Environmental Impact Assessment Report

Teindland Wind Farm

Volume 3

TA A2.1: Scoping Report

Document prepared by Envams Ltd for: Teindland Wind Farm Ltd

April 2025

RENEWABLE
ENERGY SPECIALISTS

Loco2gen

Teindland Wind Farm

Scoping Report
Volume 1 Written Report

Teindland Wind Farm Ltd

Document Information		
Document title:	Teindland Scoping Report Volume 1	
Date of issue:		
Status:	Approved	
Prepared by:	*Geum Howatson*	Date:03.03.2022
Checked by:	*Euan Hutchinson*	
Approved by:	*Stuart McAleese*	Date:13.06.2022

Version	**Date**	**Purpose of amendment**
01	*Date issued*	Original document
02	*Date issued*	*Brief description of the changes made*
03	*13.06.2022*	*For submission to ECU*

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1. Introduction

This Scoping Report has been prepared by Locogen Consulting Limited on behalf of Teindland Wind Farm Limited ('the Applicant') in anticipation of an application under Section 36 of the Electricity Act 1989 ('Section 36') for a wind farm development of up to 17 turbines of between 149m and 230m to blade tip and associated infrastructure located within Teindland Wood, Rothes, Moray ('the Proposed Development').

It is proposed that any such application is accompanied by an Environmental Impact Assessment Report (EIAR), as required in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations).

1.1. The Site and Surroundings

The Proposed Development is located in an area of commercial forestry referred to as Teindland Wood, immediately north of Rothes, in Moray. The location is shown in Figure A1. The site is within a single parcel of forestry owned by Forestry and Land Scotland (FLS) and a private landowner. The Proposed Development is located within the FLS owned parcel of land with additional landowners required for access and oversail. The FLS land ownership boundary is shown in Figure A2 in red. The likely maximum extent of turbine development is shown as the 'Development Area' and is within a blue line in Figure A3. The landform comprises of a series of rolling hills running south to north namely Teindhall Hill (253m AOD), Findlays Seat (264m AOD) and Gallows Slack (179m AOD). The landscape in the area is characterised by commercial coniferous forest.

The site is bounded to the west by Cushley Burn, to the north by Red Burn, to the east by the B9013 road and to the south by coniferous forestry privately owned. A number of small tributaries pass through the site draining primarily east into the River Spey. There are a number of small roads and tracks servicing farms and forest operations accessing the site from all cardinal directions.

Residential properties are found scattered around the site including (but not limited to) Sauchenbush, Barluack Farm, Teindland Wells, Altonside, Woodside, Dykeside, Braes, Upper Inchberry, Maryhill, Barnyards, Bell View, Station House, Kirkhill and Crofts Farm. The settlement of Rothes is located 2.3km south of the Site.

There are no operational wind farms immediately adjacent to, or within the immediate area, of the Proposed Development. There are a number of wind farms located within the wider area of the Proposed Development, and these will be considered as part of the cumulative assessments.

1.2. The Proposed Development

The Applicant is investigating the potential for a wind farm development consisting of the erection, 35-40 year operation, and subsequent decommissioning of up to 17 turbines, with a range in turbine heights between 149m and 230m to blade tip.

The principal elements of the Proposed Development are described in further detail below.

The layout of the Proposed Development which is currently being considered is shown on Figure A4, however this may be subject to change as the EIA progresses. The key elements of the Proposed Development are summarised as follows:

- up to 17 wind turbines, potentially utilising a range of turbine heights between 149m and 230m to tip;
- foundations supporting each wind turbine;
- associated crane hard standings at each turbine location;
- external transformer housing;
- a network of onsite access tracks and associated watercourse crossings;
- a network of underground cables to connect the turbines to the onsite substation;

- an onsite control building and substation;
- a permanent anemometer mast or LiDAR compound for wind monitoring;
- temporary construction and storage compound(s), laydown area(s) including car parking;
- felling to accommodate infrastructure;
- temporary borrow pits;
- site signage; and
- an area to accommodate energy storage systems which are designed to complement renewable energy generation.

The potential energy storage systems are at an early stage of consideration. Any necessary infrastructure will be situated within the proposed construction compound area.

The Proposed Development will utilise and upgrade the existing forestry access tracks on site. The element of the site located within FLS land was selected from land parcels within Moray and Aberdeenshire as part of Forestry Commission (now Forestry and Land Scotland) portfolio made available for renewable energy projects. This informed the initial site selection process. Wind resource monitoring is ongoing, results to date are encouraging and will enable the project to contribute towards renewable energy targets in Scotland and the UK. The lifespan of the Proposed Development is proposed to be up to 40 years, after this time the project will be decommissioned.

1.2.1. **Project Design**

The iterative design process has considered a range of turbine heights and locations that led to the current layout design. This iterative design process may result in further changes throughout the Environmental Impact Assessment Report preparation process. As such, the layout contained within this Scoping Report may develop further in response to further survey work, the Scoping Opinion and public consultations. Should the turbine layout change from now to the application, it should be noted that the layout presented within this scoping report represents a 'greatest extent scenario' and generally any amendments to the design will not increase the likelihood of a significant impact. Should there be any subsequent changes to the turbine layout that are likely to have a significant impact on identified receptors then these will be included within the EIAR. If the changes are not likely to have a significant impact, these will first be discussed with the relevant consultees to ensure that they too are in agreement with the Applicant's understanding and before excluding them from the EIAR.

A micrositing allowance of approximately 50 m will be sought within the application to allow flexibility. This is especially necessary on this site as current forestry operations prevent detailed assessment of ground conditions to be undertaken.

1.2.2. **Turbine Delivery**

It is anticipated that turbine components will be delivered to Inverness and then transported to the Site via the A96 through Forres and into Elgin. The Applicant is considering a variety of options for access into the development area, and it is possible that construction / labour access will also use other access points to the Development Area.

1.2.3. **Grid Connection**

The Applicant is reviewing potential options for a transmission connection to the electricity network. An application has been made to the National Grid to determine the final connection point and connection date. The grid connection will be subject to a separate application for consent by Scottish Hydro Electric Transmission Ltd, under Section 37 of the Electricity Act 1989. As a result, potential environmental effects as a result of offsite grid connection will not be considered in the EIA.

1.2.4. **Construction Works**

It is estimated that construction works would take approximately 24 months to construct the Proposed Development. Construction works would include the following main activities:

- working of borrow pits;
- tree felling;
- construction of the temporary construction compound;
- construction of site access tracks, passing places and any watercourse crossings;
- construction of culverts under tracks to facilitate drainage and maintain existing hydrology;
- construction of turbine foundations and transformer plinths where required;
- construction of an onsite substation (and energy storage system);
- excavation of trenches and cable laying adjacent to site tracks;
- movement onto site and delivery and erection of wind turbines;
- commissioning of the wind farm; and site restoration including re/planting.

Where possible, construction activities will be carried out concurrently to reduce the overall length of the construction programme. Phasing of the construction process may result in civil engineering works progressing in some areas of the Site whilst turbines are being erected elsewhere.

To minimise disruption to land use, site restoration would be undertaken as early as possible. It is anticipated that stone will be sourced from onsite borrow pits; however, it may be necessary to import some stone to the Site. Stone and other construction material would typically be transported by road from source or seaport. Large loads such as wind turbine components (rotor blades, tower sections and nacelles) would be transported to the Site by specialised abnormal load vehicles using the designated route referred to above.

A Construction Environment Management Plan (CEMP), incorporating a Construction Method Statement (CMS) would be agreed with the Local Planning Authority prior to commencement of construction. The production of the CEMP is an essential element in managing the environmental impact of the Proposed Development, is regarded as an embedded part of the application and would be secured through an appropriately worded Planning Condition. Similarly, no development will commence until a suitably qualified Ecological Clerk of Works (ECoW) has been appointed. The ECoW's role is to oversee construction operations and ensure that they are carried out in accordance with the relevant management plans. Once again this is considered as an essential and embedded part of the proposal, and it is proposed that the ECoW's appointment would be secured by an appropriately worded Planning Condition.

1.3. Approach to preparation of an Environmental Impact Assessment Report

The preparation of the Environmental Impact Assessment Report (EIAR) draws together an assessment of the likely significant environmental effects arising from the Proposed Development.

The EIAR will continue the iterative design process already being undertaken on this project. The EIAR has numerous steps which provides the opportunity to mitigate or remove environmental effects through project design, removing the requirement to provide measures to prevent, reduce or offset significant effects later in the EIAR process.

The EIAR will consider the construction, operational and decommissioning phases of the wind farm. The geographical area of the EIAR will take into account the physical extent of constriction works; the baseline environment and the manner in which effects are propagated; and National and Local planning and policy context for the Proposed Development.

The EIA will identify the baseline through desktop studies, consultation, field survey and monitoring, as well as areas where this baseline may change prior to the wind farm's construction and operation.

The effects of the Proposed Development will be classified as follows:

- Positive effects that have a beneficial influence;
- Negative effects that have an adverse influence;
- Temporary effects that persist for a limited period (for example due to particular activities during construction)
- Permanent effects resulting from irreversible change to the baseline environment
- Direct effects arising from activities that form an integral part of the Proposed Development
- Indirect effects arising from activities not explicitly form part of the Proposed Development
- Secondary effects arising as a result of an initial effect
- Cumulative effects arising from a combination of different impacts at a location, recurrence of impacts of the same type at different locations, interaction of different impacts over time or the interaction of impacts arising from the scheme in conjunction with other projects; and
- Synergistic effects where several individual impact factors combine to have an effect on a receptor greater than the total of the individual impacts.

The EIAR will describe the measures proposed to prevent, mitigate against or remedy any significant adverse effects. The residual effects once the design is finalised and mitigation measures are taken account of will be listed. The level of significance will be determined by correlating the magnitude of change and the sensitivity of the resource or receptor as illustrated below:

Magnitude of change

Magnitude	**Description**
High	Total loss or major alteration to key elements/features of the baseline conditions
Medium	Partial loss or alteration to one or more key elements/features of the baseline conditions
Low	Minor shift away from the baseline conditions
Negligible	Very slight change from baseline conditions

Significance of effect

Sensitivity of Resource/Receptor	**Low**	**Medium**	**High**
Magnitude of Impact			
High	Moderate	Moderate / Major	Major
Medium	Low / Moderate	Moderate	Major
Low	Low	Low / Moderate	Moderate
Negligible	Negligible / Low	Low	Low / Moderate

The EIAR will comprise the following volumes:

- Volume 1: EIAR written text

- Volume 2: Figures
- Volume 3: Technical Appendices
- Volume 4: Non-Technical Summary

Volume 1 of the EIAR will comprise the following chapters:

Topic	Chapter	Title
Introductory	Chapter 1	Introduction
	Chapter 2	Legal and Policy Context
	Chapter 3	Approach to EIA
	Chapter 4	Site Selection and Design Evolution
	Chapter 5	Project Description
Biological and Physical Environment	Chapter 6	Landscape and Visual Impact Assessment
	Chapter 7	Ecology
	Chapter 8	Ornithology
	Chapter 9	Cultural Heritage
	Chapter 10	Hydrology, Geology and Hydrogeological Assessment
	Chapter 11	Forestry
Population and Human Health	Chapter 12	Transport and Access
	Chapter 13	Aviation
	Chapter 14	Shadow Flicker
	Chapter 15	Socio Economics
	Chapter 16	Climate Change
Summary of Assessment	Chapter 17	Residual, Synergistic Effects and Schedule of Mitigation and conclusions

1.4. Legal, Policy and Climate Change

The application will conform to the statutory requirements of both Section 36 of the Electricity Act 1989 and The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Deemed planning permission will be sought by the Scottish Ministers under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended.

A Planning, Design and Access Statement will accompany the application for consent and will consider energy policy and planning policy at a national and local level, as well as the wider international and European policy and legislative context.

The key legislative and policy documents that will be considered are as follows:

International and European Context

- The COP UN Paris Agreement 2015;
- Intergovernmental Panel on Climate Change 2018 (IPCC);
- The United Nations Emissions Gap Report 2020; and
- European Union (EU) Directive 2009/28/EC.

United Kingdom energy policy

- The Climate Change Act 2008;
- UK Government Energy White Paper – Powering our Net Zero Future in 2020;
- Committee on Climate Change (CCC) – Reducing UK emissions – 2019 Progress Report to Parliament and Committee on Climate Change – Net Zero; The Sixth Carbon Budget;
- Climate Change Act 2008 (2050 Target Amendment) Order 2019; and
- Reducing UL emissions – 2020 Progress Report to Parliament.

