 60: natural heritage. Available at: <https://www.gov.scot/publications/pan-60-natural-heritage/>.

Watchman Energy Park

- PAN 61 (2001) Sustainable Urban Drainage Systems¹⁰;
- PAN 1/2011 Planning and Noise¹¹;
- PAN 2/2011 Planning and Archaeology¹²; and
- PAN 51 Planning, Environmental Protection and Regulation (Revised 2006)¹³.

The Local Development Plan

The Development Plan for the site includes the South Lanarkshire Local Development Plan 2 (LDP2) (adopted 9th April 2021)¹⁴ and associated non-statutory Supporting Planning Guidance (SPG). The LDP2 documentation includes two Volumes as follows:

- LDP2 Volume 1¹⁵: which contains a Vision and Strategy and development management policies; and
- LDP2 Volume 2¹⁶: which contains additional policies and furthermore detailed criteria against which development proposals are to be considered.

The policies from the LDP2, volume 1 relevant to the consideration of the Proposed Development and for the purposes of a comprehensive policy assessment are set out below:

- Policy 1: Spatial Strategy;
- Policy 2: Climate Change;
- Policy 14: Natural & Historic Environment;
- Policy 15: Travel & Transport;
- Policy 16: Water Environment & Flooding;
- Policy 18: Renewable Energy.

Policy 18: Renewable Energy sets out the following 'additional guidance' to be considered for renewable energy projects:

- SLC Supporting Planning Guidance 'Renewable Energy';
- Landscape Capacity Study for Wind Energy (2016) and its Addendum (2017);
- Tall Wind Turbines Landscape Capacity, Siting and Design Guidance (2019);
- South Lanarkshire Landscape Character Assessment (2010); and
- South Lanarkshire Validating Local Landscape Designations (2010).

LDP2 Volume 2 contains additional policies and detailed criteria against which development proposals are to be considered. These are listed below.

- DM1 - New Development Design;
- Policy SDCC2 -Flood Risk;
- Policy NHE2 – Archaeological Sites and Monuments;

¹⁰ Scottish Government (2013c). Planning Advice Note 61: Sustainable urban drainage systems. Available at: <https://www.gov.scot/publications/pan-61-sustainable-urban-drainage-systems/>

¹¹ Scottish Government (2013d). Planning Advice Note 1/2011: planning and noise. Available at: <https://www.gov.scot/publications/planning-advice-note-1-2011-planning-noise/>

¹² Scottish Government (2013e). Planning Advice Note 2/2011: Planning and archaeology. Available at: <https://www.gov.scot/publications/pan-2-2011-planning-archaeology/>

¹³ Scottish Government (2013f). Planning Advice Note 51: planning, environmental protection and regulation. Available at: <https://www.gov.scot/publications/planning-advice-note-pan-51-revised-2006-planning-environmental-protection/>

¹⁴ South Lanarkshire Council (2020a). South Lanarkshire Local Development Plan 2. Available at:

https://www.southlanarkshire.gov.uk/info/200145/planning_and_building_standards/39/development_plans/2

¹⁵ South Lanarkshire Council (2020b). South Lanarkshire Local Development Plan 2. LDP2 Volume 1. Available at:

https://www.southlanarkshire.gov.uk/info/200145/planning_and_building_standards/39/development_plans/2

¹⁶ South Lanarkshire Council (2020b). South Lanarkshire Local Development Plan 2. LDP2 Volume 2. Available at:

https://www.southlanarkshire.gov.uk/info/200145/planning_and_building_standards/39/development_plans/2

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- Policy NHE3 – Listed Buildings;
- Policy NHE4 – Gardens and Designed Landscapes;
- Policy NHE6 – Conservation Areas;
- Policy NHE7 – Natura 2000 Sites;
- Policy NHE8 – National Nature Reserves and Sites of Special Scientific Interest;
- Policy NHE9 – Protected Species;
- Policy NHE11 – Peatland and Carbon Rich Soils;
- Policy NHE12 – Water Environment and Biodiversity;
- Policy NHE13 – Forestry and Woodland;
- Policy NHE16 – Landscape;
- Policy NHE18 – Walking, Cycling and Riding Routes;
- Policy NHE20 – Biodiversity;
- Policy RE1 - Renewable Energy.

The key policy in LDP2, Volume 2 is Policy RE1 'Renewable Energy' and Appendix 1 of Volume 2 includes a renewable energy checklist which sets out the criteria that wind energy projects must be considered against.