Scottish Government energy policy

- The Climate Change (Scotland) Act 2009;
- The Reducing Emissions in Scotland – 2020 Progress Report;
- The Scottish Government's Programme for Scotland 2020-2021 – ' Protecting Scotland, Renewing Scotland' (2020);
- Update to the Climate Change Plan 2018 – 2032: Securing a Green Recovery on a Path to Net Zero;
- The Scottish Energy Strategy 2017;
- The Onshore Wind Policy Statement (OWPS) 2017 (and or any subsequent updates noting the current Draft OWPS from 2021;
- National Planning Framework 3 (NPF3); and
- Draft National Planning Framework 4 (NPF 4)
  Whilst this document is currently a draft for consultation, it is understood that the final NPF4 will be published in mid-2022. At that stage it will form part of the Development Plan against which any application will be measured.

Local policy

- Moray Local Development Plan 2020;
- Moray Supplementary Guidance – Climate Change 2015;
- Moray Supplementary Guidance – Onshore Wind Energy 2017 and the Moray Wind Energy Landscape Capacity Study appended thereto;
- Moray Economic Strategy; and
- Moray 2026 – A Plan for the Future.

It is also proposed that the application process will be subject to public and wider stakeholder consultation. The details of the consultation undertaken, the comments received during that consultation and how that has been taken on board by the Applicant will be set out in a Pre-Application Consultation (PAC) Report.

2. Landscape and Visual Amenity

2.1. Overview

The purpose of the Landscape and Visual Impact Assessment (LVIA) is to identify, predict and evaluate potential landscape and visual effects arising from the Proposed Development. The elements of the Proposed Development that could impact on the landscape fabric and character of the Site and wider study area include wind turbines; anemometer masts; access tracks; borrow pits and a substation. The vertical scale of the wind turbines and anemometer mast is such that they are likely to be visible from locations outwith the Site and within the surrounding areas. Consequently, there is potential for effects on the visual amenity and landscape character. The LVIA will therefore address impacts on the Site itself and potential impacts of the receptors within the study area. This report is supported by the following graphic information (Volume 2):

- Figure A5 – Zone of Theoretical Visibility (ZTV)
- Figure A6 – Landscape Character Areas
- Figure A7 – Landscape Designations – National
- Figure A8 – Landscape Designations – Regional
- Figure A9 – Viewpoint Locations
- Figure A10 – Cumulative Wind Farms

2.2. Study Area

- In order to ensure that all significant impacts are assessed, and in line with current guidance, the study area for the LVIA is taken to be 45 km from the outermost turbine.
- A preliminary zone of theoretical visibility (ZTV) has been prepared for the 45 km study area to assist in scoping out the various landscape and visual receptors that would not be impacted by the Proposed Development.
- In this section, all measurements refer to the distance between the receptor and the nearest turbine of the Proposed Development.

2.3. Consultation

In addition to this scoping submission, detailed consultations would be undertaken with the Moray Council (MC), NatureScot (NS), and the Energy Consent Unit (ECU) in respect of the following:

- the LVIA scope and detailed methodology;
- the scope and inclusions for the cumulative assessment component of the LVIA; and
- selection of representative viewpoints for inclusion in the LVIA, including night viewpoints for assessment of aviation lighting

2.4. Approach

The LVIA will address potentially significant effects within a 45 km study area and will contain:

- a description of the methodology utilised in completing the assessment;
- a description of the existing landscape and visual baseline context and cumulative context at the time of completion of the LVIA;
- a description of impact generators associated with the construction and operation of the type of development proposed and their potential effects on receptors;
- a description of siting and design priorities and any mitigation measures proposed to address likely significant effects; and

- an assessment of residual landscape and visual effects, including cumulative effects, taking into account the influence of design responses and mitigation measures.

2.5. Landscape Impacts

The assessment of landscape impacts will address:

- effects on landscape fabric;
- effects on landscape character types;
- effects on landscape designations and classifications, and
- effects on visual amenity.

Care will be taken to describe the extent of visibility of the Proposed Development, and effects on important connecting / linking views, sequential views, vantage points and prominent focal points. The assessment will also discuss what forms the basis of local visual amenity.

In the event that aviation lighting is required for the Proposed Development, the LVIA will address potential lighting effects on visual amenity.

2.6. Supporting Assessments and Graphics

The LVIA will be accompanied by a series of Technical Appendices (TAs) that will provide detailed assessment of residual effects on different aspects of the landscape and visual resource, including:

- an assessment of residual effects on landscape character types;
- an assessment of residual effects on designated landscapes and classified landscapes;
- a detailed viewpoint assessment;
- a detailed statistical route analysis; and
- an assessment of effects of aviation lighting on visual amenity, including visualisations showing night views from a selected series of representative viewpoints (if required).

The LVIA will also be accompanied by a series of figures and visualisations.

2.7. Guidance

The LVIA would be undertaken in accordance with the following guidance and established standards:

- Guidelines for Landscape and Visual Impact Assessment (GSLVIA);
- Landscape Character Assessment;
- Techniques for Judging Capacity and Sensitivity;
- Siting and Designing Wind Farms in the Landscape;
- Assessing Effects on Wild Land;
- Cumulative Effects of Wind Farms;
- Visual representation of development proposals;
- Landscape Sensitivity Assessment – Guidance for Scotland;
- Photography and Photomontage in Landscape and Visual Assessment; and
- Guidance on the Visual Representation of Wind Farms.

Wherever possible, effects will be quantified, however, the nature of landscape and visual assessment requires interpretation by professional judgement.

In order to provide a level of consistency to the assessment, receptor sensitivity, the prediction of magnitude of impact, and assessment of significance of the residual effects will be based on pre-defined criteria based on guidance provided by the Landscape Institute, as refined for the purposes of wind farm assessment and taking account of relevant technical and planning guidance.

2.8. Baseline Conditions

The assessment will be undertaken against the existing baseline conditions. This baseline will provide a description of the existing landscape and visual context of the proposed wind farms. This will form the basis upon which to determine the potential effects of the Proposed Development.

Initially, the baseline will be prepared based on:

- aerial photography;
- Ordnance Survey maps;
- digital terrain modelling (DTM) at 50 m and 5 m resolution;
- Google Street Maps; and
- Open source photography.

Field reconnaissance will be undertaken to verify the findings of the desktop study, and the baseline description adjusted as necessary to accurately reflect the conditions on the ground.

2.9. Location

The Site is located on an uplands landscape, within an area of commercial forestry. The Site straddles Landscape Character Types Rolling Farmland with Forests (LCT47) and Upland Moorland and Forestry (LCT60), and the proposed turbines are wholly located within the LCT60. The Moray Wind Energy Landscape Capacity Study (MWELCS) categorises the landscape character type within which the Site is situated as Upland Moorland and Forest (LCT10, within which the turbines would be located) and Rolling Farmland and Forests (LCT5).

The form of Brown Muir hill to the northwest provides a degree of screening from Elgin and the smaller villages and scattered farm dwellings in the northwest of the site area. The Spey valley runs along the west and south of the Site. This valley is designated a Special Landscape Area and the boundary of this designation has been extended to include the eastern slopes of the upland landscape.

The topography is elevated and undulating and the proposed turbines would be situated on lower elevation relative to Brown Muir hill.

In developing the layout design, consideration will be afforded to landscape character and to visual receptors, especially within 10 km.

2.10. Landscape Character

Figure A6 (Volume 2) shows the location and extent of landscape character types within the study area.

The Site is located within one LCT which will be assessed as part of the LVIA. The LCTs that fall within the study area include:

- LCT1: Beaches, Dunes and Links;
- LCT2: Broad Farmed Valley;
- LCT3: Broad Glen with Estates
- LCT8: Cliffs and Rocky Coast;
- LTC13: Coastal Farmlands;
- LCT14: Coastal Forest;
- LCT20: Farmed and Wooded River Valleys;
- LCT21: Farmed Basin;
- LCT22: Farmed Moorland Edge;
- LCT24: Farmed Rolling Ridges and Hills;
- LCT26: Farmed Straths and Glens;
- LCT30: Forested Upland Fringe;
- LCT32: Gently Undulating Coastal Farmland;
- LCT34: Low Forested Hills;
- LCT35: Low Hills and Basins;
- LCT38: Narrow Winding Farmed Valley;
- LCT39: Narrow Wooded Valley;
- LCT41: Open Rolling Upland;
- LCT43: Open Upland;
- LCT44: Outlying Hills and Ridges;
- LCT47: Rolling Farmland and Forests;
- LCT49: Rolling Uplands;
- LCT55: Undulating Wooded Farmland;
- LCT56: Upland Basin;
- LCT57: Upland Farmed Valleys;
- LCT58: Upland Farmland;
- LCT59: Upland Glen – Cairngorms;
- LCT60: Upland Moorland and Forestry;
- LCT61: Upland Strath;
- LCT62: Upland Valleys; and
- LCT63: Urban.

The urban area (LCT63) will be assessed within the visual assessment under settlement, and not as a landscape character area.

Those LCTs which are within the ZTV of the finalised turbine layout will be assessed. However, for the purposes of this Scoping Report, the ZTV for the initial turbine layout indicates that the following LCTs would be assessed within the LVIA:

- LCT1: Beaches, Dunes and Links;
- LCT2: Broad Farmed Valley;
- LCT8: Cliffs and Rocky Coast;
- LTC13: Coastal Farmlands;
- LCT14: Coastal Forest;
- LCT20: Farmed and Wooded River Valleys;

- LCT22: Farmed Moorland Edge;
- LCT26: Farmed Straths and Glens;
- LCT34: Low Forested Hills;
- LCT35: Low Hills and Basins;
- LCT39: Narrow Wooded Valley;
- LCT41: Open Rolling Upland;
- LCT43: Open Upland;
- LCT47: Rolling Farmland and Forests;
- LCT49: Rolling Uplands;
- LCT56: Upland Basin;
- LCT57: Upland Farmed Valleys;
- LCT58: Upland Farmland; and
- LCT60: Upland Moorland and Forestry.

LCTs which have been scoped out of the assessment due to no views, or minimal visibility include:

Not within ZTV:

- Broad Glen with Estates;
- LCT21: Farmed Basin;
- LCT24: Farmed Rolling Ridges and Hills;
- LCT32: Gently Undulating Coastal Farmland;
- LCT38: Narrow Winding Farmed Valley;
- LCT44: Outlying Hills and Ridges;
- LCT55: Undulating Wooded Farmland;
- LCT59: Upland Glen – Cairngorms; and
- LCT62: Upland Valleys.

Minimal ZTV Coverage:

- LCT30: Forested Upland Fringe (constrained and distant potential visibility over 35km); and

- LCT61: Upland Strath (constrained and distant potential visibility over 36km).

Further to the detailed assessment of Landscape Character, there will be a further detailed review of local landscape character classifications for the Site and neighbouring landscape character areas as outlined the Moray Wind Energy Landscape Capacity Study (MWELCS).

2.11. Landscape Designations

- Landscape Designations are presented on Figure A7 and A8, Volume 2.
- The Site is not located within or near an area of national importance (Figure A7), although the Cairngorms National Park (NP) is located approximately 24 km south-west of the Proposed Development. In addition, there are several inventory listed Gardens and Designed Landscapes (GDL) within the study area. These are noted on Figure A7 and in Table 1)
- In respect of locally important landscape designations, there are several Special Landscape Areas (SLA) within the study area, and the eastern part of the Site area encroaches into the Spey Valley SLA. The SLAs are illustrated on Figure A8 and noted in Table 1.
- Table 1 provides a list of Landscape Designations and Classifications considered for the LVIA and whether it is intended to include each of the designations in the LVIA.

Table 1: Landscape Designations and Classifications (within the 45 km SLVIA Study Area) to be included in the LVIA			
Designation / Landscape Classification	**Within ZTV**	**Approximate Distance & Direction from the Nearest Proposed Turbine**	**Included in the LVIA**
National Parks			
Cairngorms	Yes	24 km south-west	Yes
Gardens and Designed Landscapes			
Blackhills House	Yes	4.5 km NNW	Yes
Gordon Castle (Bog of Gight)	Yes	7 km NE	Yes
Innes House	Yes	9 km N	Yes
Pluscarden Abbey	Yes	13 km WNW	Yes
Grant Park and Cluny Hill	No	23 km W	No No potential visibility
Cullen House	Yes	23.5 km NE	No No potential visibility
Darnaway Castle	Yes	26 km W	Yes
Relugas	No	27 km W	No No potential visibility
Brodie Castle	No	29 km W	No No potential visibility
Castle Grant	No	31.5 km SW	No No potential visibility
Leith Hall	No	32.5 km SE	No No potential visibility
Williamston House	No	40 km SE	No No potential visibility
Newton House	No	42 km SE	No No potential visibility
Cawdor Castle	No	42 km W	No No potential visibility
Castle Forbes	No	46 km SE	No No potential visibility
Duff House	No	38 km NE	No No potential visibility

Table 1: Landscape Designations and Classifications (within the 45 km SLVIA Study Area) to be included in the LVIA			
Designation / Landscape Classification	**Within ZTV**	**Approximate Distance & Direction from the Nearest Proposed Turbine**	**Included in the LVIA**
Special Landscape Areas			
The Spey Valley	Yes	0 km	Yes The eastern part of the Site is located within this SLA
Lower Spey and Gordon Castle	Yes	7 km NNE	Yes
Ben Rinnes	Yes	10 km S	Yes
Lossiemouth to Portgordon Coast	Yes	10.5 km N	Yes
Spynie	Yes	11 km NW	Yes
Pluscarden Valley	Yes	11 km W	Yes
Quarrelwood	Yes	11.5 km NW	Yes
Burghead to Lossiemouth	Yes	15 km NW	Yes
Portgordon to Cullen Coast	Yes	19 km NE	Yes
Culbin to Burghead Coast	Yes	19 km NW	Yes
Findhorn Valley and the Wooded Estates	Yes	22 km W	Yes
Cluny Hill	No	23 km W	No No potential visibility
Deveron Valley (Moray)	Yes	22.5 km E	Yes
Deveron Valley (Aberdeenshire Council Area)	Yes	14 km E	Yes
Drynachan, Lochindorb and Dava Moors (Highland Council Area)	Yes	22 km SW	Yes
Wild Land Areas			
WLA15: Cairngorms	Yes	37.5 km SSW	No

Table 1: Landscape Designations and Classifications (within the 45 km SLVIA Study Area) to be included in the LVIA			
Designation / Landscape Classification	**Within ZTV**	**Approximate Distance & Direction from the Nearest Proposed Turbine**	**Included in the LVIA**
			There is a very limited area of potential visibility within the very northern part of this WLA, the main body of which is beyond 45 km.

2.12. Visual Amenity

The Visual Assessment addresses the impacts on visual amenity, as experienced by people, from key visual receptors within the study area. The baseline will identify visual receptors within areas of potential visibility as indicated by the ZTV. There will be some areas where fewer people are likely to experience the effects of the Proposed Development and other locations with higher concentrations of people with potential views towards the Proposed Development. The baseline seeks to identify the people within areas of potential visibility whose views may be changed by the Proposed Development. In accordance with the GSLVIA, professional judgement is used to identify visual receptors.

2.13. Visual Receptors - Transport Routes

There are several key transport routes within the study area that would be subject to potential views of the Proposed Development. Those that would be assessed in the LVIA are:

- The A96;
- A95;
- A941; and
- A920.

In addition to roads, the rail links within the study area will also be considered.

2.15. Visual Receptors - Recreational Routes and Summits

There are three long distance footpaths within the study area, the Moray Coast Trail, the Dava Way, and the Speyside Way. The Moray Coast Trail is generally aligned along the coast. The Dava Way is aligned north/south from Forres to Grantown on Spey. Both of these routes are a significant distance form the proposal and unlikely to result in a significant effect. Therefore, we propose that these routes are scoped out of further assessment.

The Speyside Way follows the coastline, entering the study area from the north east, and then changes direction to follow the River Spey valley southwards. The Speyside Way comes to within approximately 3 km east of the nearest proposed turbine. This long distance footpath will be assessed within the landscape and visual impact assessment (LVIA).

There are also a number of core paths within the study area. Any core paths within 10 km of the proposed turbines, which have theoretical visibility of the Proposed Development, will be included in the LVIA.

The LVIA will consider the impacts on hill walkers, taking into account the experience of the journey along any key walking routes and the approach to (and view from) key summits. This will be undertaken as part of the recreational route's assessment and also as part of the viewpoint assessment (see Table 2 below).

2.16. Visual Receptors – Settlements

Within the study area there are numerous towns, villages and scattered settlements. Significant impacts to visual amenity are unlikely to occur beyond 20 km, therefore settlement beyond this has been scoped out.

The principal settlement within the study area with theoretical visibility of the Proposed Development is Elgin. The LVIA will include an assessment of visual effects on this receptor. There are numerous smaller villages and hamlets within a 20 km distance and these will also be included in the LVIA.

A Residential Visual Amenity Assessment (RVAA) will be produced to assess the effects of visual amenity for the properties which are closest to the Proposed Development. A detailed survey of residential properties will be undertaken for dwellings within 2 km of the Proposed Development.

The RVAA would generally be undertaken from publicly accessible locations nearest to key properties. A finalised list of dwellings to be included in the RVAA will be drawn up following consultation with the Moray Council.

2.17. Preliminary Viewpoints List

In order to inform and verify the findings of the LVIA, a series of representative viewpoints have been selected. These are intended to represent a range of landscape and visual receptors in the study area. These viewpoints also take account of potential cumulative visibility of the Proposed Development with other wind farms within the cumulative study area. The initial selection of viewpoints is within 18km of the Proposed Development as the ZTV (Figure A5) illustrates that continuous areas of theoretical visibility extent to approximately 15 km radius. These are listed in Table 2 below, and their locations are illustrated in Figure A9 (Volume 2).

Viewpoints will be finalised and established through field reconnaissance and in consultation with the Moray Council and NatureScot.

Table 2: Proposed Viewpoints and Associated Visual and Landscape Receptors					
Viewpoint Number	**Viewpoint Name**	**Location**	**Approximate Distance from Nearest Proposed Turbine**	**Visual Receptors at Location**	**Landscape Receptors at Location**
1	Access road to Auchinroach	326440 851670	0.7 km SW	Local road	Upland Moorland and Forestry (LCT60)
2	Speyburn Distillery	327399 850250	1.1 km N	Visitors' attraction	Upland Moorland and Forestry (LCT60) Spey Valley SLA
3	Rothes Castle Remains (formalised viewpoint)	327681 848965	2.7 km SW	Rothes Castle SM (setting off) Visitors' attraction	Broad Farmed Valley (LCT2) Spey Valley SPA
4	Speyside Way at nearest point to Site, near Woodhead of Cairnty	332409 852594	3 km E	Long distance footpath Local road	Broad Farmed Valley (LCT2) Spey Valley SPA
5	Ben Aigan hill summit	330993 848190	4 km SSE	Hill walkers	Landmark Hill Speyside Valley SPA Open Upland (LCT43)
6	Formalised viewpoint at the Earth Pillars Waterfall (River Spey)	333500 856507	4.7 km NE	Walkers Visitors' attraction	Broad Farmed Valley (LCT2) Spey Valley SPA
7	From Speyside Way on western edge of Fochabers by cricket ground	328146 963405	6.7 km NE	Long distance footpath Visitors' attraction	Coastal Farmlands (LCT13) Spey Valley SPA
8	At Mulben on A95/B9103 crossroads	335258 850661	7 km	Settlement A95	Upland Farmland (LCT58)
9	On A95 near A95/A941 junction on approach to Craigellachie from the south	328118 843955	7.8	A95 Long distance footpath	Broad Farmed Valley (LCT2) Spey Valley SLA
10	Southern edge of Elgin on A941	322281 860903	9 km NW	Settlement A941	Coastal Farmlands (LCT13)
11	National Cycle Route 1 north of Urquhart, near to Standing Stones	328284 863787	9.2 km N	Cycle route Local Road	Coastal Farmlands (LCT13)
12	Near the War Memorial at	317824 860240	11 km NW	Core path	Coastal Farmlands (LCT13)

Table 2: Proposed Viewpoints and Associated Visual and Landscape Receptors					
Viewpoint Number	**Viewpoint Name**	**Location**	**Approximate Distance from Nearest Proposed Turbine**	**Visual Receptors at Location**	**Landscape Receptors at Location**
	crossroads in Miltonduff			Visitors' attraction (War Memorial and Miltonduff Distillery)	
13	Duffus Castle	318908 867207	15.4 km NW	Visitors' attraction	Coastal Farmlands (LCT13)
14	Ben Rinnes summit	325477 835557	16.8 km S	Hill walkers	Open Upland (LCT43) Ben Rinnes SLA
15	Meikle Balloch Hill	347156 849563	18 km ESE	Hill walkers	Farmed Moorland Edge (LCT22)

2.18. Design Development and Mitigation

The LVIA will analyse the siting and design of the Proposed Development, including ancillary elements. This analysis will be undertaken with reference to:

- The Moray Onshore Wind Energy Non-Statutory Guidance
- NatureScot's Siting and Designing Wind Farms in the Landscape; and
- NatureScot's Spatial Planning for Onshore Wind Turbines.

Based on this guidance, the findings of the baseline appraisal, field reconnaissance, and an analysis of potential sources of significant seascape/landscape and visual effects, a series of embedded and design measures will be identified and recorded in the SLVIA and incorporated into the relevant EIAR chapter.

A key consideration in the siting and design of the Proposed Development is anticipated to be its position relative to the following wind farms:

- Operational wind farms;
- The Rothes and Rothes II / Kellas grouping;
- Hill of Towie and Hill of Towie II;
- Application stage wind farms; and
- The Rothes III turbines which would extend the existing Rothes and Rothes II / Kellas group.

The design will consider the emergent pattern and clustering of wind energy development within the wider study area.

2.19. Effects Evaluation

Significance of Landscape and Visual Effects

Table 3 illustrates how residual effects will be determined by comparison of the sensitivity of receptors with the magnitude of impacts. In line with the recommendations in the GSLVIA the matrix is not used as a prescriptive tool or arithmetically, and the methodology and analysis of potential effects at any particular location must allow for the exercise of professional judgement.

Table 3: Residual Effects

	Magnitude of Change				
Landscape and Visual Sensitivity	**Substantial**	**Moderate**	**Slight**	**Negligible**	**None**
High	Major	Major/moderate	Moderate	Moderate/ minor	None
Medium	Major/moderate	Moderate	Moderate/minor	Minor	None
Low	Moderate	Moderate/minor	Minor	Minor/none	None

2.21. Questions for Consultees

Q1: Do Consultees agree with the proposed methodology and scope of assessment?

Q2: Are Consultees content with the proposed 45km radius Study Area?

Q3: Do the Council and Consultees agree with the proposed list of viewpoints as listed in Table 2 and illustrated on Figure A9.

3. Ecology

3.1. Introduction

As part of the early consenting process, Alba Ecology Ltd. was commissioned to conduct a natural heritage desk study to identify biological records within approximately 2km radius of the Study Area and to identify all conservation designated sites within a 10km radius of the Study Area.

The centre of the Study Area is situated at approximately OS grid reference NJ 284 535 southwest of Fochabers in Moray. Figure 1 provides a map of the Study Area plus a 2km buffer hereafter named the Search Area (Figure 1).

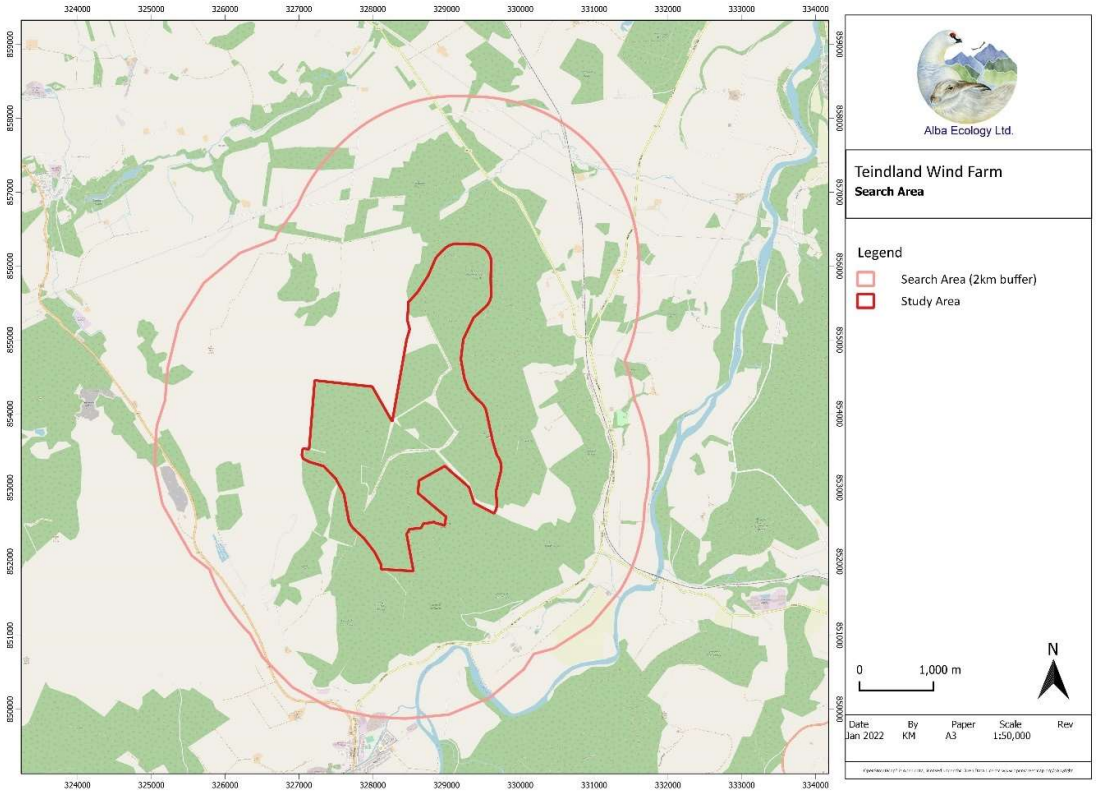

Figure 1 The search area

The Study Area is characterised by plantation forestry with some areas recently felled. To the west there is open heathland and to the east is farmland. Details of the habitats within the Study Area can be found in the Extended Phase 1 habitat survey completed in 2021 by Alba Ecology (Massey and Cosgrove, 2021).