**APPENDIX C
SCOPING LAYOUT COORDINATES**

Table A.C1 - Indicative Turbine Coordinates

Turbine	X-Co-ord	Y-Co-ord
1	294884	605556
2	295257	605434
3	295501	606134
4	295016	606095
5	294582	605805
6	294029	608360
7	294219	608016
8	294427	607756
9	294806	607632
10	295240	607637
11	295208	608066
12	294416	607282
13	294004	606916
14	293847	606408
15	294078	605444
16	294775	605084

**APPENDIX D
 DESIGNATED LANDSCAPES 15 TO 45 KM FROM SITE BOUNDARY**

Table A.D1 - Designated Landscapes 15 km to 45 km from the Site Boundary (not proposed to be included within the detailed LVIA)

Designated Landscape	Approximate distance to Site boundary	ZTV coverage and notes on inclusion in assessment
Upper Tweeddale National Scenic Area (NSA)	23.0 km to the north east.	Very limited theoretical visibility predicted, the special qualities are not considered to be adversely affected by the Proposed Development due to distance and the NSA will not be included in the LVIA.
Nith Estuary NSA	30.1 km to the south.	Theoretical visibility predicted east and west of the River Nith, the special qualities of the NSA are not considered to be adversely affected by the Proposed Development due to distance and the NSA will not be included in the LVIA.
Dalswinton GDL	17.7 km to the south west.	No theoretical visibility predicted therefore this will not be included in the LVIA.
Maxwelton (Glencairn Castle) GDL	18.2 km to the south west.	No theoretical visibility predicted therefore this will not be included in the LVIA.
Cowhill Tower GDL	19.8 km to the south west.	No theoretical visibility predicted therefore this will not be included in the LVIA.
The Falls of Clyde GDL	27.8 km to the north west.	No theoretical visibility predicted therefore this will not be included in the LVIA.
Dawyck GDL	28.4 km to the north east.	No theoretical visibility predicted therefore this will not be included in the LVIA.
Stobo Castle GDL	30.4 km to the north east.	Theoretical visibility is predicted to be limited to an area of forestry, which combined with distance would not result in any adverse effect to the qualities of the GDL, and therefore will not be included in the LVIA.
Lee Castle GDL	32.6 km to the north west.	Theoretical visibility is predicted on the periphery of the GDL which combined with distance is not considered to adversely affect the qualities and will not be included in the LVIA.
The Glen GDL	36.3 km to the north east.	No theoretical visibility predicted.
Little Sparta (Stoneypath) GDL	37.1 km to the north east.	Theoretical visibility is predicted to be widespread but due to distance and intervening screening it is not considered that the qualities of the GDL will be affected and therefore will not be included in the LVIA.
Kinmount GDL	37.5 km to the south east.	Theoretical visibility is predicted to be widespread but due to distance and intervening screening it is not considered that the qualities of the GDL would be affected and has therefore will not be included in the LVIA.
Dumfries House GDL	39.8 km to the north west.	No theoretical visibility predicted.
Kailzie GDL	41.0 km to the north east.	No theoretical visibility predicted.
Douglas Valley SLA (South Lanarkshire)	17.1 km to the north west	Theoretical visibility is predicted on the northern and southern periphery and this would be limited and therefore will not be included in the LVIA.

Designated Landscape	Approximate distance to Site boundary	ZTV coverage and notes on inclusion in assessment
Torthorwald Ridge RSA (Dumfries & Galloway)	18.6 km to the south east.	Theoretical visibility is predicted to be limited to north facing slopes. This RSA will not be included due to the distance from the Proposed Development which would not adversely affect the special qualities.
Terreglas Ridge RSA	22.8 km to the south west.	Theoretical visibility is predicted to be limited to north facing slopes. This RSA will not be included due to the distance from the Proposed Development which would not adversely affect the special qualities.
East Ayrshire SLA (East Ayrshire)	24.5 km to the north west	Theoretical visibility is predicted to be limited to summits such as Wardlaw Hill and Blackcraig Hill. This SLA will not be included in the LVIA due to distance and is not predicted to receive an adverse effect to its special qualities.
Solway Coast RSA (Dumfries & Galloway)	28.5 km to the south west.	Theoretical visibility predicted east and west of the River Nith, and on Criffel, the special qualities of the RSA are not considered to be adversely affected by the Proposed Development due to distance and the RSA will not be included in the LVIA.
Middle Clyde Valley SLA (South Lanarkshire)	26.7 km to the north west.	Theoretical visibility would be limited to the eastern and western periphery of the SLA. Due to distance from the Proposed Development, it is not considered that the special qualities would be adversely affected and therefore will not be included in the LVIA.
Pentland Hills and Black Mount SLA (South Lanarkshire)	30.8 km to the north east.	Theoretical visibility predicted from summits and slopes facing south west. Due to distance, this SLA will not be included in the LVIA.
Galloway Hills RSA (Dumfries & Galloway)	30.9 km to the south west.	Theoretical visibility predicted from summits and slopes facing south west. Due to distance, this RSA will not be included in the LVIA.
Langholm Hills RSA (Dumfries & Galloway)	36.5 km to the south east.	Theoretical visibility predicted from summits and slopes facing north west. Due to distance, this RSA will not be included in the LVIA.
Tweed Valley SLA (Scottish Borders)	37.1 km to the north east.	No theoretical visibility predicted.
Pentland Hills SLA (Scottish Borders)	37.8 km to the north east.	Limited theoretical visibility is predicted and due to distance from the Proposed Development, this SLA will not be included in the LVIA.