A desk study of biological records was conducted in 2021-2022 using data obtained from the Northeast Scotland Biological Records Centre (NESBReC), from the NatureScot SiteLink website and other relevant web-based sources such as the National Biodiversity Network (NBN) Atlas.

This desk study aims to identify records of species and habitats with conservation importance within the Search Area and designated sites within 10km of the Study Area.

3.2. Study methods

The data searches for this desk study follows Chartered Institute of Ecology and Environmental Management (CIEEM) best practice guidelines (CIEEM, 2016; CIEEM, 2017). The background data aims to provide the following information:

- Designated site information;
- Existing records of protected/priority/notable species for the site;
- Existing records of protected/priority/notable species for the surrounding area;
- Habitat information where available; and
- Soil and geological information for the site.

3.3. Designated site information

Sites with conservation designations located within a 10km of the Study Area were identified using the Site Link website (accessed January 2022). These included Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites.

3.4. Existing species records for the Search Area

Species records were obtained by commissioning data from the local biological records centre, as per best practice guidelines (CIEEM, 2016). NESBReC was commissioned in June 2021 to search for biological records within the Search Area. Provision of the data by the recorders is neutral and should not be regarded, either explicitly or implicitly, as approving or opposing any project informed by the data.

As with all desk studies, the data collected are only as good as the data supplied to the recording schemes. The recording schemes and recorders provide disclaimers in relation to the quality and quantity of the data they provide, and these should be considered when examining the outputs of this desk study. No attempt has been made to verify these records. Common (vernacular) names are used where they have been provided by the recorder.

All biological records within the Search Area were searched for on the NBN Atlas. The CIEEM (2016) guidance stipulated avoiding the use of the NBN for commercial purposes due to constraints to the licence of the data. However, the guidance notes that there is a "general trend, supported by governments, towards Open Data to increase access to data for all stakeholders and the situation is likely to change significantly in the coming years". Due to the updated, and explicit, guidance on the use of the Open Data for commercial purposes on the NBN Atlas website, the CIEEM guidance is deviated from on this point, but it is considered to be in keeping with its aims and expectations.

All records for the Search Area were downloaded on the NBN Atlas website in January 2022. As per NBN Atlas guidance for commercial use, only the records which have an Open Data licence (coded CCO, CC-BY and OGL) have been considered and presented here. These data "can be used for any purpose" (NBN Atlas, 2022). Those data with a non-commercial licence (CC-BY-NC) were not included and were not inspected or considered. This is accordance with the NBN Atlas terms and conditions for commercial use (NBN Atlas, 2022).

It should be noted that the Data Provider, Original Recorder [where identified], and the NBN Trust bear no responsibility for any further analysis or interpretation of that material, data and/or information.

All records, from all sources, were compared against the Scottish Biodiversity List (SBL).

3.5. Existing habitat records for the Search Area and surrounding area

Relevant sources, such as the Ancient Woodland Inventory (AWI), were examined to consider habitats that could be present within the Search Area.

3.6. Soil and Geology for the Site

Soil and geological information can provide insight into the vegetation expected site surveys (Botanæco, 2021). Therefore, the British Geological Society's (BGS) hydrogeological and geological mapping and the Scotland's Soils (2017) Carbon and Peatlands Map have been consulted.

3.7. Results

3.7.1. Designated site information

A total of 14 designated sites, within a 10km radius of the Study Area, have been identified (Table 4; Figure 2). This is reduced to 11 when only those with ecological and ornithological qualifying feature are considered. The closest designated site is Teindland Quarry SSSI which is designated for geological features and is 0.6km north of the Study Area. The River Spey SSSI and SAC is 2.2km to the east and has multiple designated biological features.

Name	Designation	Size (ha)	Distance (km) and direction from the Site	Feature of Interest
Buinach and Glenlatterach	SSSI	96.0	7.5km, W	Lowland dry heath; Upland birch woodland; and Upland oak woodland.
Coleburn Pasture	SSSI	11.1	2.5km, NW	Lowland acid grassland.
Dipple Brae	SSSI	2.0	4.1km, NE	Geological.
Gull Nest	SSSI	255.2	4.8km, SW	Blanket bog.
Loch Oire	SSSI	8.7	4.3km, N	Mesotrophic loch.
Lower River Spey	SSSI	223.6	6.3km, NW	Wet woodland; Freshwater habitats; and Geological.
Scaat Craig	SSSI	1.8	4.2km, NW	Geological.
Spey Bay	SSSI	458.8	9.4km, N	Dingy skipper butterfly; Hydromorphological mire range; Salt marsh; Geological; Shingle; Small blue butterfly; Vascular plant assemblage; and Wet woodland.
Teindland Quarry	SSSI	2.5	0.6km, N	Geological
River Spey	SSSI	1958.8	2.2km, E	Atlantic salmon; Freshwater pearl mussel; Otter; and Sea lamprey.
Lower River Spey - Spey Bay	SAC	654.3	2.2km, E	Alder woodland on floodplains; and Coastal shingle vegetation outside the reach of waves.
River Spey	SAC	5759.2	2.2km, E	Atlantic salmon; Freshwater pearl mussel; Otter; and Sea lamprey.
Moray and Nairn Coast	SPA	2325.7	6.0km, NE	Bar-tailed godwit, non-breeding; Dunlin, non-breeding;

Name	Designation	Size (ha)	Distance (km) and direction from the Site	Feature of Interest
				Greylag goose, non-breeding; Osprey, breeding; Oystercatcher, non-breeding; Pink-footed goose, non-breeding; Red-breasted merganser, non-breeding; Redshank, non-breeding; Waterfowl assemblage, non-breeding; and Wigeon, non-breeding.
Moray and Nairn Coast	Ramsar	2412.3	6.0km, NE	Greylag goose, non-breeding; Intertidal mudflats and sandflats; Pink-footed goose, non-breeding; Redshank, non-breeding; Sand dunes; Salt marshes; Shingle; Waterfowl assemblage, non-breeding; and Wet woodland.

Table 4: Designated sites within 10km of the Study Area

In addition to the statutory designated sites there are some local designations in and around the Search Area. For example, approximately half of Teindland Forest is designated as a Site of Interest to Natural Science, a historical 'local environmental designation' maintained by Moray Council Planning Department. There are also some local nature reserves, which are non-statutory designations, within the Search Area. These include 'Findlay's Reserve' at OS grid reference NJ 288 541, within Teindland Forest.

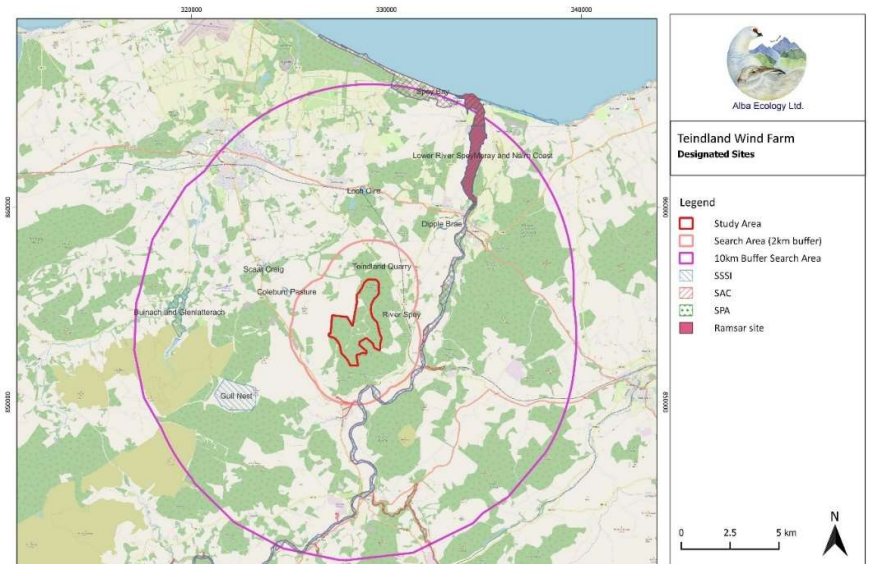

Figure 2: Designated sites within 10km of the Study Area

3.8. Existing species records for the Search Area

3.8.1. NESBReC data

NESBReC searched for all biological records within the defined Search Area. They found records of 11 mammal species, 69 bird species, 72 insect species and 364 plant and fungi species. Several of the species recorded have specific protection or designations. For example, badger (the Protection of Badger Act (1992)), common pipistrelle and soprano pipistrelle (Annex 2 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)), capercaillie and Scottish crossbill (Annex 2 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) Species). The full list of species, and recorded locations along with species designations from the NESBReC data search can be seen in Appendix 1: NESBReC report - Teindland Woods.

Page 15 of Appendix 1: NESBReC report - Teindland Woods shows the locations of bat species records in relation to the Search Area. There are relatively few records within the Search Area, with 'pipistrelle the only records within the Search Area. Records of Daubenton's Bat and Natterer's Bat are just beyond the Search Area boundary.

Page 17 of Appendix 1 shows 'locally' important species within the Search Area. These are based on the historic Local biodiversity Action Plans (LBAPs). LBAPs are now superseded by the Scottish Biodiversity List (SBL) but can provide information at a local level. No LBAP species were recorded within the Study Area, although four LBAP plant species were recorded within the wider, 2km Search Area including common yellow sedge and bluebell.

A total of four species on non-native invasive plants were recorded within the Search Area. There were beyond the Study Area but within the 2km Search Area (Page 18 of Appendix 1). These were Japanese knotweed, Indian balsam, rhododendron and white butterbur.

3.8.2. NBN Atlas data

The NBN Atlas provided a total of 3,789 records of species from a variety of taxa from freely available data sources (NBN Atlas occurrence download at http://nbnatlas.org. Accessed 26 January 2022). The total number of species was 259. Table 4 provides a summary of data by taxonomic groups.

Order/Class/Group	Notes (includes)	No' of species recorded
Birds		100 species
Fish		3 species
Fungi		2 species
Invertebrates	Including earthworms, insects, molluscs, etc	81 species
Mammals		11 species
Non-vascular plants	Mosses and liverworts	62 species

Table 4: Summary of biological records provided by the NBN Atlas, search conducted January 2022 (NBN Atlas occurrence download at http://nbnatlas.org. Accessed 26 January 2022).

The full list of species and the data providers are provided in the accompanying Appendix 2: Desk Study NBN Data Sheet. A small number of the listed species were on the SBL and were European Protected Species (EPS). The non-avian species are listed in Table 5 and are shown on Figure 3.

Species name	Common name	Listings
Petromyzon marinus	Sea lamprey	SBL
Lutra lutra	Otter	SBL, EPS.
Martes martes	Pine marten	SBL
Pipistrellus pipistrellus	Pipistrelle	SBL, EPS
Lepus europaeus	Brown hare	SBL
Sciurus vulgaris	Red squirrel	SBL
Collema dichotomum	River jelly-lichen	SBL
Boloria selene	Small pearl-bordered fritillary	SBL

Table 5: Species listed in the NBN Atlas dataset from the Search Area which are European Protected Species (EPS) on the Scottish Biodiversity List (SBL).

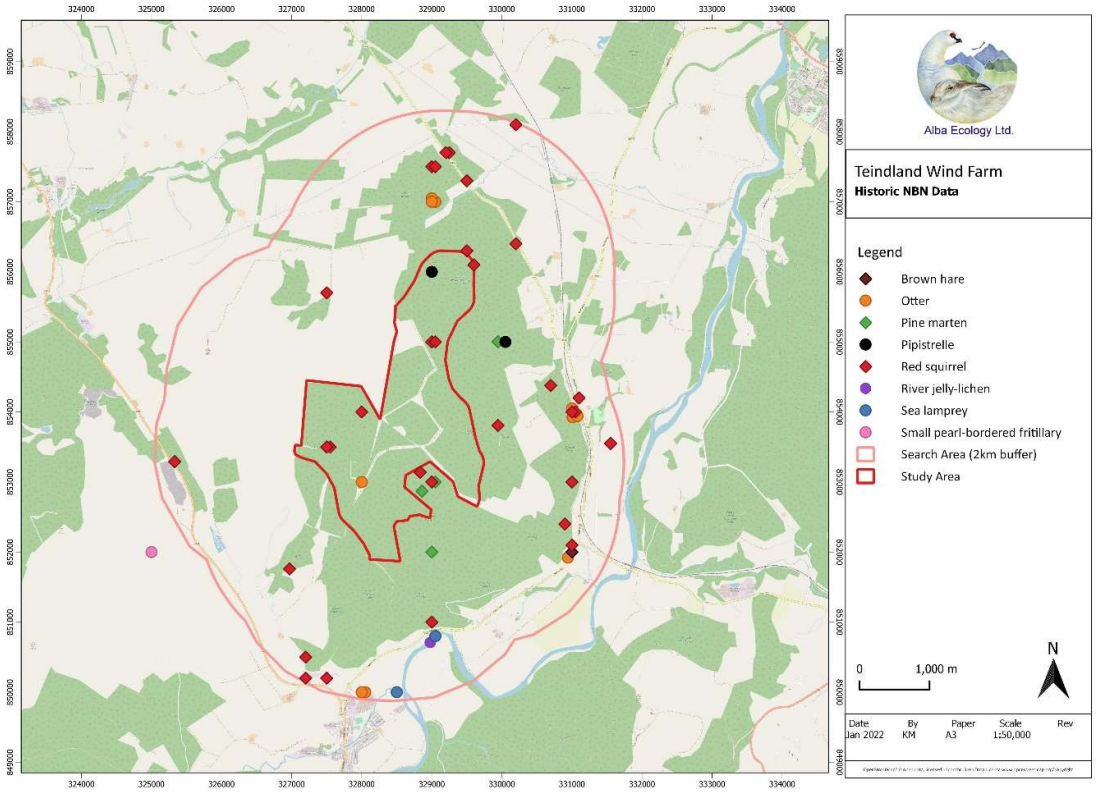

Table 6: Historic records of SBL species and EPS within the Search Area. NBN Atlas occurrence download at https://nbnatlas.org accessed on Wed Jan 26 10:31:29 UTC 2022.

The NBN data shows a number of records within the Search Area, but records are very limited within the Study Area itself, with only red squirrel, a single pipistrelle bat species and otter within the Study Area.

3.8.3. **Existing habitat records for the Search Area and surrounding area**

There were two, relatively recent, and suitable sources to provide habitat information for the Site and nearby surrounding area:

- The Moray Forest District Teindland Forest Plan; and
- NatureScot shapefiles provided on their Natural Spaces, data share web facility which include the AWI data.

The Moray Forest District Teindland Forest Plan describes Teindland Forest as "a large area of coniferous woodland habitat, interspersed with minor areas of broadleaved woodland and open habitats". It reports that "Scots pine and sitka spruce currently occupy the largest area in the forest". Other species of importance for the coniferous woodland included lodgepole pine and western hemlock.

Much of the Study Area is mapped as long-established woodland of planation origin in the (AWI) (Figure 4).

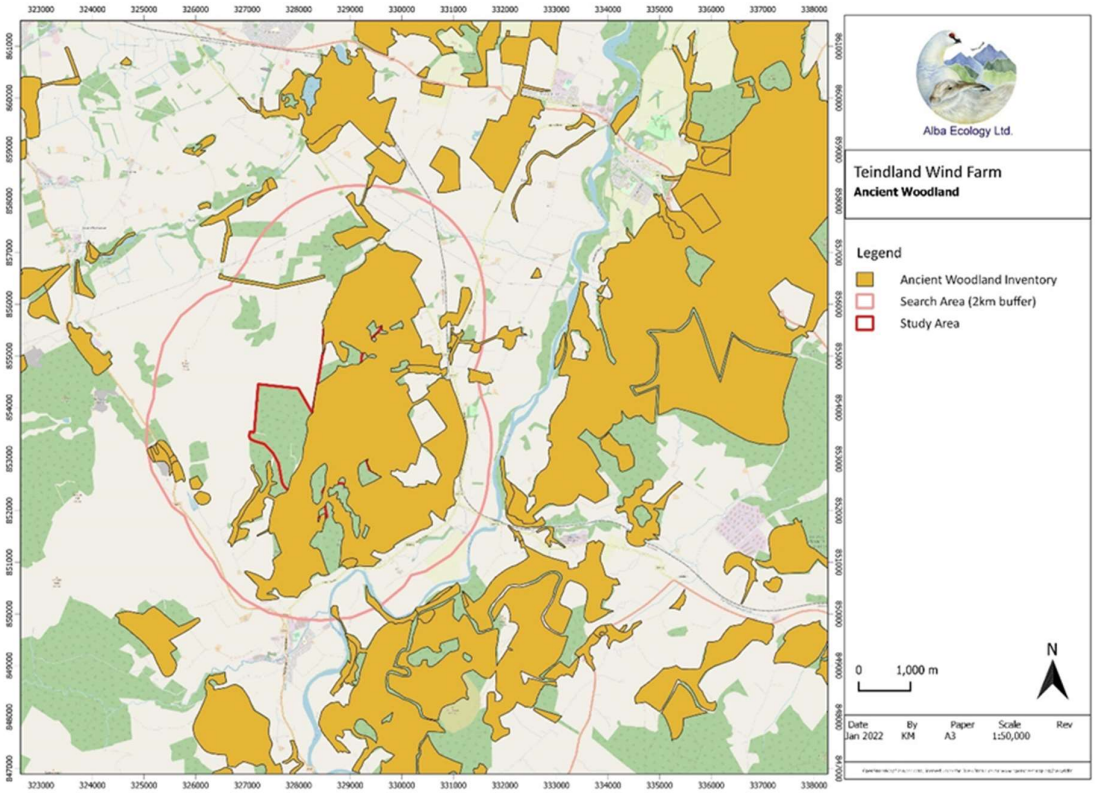

Figure 3: AWI within the Search Area

3.8.4. **Soil and Geology for the Site**

Table 7 provides an overview of the geological information recorded for the Study Area.

Source	Details
Carbon and Peatland map	Predicted mixture of: • Class 4 - Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils. • 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. • Class 0 - Mineral soil - Peatland habitats are not typically found on such soils.
BGS – superficial deposits	Mixture of till, with patches of peat deposits and alluvium recorded. • Peat - superficial deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by organic accumulations. • Till, - superficial deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. • Alluvium and river terrace deposits (undifferentiated) - gravel, sand, silt and clay superficial deposits formed up to 3 million years ago in the Quaternary period. local environment previously dominated by rivers.
BGS – bedrock	Mixture of: • Spey Conglomerate Formation – conglomerate, sedimentary bedrock formed approximately 383 to 393 million years ago in the Devonian period. Local environment previously dominated by rivers and alluvial fans. • Grampian Group – including psammite, semipelite and schistose metamorphic bedrock which formed approximately 541 to 1000 million years ago. Originally sedimentary rocks. Later altered by low-grade metamorphism. • Algan Quartzite Member - quartzite and psammite metamorphic Bedrock formed approximately 541 to 1000 million years ago. Originally sedimentary rocks formed in shallow seas. Later altered by low-grade metamorphism.
BGS - hydrogeological maps	Low productivity aquifer with small amounts of groundwater in near surface weathered zone and secondary fractures.

Table 8: Summary descriptions of the soils, bedrock, and hydrogeology for the Site (BGS, 2022a; BGS, 2021b; Scotland's Soils, 2017)

3.8.5. **Discussion**

This desk study has identified several important ecological sensitivities within the Search Area, as far as existing and freely available data allows. Desk-based studies of this nature have limitations, such as the reliability of third-party records and the coverage of reported studies.

There was a relatively high number of records for some taxonomic groups e.g. mammals and bryophytes for the Search Area, indicating a good base level of knowledge for these groups. However, there was a relatively paucity of biological records available for other taxonomic

groups, such as some invertebrate groups e.g. spiders, indicating either that there was a low level of biodiversity within the Search Area and/or a low level of invertebrate biological recording.

It is worth noting that the historic data supplied by data providers is just that, historic. For example, coypu was listed in both data searches. The last one of this non-native species was shot in England in 1989. This demonstrates that the data provided by a data search is not necessarily relevant and has limitations.

There was a good record of the habitats in and around the Search Area. The main habitat within the Search Area is coniferous plantation, much of which was defined as long-established woodland of planation origin. In Scotland, Ancient Woodland is defined as land that is currently wooded and has been continually wooded, at least since 1750 (NatureScot, 2022). Ancient woodlands are important because for a variety of reasons such as they may have much richer wildlife than that of more recent woods and they preserve the integrity of soil ecological processes and associated biodiversity.

There is no legislation specifically protecting ancient woodland, Scottish Planning Policy (SPP) on Ancient Woodland considers that "Ancient semi-natural woodland is an irreplaceable resource and, along with other woodlands, hedgerows and individual trees, especially veteran trees of high nature conservation and landscape value, should be protected from adverse impacts resulting from development".

'Long-established woodland of planation origin' is interpreted as plantation from maps of 1750 or 1860 and continuously wooded since. Many of these sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland (NatureScot, 2022). However, some can be densely planted non-native species commercial plantations with less ecological value. Site specific details are required to establish this information. These are provided in the Extended Phase 1 habitat survey completed in 2021 by Alba Ecology (Massey and Cosgrove, 2021).

It is important to understand that a lack of information for a species (or indeed Class/Order) does not necessarily mean absence, and previous historical occurrence does not necessarily mean current presence.

3.9. Questions for Consultees

Q4: Do the Consultees agree with the assessment approach set out in the ecology section?

4. Ornithology

4.1. Introduction

The Ornithology Chapter of the EIA Report will assess the potential effects of the proposed Teindland Wind Farm (the Proposed Development) on important ornithological features and will detail any proposed mitigation and/or compensation measures required to avoid, minimise, restore or offset adverse effects and/or to demonstrate net gain.

This section of the EIA Scoping Report therefore details the approach to baseline ornithological information gathering and to the assessment of potential effects on avian ecology, in accordance with current best practice guidance. Ornithological features scoped into the assessment have been informed by key legislative and policy drivers, as they relate to nature conservation in Scotland, and include:

- Sites designated for their nature conservation value via:
    - the Conservation (Natural Habitats, &c) Regulations (1994);
    - the Wildlife and Countryside Act (hereafter 'WCA') (1981); and
    - National/local planning policy.
- Species offered legislative or policy protection via:
    - the Conservation (Natural Habitats, &c) Regulations (1994);
    - the WCA (1981); and,
    - National/local planning policy.

The assessment will follow the Chartered Institute of Ecology and Environmental Management Guidelines (CIEEM) for Ecological Impact Assessment in the UK (2018).

4.2. Ornithological Baseline

Baseline information in relation to ornithological features which may be affected by the Proposed Development has been informed through desk study and ornithological field surveys.

4.2.1. **Desk Study and Consultation**

As part of the desk study the following key sources will be reviewed and consulted for existing information on designated sites for nature conservation and ornithological records within the Site and surrounding area:

- NatureScot Sitelink;
- Multi-Agency Geographic Information for the Countryside (MAGIC);
- Highland and Northeast Scotland Raptor Study Groups (HRSG and NESRSG);
- Royal Society for the Protection of Birds (RSPB);
- Highland Biological Recording Group (HBRG) and North East Scotland Biological Records Centre (NESBReC);
- Forestry and Land Scotland (FLS) for capercaillie records;
- The Capercaillie Advisory Officer for Moray; and,
- Environmental Statements for nearby wind developments.

Full details of key sources reviewed, consultations undertaken and information obtained will be provided within the EIA Report, including in confidential appendices where appropriate.

4.2.2. **Designated Sites for Nature Conservation**

The Site does not form part of any statutory site with designated ornithological interest. No Sites of Special Scientific Interest (SSSIs) with designated ornithological features are located within 5 km of the Site, however three Special Protection Areas (SPAs) and a two Ramsars designated for ornithological features are located within 10 km: Moray and Nairn Coast SPA/Ramsar, Loch Spynie SPA/Ramsar and Moray Firth SPA. Details of these sites are provided in Table 9, and Figure A11 in Volume 2. The approximate distances provided in Table 9 are between the designation boundary and the Site boundary at their nearest points. There are no additional SPAs with migratory waterfowl as designated features within 20 km of the Proposed Development.

Sites with ecological qualifying interests are detailed and discussed separately in Section 3 'Ecology' of this EIA Scoping Report.

Site Name	**Designation**	**Approximate Distance and Direction from Site**	**Designated Ornithological Features**
Moray and Nairn Coast	SPA	4.8 km north north-east	• Osprey *Pandion haliaetus* (breeding); • Bar-tailed godwit *Limosa lapponica* (non-breeding); • Pink-footed goose *Anser brachyrhynchus* (non-breeding); • Greylag goose *Anser anser* (non-breeding); • Redshank *Tringa totanus* (non-breeding); and, Non-breeding bird assemblage (including pink-footed goose, redshank, dunlin *Calidris alpina schinzii*, oystercatcher *Haematopus ostralegus* and wigeon *Anas penelope*).
Moray and Nairn Coast	Ramsar	4.8 km north north-east	• Non-breeding bird assemblage; • Greylag goose (non-breeding); and, • Long-tailed duck *Clangula hyemalis* (non-breeding).
Moray Firth	SPA	8.6 km north	• Great northern diver *Gavia Immer* (non-breeding); • Red-throated diver *Gavia stellata* (non-breeding); • Slavonian grebe *Podiceps auritus* (non-breeding); • Scaup *Aythya marila* (non-breeding); • Eider *Somateria mollissima* (non-breeding); • Long-tailed duck (non-breeding); • Common scoter *Melanitta nigra* (non-breeding);

Site Name	Designation	Approximate Distance and Direction from Site	Designated Ornithological Features
			• Velvet scoter *Melanitta fusca* (non-breeding); • Goldeneye *Bucephala clangula* (non-breeding); • Red-breasted merganser *Mergus serrator* (non-breeding); and, • Shag *Phalacrocorax aristotelis* (breeding and non-breeding).
Loch Spynie	SPA/Ramsar	9.3 km north west	• Greylag goose (non-breeding).

Table 9: Statutory designated sites for nature conservation with ornithological interests located within 10 km of the Site (20 km for migratory waterfowl).

SPA: Special Area of Conservation; Ramsar: Wetland listed under the Ramsar Convention

4.3. Field Surveys

The following field surveys are being undertaken between April 2021 and August 2022 within the Site, and relevant buffers where access permissions allow (the 'Study Area'), to provide detailed information pertaining to the presence and distribution of ornithological features which may be affected by the Proposed Development within the Site and surrounding area:

- Vantage Point (VP) survey;
- Breeding raptor survey; and,
- Black grouse survey.

Study areas for baseline ornithology survey were the developable area (informed by a 1 km residential buffer for noise) plus the relevant survey buffer recommended by NatureScot guidance (2017), where permitted land access allowed (see Figure A12 in Volume 2). All surveys are undertaken by suitably experienced ecologists in accordance with industry standard guidance. Full details of survey methodologies will be presented within the EIA Report.

4.4. Vantage Point Survey

4.4.1. Target species

Flight activity surveys are focussed on protected species and other species of conservation concern, with reference to the following three lists:

- Species listed under Annex I of the EC Birds Directive;
- Species listed under Schedule 1 of the WCA 1981 (as amended); and,
- Red-listed Birds of Conservation Concern.

Within these lists, guidance recommends that the greatest attention should be paid to those species which, as a result of their flight patterns or response behaviour, may be subject to impact from wind farms (such as raptors) and any species that are not manoeuvrable in flight (e.g. geese and swans).

Taking the above into account, the following species groups are considered target species:

- All raptors and owls listed in Annex I of the EC Birds Directive and/or Schedule 1 and 1A of the WCA 1981 (as amended);
- All species of wildfowl (with the exception of Canada goose and mallard);

- Black grouse; and,
- All wader species.

Flight activity of secondary species (species of lesser conservation concern) is also recorded. They included the following:

- All other waterfowl (e.g. mallard and Canada goose);
- All other raptor species;
- Raven;
- Gull species; and,
- Any large aggregations of red-listed passerines.

The flights of secondary species are summarised into five-minute blocks during each VP watch, in accordance with NatureScot guidance (2017).

4.4.2. **VP Flight Activity Surveys**

Levels of "at collision risk" flight activity of target species, for subsequent use in the calculation of collision mortality risks, are being obtained via VP flight activity surveys undertaken between April 2021 and August 2022, covering two breeding seasons, two goose migration periods and one non-breeding season. Given the evidence from onshore wind development to-date that collision risk does not pose a significant constraint to goose populations in the UK, it is considered that a single non-breeding season is sufficient to characterise risk to geese overflying the Site in the non-breeding season, and is proportionate to the likelihood of significant effects to these species posed by the Proposed Development.

In accordance with current guidance (NatureScot, 2017) the study area for VP flight activity surveys has been designed to give the best coverage possible of the developable area of the Site and 500 m buffer, on the basis of a maximum developable area applicable at the time of survey commencement (see Figure A12 within Volume 2).

A total of three VP locations have been used to provide maximum visual coverage of the required Study Area. Figures showing these, along with their zones of visibility, were provided to NatureScot for comment in June 2021 (see Section X.4) below and will be included in the EIA Report.

Current NatureScot guidance (SNH, 2017) advises a minimum of 36 hours per VP per season, with a minimum of two seasons namely 'breeding' (broadly April to August, depending on species present) and 'non-breeding' (September to February). This would reasonably be expected to be increased should the Site be considered particularly sensitive. For this Site, 81 hours of survey per VP are being conducted with survey effort weighted towards the osprey breeding season (this species is established to be present locally and also forms a qualifying interest feature of the Moray and Nairn Coast SPA.

Table 10 provides a summary of the survey effort for VP surveys.

VP	Breeding season 2021 (hours)							Non-breeding season 2021/2022 (hours)						
	Mar	Apr	May	Jun	Jul	Aug	Total	Sep	Oct	Nov	Dec	Jan	Feb	Total
VP1	-	6	9	9	9	6	**39**	6	6	6	6	6	6	**36**
VP2	-	6	9	9	9	6	**39**	6	6	6	6	6	6	**36**
VP3	-	6	9	9	9	6	**39**	6	6	6	6	6	6	**36**
	Breeding season 2021 (hours)													
	Mar	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Total**							
VP1	6	6	9	9	9	6	**45**							
VP2	6	6	9	9	9	6	**45**							
VP3	6	6	9	9	9	6	**45**							

Table 10: VP survey effort [in hours].

Surveys have been undertaken in accordance with current guidance (NatureScot, 2017), with flight activity of all target species mapped and assigned into height bands to allow for the classification of flight activity "at" "below" or "above" collision risk height for the purposes of collision mortality risk calculations.

Target species recorded to date (April to December 2021) during flight activity surveys are as follows:

- Pink-footed goose;
- Greylag goose;
- Lapwing;
- Curlew;
- Snipe;
- Osprey;
- Peregrine
- Red kite;
- Goshawk;
- Merlin; and,
- Hobby.

4.4.3. **Breeding raptor surveys**

Dedicated breeding raptor surveys are being carried out between April and August 2021 and February and August 2022 out to 2 km (6 km for eagles) from the developable area boundary (access allowing). These surveys comprise a combination of short VPs and walkovers to detect displaying or nesting behaviour, in accordance with methods described in Hardey et al. (2013). Early surveys will be carried out in February and March 2022 to detect signs of early breeding species such as goshawk. Further details of survey methods will be included in the EIA Report.

Surveys during the breeding season 2021 recorded evidence of breeding osprey and goshawk within the Study Area. Sensitive information regarding the breeding locations of Schedule 1 raptors will be provided in a confidential appendix and/or figure in the EIA Report in line with good practice pertaining to location data for sensitive breeding species (NatureScot, 2016).

4.4.4. **Black grouse survey**

Dedicated black grouse surveys are being carried out within a 1.5km buffer of the developable area boundary (access allowing) following methods outlined The National Black Grouse Survey Instructions (Etheridge and Baines, 1995; summarised in Gilbert et al. 1998). Further details of survey methods will be included in the EIA Report.

No evidence of black grouse was recorded during the surveys.

4.4.5. **Moorland Breeding Bird Surveys (MBBS)**

The Site, including all proposed turbine locations, is currently forested and so it was not appropriate to carry out dedicated MBBS. However, during the raptor and black grouse surveys waders were also recorded when encountered in open ground in the forestry and buffer, using standard BTO notation, to inform use of habitats within the Site by these species during the breeding season. Further details of survey methods and results obtained will be included in the EIA Report.

4.5. Potential sources of impact

Potential significant effects upon ornithological features may arise from direct habitat loss, disturbance and displacement (indirect habitat loss), and mortality resulting from collision or interaction with development infrastructure.

Such effects will be assessed for the construction, operational and decommissioning phase of the Proposed Development, and in-combination with other developments.

4.5.1. **Construction**

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

- habitat loss, fragmentation or change as a result of the delivery and installation of development infrastructure; and,
- disturbance to and loss of nest sites, eggs and/or dependent young.

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 birds from the vicinity of construction areas for the duration of construction works; potentially longer.

Effects would likely to be greatest during the breeding season (generally between March and August, depending upon the species), but are considerably variable between sites and species.

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 over the whole project area, but within defined working areas, phased over small areas.

By virtue of spatial separation, there would be no direct impacts on ornithological interests within any designated site for nature conservation during the construction phase.

4.5.2. **Operation**

The operation of turbines and maintenance activities has the potential to cause disturbance and displacement of birds 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.

The risk of avian mortality resulting from the collision of birds with the turbine blades (or additional wind farm infrastructure) is also acknowledged to be higher for some species due to their biometrics and flight behaviour. The likelihood of collision is also likely to be influenced by the habitats present within the Site and the surrounding environment.

Where flight activity data justifies it Collision Risk Models following the Band Model in accordance with NatureScot guidance (Band et al., 2007; NatureScot, 2000) will be undertaken to quantify the likelihood of mortality for target species and impacts upon designated sites.

These sources of impact will be considered throughout the design process for the Proposed Development, and where possible will either be avoided completely through scheme design or will be prevented/ minimised via good practice embedded mitigation measures to be included in the Proposed Development from the outset and detailed within the EIA Report.

4.5.3. **Consultation**

Consultation with NatureScot regarding survey methods was undertaken on 2nd June 2021. In their email response dated 3rd June, NatureScot highlighted the potential for the presence of breeding merlin and osprey, and noted that osprey present are likely to be from the Moray and Nairn Coast SPA population and that Habitats Regulations Appraisal (HRA) will be required. They also highlighted the need for consideration of wintering geese from the SPA. Additionally, the presence of historic records of capercaillie Tetrao urogallus was raised, as well as known presence in the surrounding area. It was recommended that further desk study records are sought to inform the requirement for additional targeted field surveys for this species.

NatureScot agreed with the proposed survey approach and advised that two years of survey may be required due to the presence of features from the nearby SPAs.

It is proposed that pre-application consultation will be an ongoing process following submission of this scoping.

4.5.4. **Proposed Scope of Assessment and Reporting**

Impact assessment presented within the EIA Report for ornithological features will be based on current Chartered Institute of Ecological and Environmental Management (CIEEM) guidance (2018) and NatureScot guidance 'Assessing Significance of Impacts from Onshore Wind Farms Outwith Designated Areas' (2018).

The assessment process will include the following stages:

- determination and evaluation of important ornithological features;
- identification and characterisation of impacts;
- outline of mitigating measures to avoid and reduce significant impacts;
- assessment of the significance of any residual effects after such measures;
- identification of appropriate compensation measures to offset significant residual effects; and,
- identification of opportunities for enhancement.

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

The EIA Report will provide a detailed description of the existing baseline ornithological features of the study area, along with the assessment of the potential impacts of the Proposed Development on the identified important ornithological features.

4.5.5. Determining Importance

The assessment within the EIA Report will only assess in detail impacts upon important ornithological features i.e., those that are considered important and potentially significantly affected by the Proposed Development.

Important ornithological features will broadly include:

- species listed on Annex 1 of the Birds Directive;
- species listed on Schedule 1 of the WCA; and,
- 'Priority bird species for assessment when considering the development of onshore wind farms in Scotland' as listed on Annex 1 of current guidance (NatureScot, 2018).

Importance will also be determined using professional judgement, specialist consultation advice and the results of baseline surveys and the importance of features within the context of the geographical area. The importance of an ornithological feature will be defined in a geographical context from 'Local' to 'International'.

A detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts will not be undertaken and justification for 'scoping out' provided.

4.5.6. Identification and Characterisation of Impacts

The identification and characterisation of impacts on important ornithological features will be undertaken in accordance with CIEEM guidelines (2018) with reference made to magnitude (e.g. area or number of individuals to be impacted), extent, duration and reversibility as appropriate.

Impacts will be considered during the construction, operational and decommissioning phases of the Proposed Development and will be assessed on the basis that a clearly defined range of avoidance and standard good practice measures are implemented.

4.5.7. Significant Effects

CIEEM guidelines (2018) define a 'significant effect' as an effect that either supports or undermines biodiversity conservation objectives for 'important ornithological features' or for biodiversity in general and notes that "a significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects can be lawfully permitted following EIA procedures."

Potentially significant effects identified will be expressed within the EIA Report with reference to an appropriate geographic scale. For example, a significant effect on a nationally designated site is likely to be of national significance. However, the scale of significance does not necessarily always relate to the importance of an ornithological feature. For example, an effect on a species which is considered of national importance, may not have a significant effect upon its national population.

For the purposes of assessment, the significance of effects will primarily be expressed within the EIA Report with reference to the regional, national or international scale (as relevant) in line with guidance. The significance of effects at a local scale may also be assessed where sufficient information allows a meaningful assessment.

In line with the principles of proportionate EIA, embedded mitigation, including avoidance through the design process and application of industry standard good practice, will be considered at the outset of the assessment. Important ornithological feature status will only be assigned where there is still considered to be the potential for significant effects on the identified feature arising from the Proposed Development after the application of embedded mitigation measures.

In order to assess significance, population information will be provided at regional and national scales, as relevant, where available. For regional estimates, it is proposed that Natural Heritage Zone (NHZ) population estimates are used (Wilson et al., 2015). In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect will be assumed as a precautionary approach. Where uncertainty exists, this will be acknowledged.

4.5.8. **Residual Effects**

Where the EIA proposes measures to mitigate potentially significant adverse effects on ornithological features, a further assessment of residual effects, taking into account any ornithological mitigation recommended, will be undertaken.

4.5.9. **Cumulative Impacts**

The potential for cumulative impacts with other wind farm developments will be assessed in accordance with NatureScot guidance (2012), for any feature with greater than negligible magnitude residual effects following the application of mitigation and compensation proposals. With regard to the spatial extent of the cumulative assessment, NatureScot guidance (2012 and 2018) recommends that cumulative effects should typically be assessed at the relevant Regional NHZ scale, unless there is a reasonable alternative. The Proposed Development sits within NHZ21 'Moray Firth', and so cumulative effects will be assessed with reference to other wind farm developments within this NHZ, in line with guidance (NatureScot 2012) and where data is available.

The cumulative assessment will include consideration of:

- Existing wind farm developments, either built or under construction;
- Approved wind farm developments, awaiting implementation; and,
- Wind farm proposals awaiting determination within the planning process with design information in the public domain.

The inclusion of additional non-wind farm proposals will also be included upon request from NatureScot and other primary interest bodies.

4.5.10. **Approach to Mitigation**

The adoption of embedded mitigation measures (including ECoW and CEMP) to avoid or minimise adverse impacts upon ornithological features will be part of the iterative design process for the Proposed Development.

Full details of the scheme design evolution and embedded mitigation measures in relation to ornithology will be detailed within the EIA Report. This will include the specification of any species-specific working buffers as necessary, and requirement for the production of a breeding bird protection plan to ensure legislative compliance in accordance with current good practice guidance.

Flight activity and breeding data will also be reviewed to identify any potentially problematic turbines which may result in significant collision risk, and measures to limit increased suitability of the Site to sensitive species (such as merlin) will be outlined where required, with reference to NatureScot guidance (2017).

4.5.11. **Approach to Enhancement**

Suitable principles for biodiversity enhancement to be delivered as part of the Proposed Development will be outlined within the EIA Report. The appropriateness and feasibility of principles will be confirmed with NatureScot and relevant consultees as necessary over the course of the EIA, with view to prescriptive enhancement measures being detailed post-consent within a Habitat Management Plan (HMP) or similar.

4.5.12. **Presentation of Sensitive Information**

Ornithological data considered sensitive (e.g., that pertaining to breeding locations of Schedule 1 species) will be included in a confidential appendix to the EIA Report in line with guidance (NatureScot, 2016b). This will not be made publicly available, but will be issued to NatureScot and Moray Council.

It will be ensured that sufficient information is presented within the EIA Report to allow an objective and robust assessment of potentially significant adverse impacts upon ornithological features to take place.

4.6. Key Ornithological Constraints

CIEEM guidelines (2018) 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. NatureScot guidance (2020) 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 wind farms. 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 EIA Report will be restricted to consideration of the effects upon designated sites for nature conservation and ornithological features which are considered 'important' on the basis of relevant guidance and professional judgement.

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 on the basis of baseline information, it is proposed that these are 'scoped out' of the impact assessment process. Embedded mitigation measures for such features may however, still be outlined as appropriate within the EIA Report, to reduce and/or avoid any potentially adverse effects, or to ensure legislative compliance.

Based on information from initial desk study and field survey to date, it is considered that the following will be the core focus of any required impact assessment:

- Statutory Designated Sites with ornithological interest within the Zone of Influence (ZoI);
- Disturbance to/displacement of breeding Schedule 1/Annex 1 raptors; and,
- Collision risk to target species, including overflying geese.

4.6.1. **Breeding Schedule 1/Annex 1 raptors**

Evidence of breeding for two Schedule 1/Annex 1 raptor species has been recorded within the Study Area during Year 1 of surveys. As such there will be a requirement for assessment to determine the potential impacts on these populations, and to propose mitigation if required to prevent significant adverse effects arising as a result of the Proposed Development.

4.6.2. **Overflying Geese**

During Year 1 of Vantage Point surveys, flocks of goose species, including those associated with the nearby SPAs, have been recorded over the Site. Following completion of the field surveys, there will be Collision Risk Assessment of all target species flights within the collision risk zone, which will enable assessment of potential impacts.

4.6.3. **Habitats Regulations Appraisal**

The Site is located within the core foraging range for qualifying interests of the Moray Firth SPA, Loch Spynie SPA/Ramsar and Moray and Nairn Coast SPA/Ramsar for three species: pink-footed goose (15-20km), greylag goose (15-20km) and osprey (10km). The Site, being forested, does not represent suitable foraging habitat for geese, but they are likely to overfly the Site and so

may be at risk of collision. Osprey are known to breed within the Study Area. The EIA Report will therefore provide sufficient information to allow the competent authority to undertake a Habitats Regulations Appraisal (HRA) of the Proposed Development in relation to these two SPAs.

The Site is not located within the core foraging range for the qualifying interests of any other SPA (as per NatureScot, 2016a) and as such, the potential for connectivity between the Proposed Development and any such designation has been discounted.

4.7. References and Standard Guidance

In the preparation of the EIA Report chapter, reference will be made to the key pieces of legislation, policy and guidance detailed below.

4.7.1. Legislation

- The Electricity Act 1989;
- the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;
- the Birds Directive (Council Directive 2009/147/EC on the conservation of wild birds);
- the Wildlife and Countryside Act 1981 (as amended in Scotland);
- the Wildlife and Natural Environment (Scotland) Act 2011;
- the Nature Conservation (Scotland) Act 2004; and,
- the Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations) (as amended in Scotland).

4.7.2. Planning Policy

- Scottish Planning Policy (SPP) 2014;
- National Planning Framework 3 (NPF3) 2014;
- Draft National Planning Framework 4 (NPF4) 2021;
- Scottish Government Planning Advice Note 60: Planning for Natural Heritage 2008; and,
- Moray Local Development Plan 2020.

4.7.3. Guidance

- Band, W., Madders, M. & Whitfield, D.P. (2007) Developing field and analytical methods to assess avian collision risk at wind farms. In de Lucas, M, Janss, G.F.E. and Ferrer, M. (Eds.) Birds and Wind Farms: Risk assessment and Mitigation, pp. 259 - 275. Quercus, Madrid;
- Brown, A.F. & Shepherd, K.B. (1993) A method for censusing upland breeding waders. Bird Study, 40, pp. 189-195;
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester;
- Highland Biodiversity Action Plan;
- Etheridge, B. & Baines, D. (1995) Instructions for the Black Grouse Survey 1995/6. Unpublished document, RSPB/GCT/JNCC/SNH, Edinburgh;
- Gilbert, G., Gibbons, D. & Evans, J. (1998) Bird Monitoring Methods. RSPB, Sandy;
- Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013) Raptors: a field guide to survey and monitoring. 3rd Edition. The Stationery Office, Edinburgh;
- Mitchell, C. 2012. Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland. Wildfowl & Wetlands Trust / Scottish Natural Heritage Report, Slimbridge;
- NatureScot (2000) Calculating a theoretical collision risk assuming no avoiding action. SNH, Inverness;

- NatureScot (2012) Assessing the Cumulative Impact of Onshore Wind Energy Developments. Scottish Natural Heritage, Inverness;
- NatureScot (2016a) Assessing Connectivity with Special Protection Areas. SNH, Inverness;
- NatureScot (2016b) Environmental Statements and Annexes of Environmentally Sensitive Bird Information. SNH, Inverness;
- NatureScot (2016c) 'Planning for development: What to consider and include in Habitat Management Plans';
- NatureScot (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. SNH, Inverness;
- NatureScot (2018) Assessing the significance of impacts from onshore wind farms outwith designated areas. SNH, Inverness;
- NatureScot (2020) 'General Pre-application/scoping advice to developers of onshore wind farms';
- Ruddock, M. & Whitfield, D.P., (2007) A Review of Disturbance Distances in Selected Bird Species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage
- Scottish Government (2013) The Scottish Biodiversity List (SBL);
- Scottish Renewables *et al.* (2019) 'Good Practice During Wind Farm Construction (Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science and AECoW 2019); and
- Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114:723-747.
- Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015) Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number 1504.

4.8. Questions for Consultees

Q5: Do the Consultees agree that the proposed scope for assessing ornithology is acceptable?

5. Hydrology

5.1. Introduction

As part of the EIAR, a Hydrological, Geological and Hydrogeological Impact Assessment will be undertaken on those receptors that are likely to experience a significant impact from the construction, operation, and decommissioning of the Proposed Development.

The study area, in respect of potential impacts on water resources, will include the Proposed Development extent. Additionally, the assessment will take into account potential hydrological downstream connectivity to areas extending beyond this. The study area, in respect of potential impacts on peat and carbon rich soils, considers land within the Proposed Development area only.

5.2. Embedded Mitigation and Layout Iterations

The design of the Proposed Development will avoid known impacts on hydrological receptors as far as possible, through embedded mitigation including watercourse buffers. Throughout the EIAR process and following further survey work and feedback from the consultation process, the layout will be optimised with hydrology constraints as a key consideration.

5.3. Mitigation by Design

A series of set-back or "buffer" distances will be adopted to help reduce effects of the Proposed Development on the hydrological environment. As the design process evolves, a 50m buffer will be ensured for all natural hydrological features identified using Ordnance Survey 1:25,000 and 1:10,000 scale mapping and site surveys. Infrastructure will be located out with this buffer except where access necessitates. Any watercourse crossings associated with the new access track required as part of the Proposed Development will be minimised as far as practicable.

In addition to watercourses, the design of the Proposed Development would also seek to avoid areas of peaty / carbon rich soil as well as Private Water Supplies and other water resources. The results of detailed surveys completed as part of the EIAR would be used to inform the design in this regard.

5.4. Good Practice Mitigation

Mitigation will follow the well-established principles of industry good practice so as to prevent or minimise effects on the surface and groundwater environment. The following principles will be included as part of the good practice mitigation:

- Drainage – all runoff derived from works associated with the Proposed Development will not be allowed to directly enter the natural drainage network. All runoff will be adequately treated via a suitably designed drainage scheme with appropriate sediment and pollution management measures. The Proposed Development is situated in an upland hydrological area and it is imperative that the drainage infrastructure is designed to accommodate storm flows based on a 1-in-200 year event + climate change to help maintain the existing hydrological regime;
- Storage – all soil/peat stockpiles as well as equipment, materials and chemicals will be stored well away from any watercourses. Chemical, fuel, and oil stores will be sited on impervious bases with a secured bund;
- Vehicles and refuelling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Where practicable, refuelling of vehicles and machinery will be carried out in designated areas, on an impermeable surface, and well away from any watercourse;

- Maintenance – only emergency maintenance to construction plant will be carried out within the Proposed Development Area, in designated areas, on an impermeable surface well away from any watercourse or drainage, unless vehicles have broken down necessitating maintenance at the point of breakdown, where special precautions will be taken;
- Welfare facilities – on-site welfare facilities will be adequately designed and maintained to ensure all sewage is disposed of appropriately. This may take the form of a soakaway or tankering and off-site disposal depending on the suitability of the site for a soakaway and only with prior agreement with the Scottish Environment Protection Agency (SEPA);
- Cement and concrete – fresh concrete and cement are alkaline and corrosive and can be lethal to aquatic life. The use of wet concrete in and around watercourses will be avoided and elsewhere carefully controlled;
- Monitoring Plan – all activities undertaken as part of the Proposed Development will be monitored throughout the construction phase. Such monitoring will be to ensure environmental compliance;
- Contingency plans – plans will ensure that emergency equipment is available on site i.e., spill kits and absorbent materials, advice on action to be taken and who should be informed in the event of a pollution incident; and
- Training – All relevant staff personnel will be trained in both normal operating and emergency procedures and will be made aware of highly sensitive areas on site.

Further details on specific mitigation requirements will be provided as part of the EIAR, either embedded within the chapter or as a standalone outline Construction Environmental Management Plan (CEMP) as well as associated appendices. Under the Water Environment (Miscellaneous) (Scotland) Regulations 2017, amendments were made to the Controlled Activities Regulations (CAR) and the Proposed Development will require a construction runoff permit for water management across the entirety of the wind farm site prior to any construction works taking place, including enabling works. No work will be able to commence on site until a permit has been obtained. Details on other requirements for CAR, including watercourse crossings, would be provided in the EIAR.

5.5. Legislation and Guidance

5.5.1. International Legislation and Policy

The assessment takes into account the requirements of the Water Framework Directive (2000/60/EC) (WFD). The WFD aims to protect and enhance the quality of surface freshwater (including lakes, rivers, and streams), groundwater, groundwater dependent terrestrial ecosystems (GWDTE), estuaries and coastal waters. The key objectives of the WFD relevant to this assessment are:

- To prevent deterioration and enhance aquatic ecosystems; and
- To establish a framework of protection of surface freshwater and groundwater.

The WFD resulted in The Water Environment and Water Services (Scotland) Act 2003, which gave Scottish Ministers powers to introduce regulatory controls over water activities to protect, improve and promote sustainable use of Scotland's water environment. These regulatory controls, in the form of The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) or CAR, made it an offence to undertake the following activities without a CAR authorisation:

- Discharges to all wetlands, surface waters and groundwaters;
- Disposal to land;
- Abstractions from all wetlands, surface waters and groundwaters;
- Impoundments (dams and weirs) of rivers, lochs, wetlands; and
- Engineering works in inland waters and wetlands.

5.5.2. National & Regional Legislation and Policy

The assessment takes into account the following legislation and policy:

- The Water Environment and Water Services (Scotland) Act 2003;
- The Water Environment (Miscellaneous) (Scotland) Regulations 2017;
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
- Flood Risk Management (Scotland) Act 2009;
- The Water Supply (Water Quality) (Scotland) Regulations 2010;
- Private Water Supplies (Scotland) Regulations 2006;
- The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017;
- Part IIa of the Environment Protection Act 1990;
- Waste Management Licensing (Scotland) amendment Regulations 2016;
- Pollution Prevention and Control Regulations (Scotland 2012);
- Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
- Scottish Planning Policy (2014);
- Land Use Planning System (LUPS) Guidance Note 4: Planning Guidance on Onshore Windfarm Developments;
- LUPS Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems; and
- SEPA Policies:
  - No. 19 Groundwater Protection Policy for Scotland;
  - No. 22 Flood Risk Assessment Strategy;
  - No. 41 Development at Risk of Flooding: Advice and Consultation;
  - No. 54 Land Protection Policy; and
  - No. 61 Control of Priority & Dangerous Substances & Specific Pollutants in the Water Environment.

5.5.3. Other Guidance and Good Practice

Table 11 lists other key guidance and best practice documentation relevant to assessment.

Topic	Source of Information
Scottish Government Planning Advice Notes (PAN's)	• PAN 50: Controlling the Environmental Effects of Surface Mineral Workings; • PAN 51 Planning (revised 2006), Environmental Protection and Regulation; • PAN 1/2013 Environmental Impact Assessment; • PAN 61 Planning and Sustainable Urban Drainage Systems; • PAN 79 Water and Drainage; and • Flood Risk (2015); Planning Advice.
SEPA Guidance for Pollution Prevention (GPPs) and Pollution Prevention Guidelines (PPGs)	GPP1 (2020), Understanding your environmental responsibilities – good environmental practices • GPP 2: Above Ground Oil Storage Tanks; • GPP 4: Treatment and Disposal of Wastewater Where there is no Connection to the Public Foul Sewer; • GPP 5: Works and Maintenance in or Near Water; • PPG 6: Working at Construction and Demolition Sites; • GPP 8: Safe Storage and Disposal of Used Oils;

Topic	Source of Information
	• GPP 13: Vehicle Washing and Cleaning; • GPP 21: Pollution incident response planning; • GPP 22: Dealing with Spills; and • GPP 26: Safe Storage - Drums and Intermediate Bulk Containers
SEPA Position Statements (Published)	• WAT-PS-06-02: SEPA (2015), Culverting of Watercourses, Version 2; • WAT-PS-07-02: SEPA (2012), Bank Protection, Version 2; • WAT-SG-23: SEPA (2008), Engineering in the Water Environment, Good Practice Guide - Bank Protection Rivers and Lochs, Version 1; • WAT-SG-25: SEPA (2010), Engineering in the Water Environment, Good Practice Guide, Construction of River Crossings, Version 2; • WAT-SG-26: SEPA (2010), Engineering in the Water Environment, Good Practice Guide, Sediment Management, Version 1; • WAT-SG-31: SEPA, (2006) Special Requirements for Civil Engineering Contracts for the Prevention of Pollution, Version 2; • WAT-SG-75: SEPA (2018), Sector Specific Guidance: Construction Sites, Version 1 & Supporting guidance (WAT-SG-75) Water Run-Off from Construction Sites September 2021; and • WAT-SG-78: SEPA (2012), Sediment Management Authorisation, Version 1.
Construction Industry Research and Information Association (CIRIA)	• CIRIA C692 Environmental Good Practice on Site (third edition); • CIRIA C753 SuDS Manual (2015); • CIRIA C532 Control of Water Pollution from Construction Sites; • CIRIA C648 Control of Water Pollution from Linear Construction Projects; and • CIRIA C689 Culvert Design and Operation Guide.
Other Guidelines	• SNH and Scottish Renewables Joint Publication, (2019) Good Practice During Wind Farm Construction Version 4 • FCE, SNH, (2010), Floating Roads on Peat; • Scottish Water. Precautions for Onshore Wind Developments. • Scottish Renewables, Joint Publication (2012), Development of Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste; • SEPA, The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A Practical Guide, Version 9, January 2022; • SEPA Technical Flood Risk Guidance for Stakeholders – Version 12, May 2019. SS-NFR-P-002; • SEPA Land Protection. Reference EP054; • SEPA Land Use Planning Guidance CC1 (LUPS-CC1) (2019). Climate change allowances for flood risk assessment in land use planning. Issue 1.

Topic	Source of Information
	• SEPA Land Use Planning Guidance Note 4 (2017): Planning Guidance on On-Shore Windfarm Developments, Version 9; • SEPA Land Use Planning Guidance Note 31 (2017): Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, Version 3; • Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey Guidance on Developments on Peatland, on-line version only; • River Crossings: Engineering in the water environment, good practice guide. 2nd edition (2010); • SNIFFER. 2009. WFD95 A Functional Typology for Scotland.

Table 11: Good practice and statutory guidance

5.6. Environmental Information

The following sections summarises the work that has been undertaken to inform the details presented in this Scoping Report.

5.6.1. Site Setting

The site is dominated by commercial forestry with Findlay's Seat being the topographical high point (262 m Above Ordnance Datum (AOD)). To the west of the site boundary is the topographic high of Brown Muir (339 m AOD). A 50 m watercourse buffer has been included in Figure A13 to provide context to the hydrological setting.

5.6.2. Surface Water Hydrology

The Proposed Development lies within the River Spey catchment area with three main watercourses from inside the Proposed Development Area draining into the River Spey. The Sauchenbush Burn drains the western most section of the site, flowing into Millstoneford Burn and continues to flow into Broad Burn before draining east into the River Spey. The Burn of Garbity drains the eastern flank of the site and flows southeast directly into the River Spey. The Proposed Development area is bounded in the north by the Red Burn, which also discharges into the River Spey. The majority of the watercourses are situated wholly within the forested area and are likely to exhibit a morphology that would be expected for upland forested catchments. Channels were often narrow and incised into the superficial geology, with bedloads ranging from bedrock, to sands and gravels, peat and vegetation.

According to the National River Flow Archive the nearest river gauging station to the Proposed Development is situated in the River Spey at Boat o Brig (NJ318517). A review of the long term flow archive for this gauging station (1952-2005) indicates a mean annual flow of 65.4 m3 s and a Q10 flow of 125.7 m3 s. Flow is generally highest during the winter months between November and February. The on-site catchment areas are generally 1-5 km2 and are considerably smaller than the River Spey which is ~2,000 km2. Flow within the watercourses on the Proposed Development would be considered in more detail within the EIAR to ensure the appropriate design of drainage and watercourse crossings.

Catchment descriptors were also obtained for this catchment from the River Flow Archive, and includes the Proposed Development. The Standard Annual Average Rainfall (SAAR) is the average rainfall and for the Proposed Development ranges from ~850 mm yr to ~1000 mm yr.

The Base Flow Index (BFI) is a measure of the proportion of a catchment's long-term runoff that derives from stored sources, with the BFI ranging from 0.10 in relatively impermeable clay catchments to 0.99 in highly permeable catchments. The BFI for the site catchments indicates that around a third of the catchments long-term runoff is derived from stored sources. The Standard Percentage Runoff (SPR) values represent the percentage of rainfall that is likely to contribute to runoff. The SPR for the site catchments indicates that around a half of the rainfall during an event contributes to runoff. This demonstrates that the site is on moderately impermeable catchments.

5.6.3. **Water Resources**

Whilst no properties are located within the Proposed Development Area, consultation with OS mapping has confirmed there are multiple properties within a 3 km buffer which would require investigation to determine if they are served by a private water supply. Given the nature of the surrounding land use and rural location of the Proposed Development there is a high degree of confidence that a proportion of the properties will be served by a private water supply, with abstractions potentially within or fed by land within the Proposed Development. Further consultation with Moray Council will be required to confirm if any of these properties utilise private water supplies. Further consultation would be undertaken with potential PWS Users if required.

A review of the Scottish Government website has confirmed that the Proposed Development is located within the catchment of a Drinking Water Protected Area (DWPA). The catchment of the DWPA extends from the mouth of the River Spey until its confluence with the River Fiddich at Craigellachie. However, the catchment of the Red Burn, which is located within the Proposed Development Area is not part of the designated DWPA. Formal consultation will be carried out with Scottish Water following Scoping to confirm the absence of any such DWPA.

5.6.4. **Water Quality**

Several waterbodies within the vicinity of the Proposed Development have been classified under SEPA's River Basin Management Plans (RBMP) (SEPA 2011). The RBMPs are one of the requirements of the Water Framework Directive (WFD) (2000/60/EC) and are the plans designed for protecting and improving the water environment. The details of the overall condition of waterbodies within and around the Proposed Development that are classified under the RBMP classification scheme are provided in Table 12.

Designation	Type	Waterbody name	Identified Pressure	Distance to site boundary
Good	Watercourse	Red Burn (ID: 23068)	None	Within boundary
Poor	Watercourse	Broad Burn (ID:23070)	Barrier to fish migration	Within boundary
Good	Watercourse	River Spey (Fiddich to tidal limit) (ID: 23065)	None	Adjacent to boundary
Good	Groundwater	Aberlour (ID: 150666)	None	Partially underlying
Poor	Groundwater	Fochabers (ID: 150609)	Diffuse rural nitrate pollution	Partially underlying

Designation	Type	Waterbody name	Identified Pressure	Distance to site boundary
Good	Groundwater	Middle Spey Sand and Gravel (ID: 150798)	None	Adjacent

Table 12: RBMP Waterbodies within the vicinity of the Proposed Development

5.6.5. Designated Areas

The River Spey is a designated Site of Specific Scientific Interest (SSSI) and Special Protection Area (SPA). This classification is due to the presence of Atlantic Salmon (Salmo salar), Freshwater pearl mussel (Margaitifera margaritifera), Otter (Lutra lutra) and Sea lamprey (Petromyzon marinus). Whilst the SSSI and SPA does not extend into the Proposed Development, it is only a short distance downstream.

Teindland Quarry (SSSI) is situated in the north of the Proposed Development Area. Teindland Quarry is one of only a few sites in Scotland with deposits dating from the Last Interglacial. It is therefore a site of outstanding importance for establishing the history of environmental changes that occurred in Scotland during the Late Quaternary.

5.6.6. Flood Risk

The Flood Risk Management (Scotland) Act 2009 sets in place a statutory framework for delivering a sustainable and risk-based approach to managing flooding.

Flood information provided by SEPA indicates that only the Red Burn is at risk of fluvial flooding, with riparian areas illustrating small areas of High (10% annual exceedance probability [AEP]) and Medium (0.5% AEP) risk. There are also numerous and localised pockets of surface water flooding that are considered at high risk. These are contained within the riparian zones of the onsite watercourses and within forestry blocks which are likely a consequence of the commercial forestry operations. Off-site and downstream, there are extensive areas of fluvial flood risk of high (10% AEP) and medium (0.5% AEP) likelihood within riparian areas adjacent to the River Spey.

A flood risk assessment will be undertaken as part of the planning application and would consider all types of flooding. The assessment will be carried out in accordance with Scottish Planning Policy (SPP). The document states that "Planning authorities must take the probability of flooding from all sources – (coastal, fluvial (watercourse), pluvial (surface water), groundwater, sewers and blocked culverts) and the risks involved into account when preparing development plans and determining planning applications."

5.6.7. Soils and Peat

Peat is a soft to very soft, highly compressible, highly porous organic material that can consist of up to 90 – 95% water, with 5 – 10% solid material. Unmodified peat consists of two layers; a surface acrotelm which is usually 10cm – 30cm thick, highly permeable and receptive to rainfall. Decomposition of organic matter within the acrotelm occurs aerobically and rapidly. The acrotelm generally has a high proportion of fibrous material and often forms a crust in dry conditions.

A second layer, or catotelm, lies beneath the acrotelm and forms a stable colloidal substance which is generally impermeable. As a result, the catotelm usually remains saturated with little groundwater flow. Peat is thixotropic, meaning that the viscosity of the material decreases when stress is applied. The thixotropic nature of peat may be considered less important where the peat has been modified through artificial drainage or natural erosion and is drier but will be significant when the peat body is saturated.

The distribution of soils across the site is dependent upon land use, geology, topography and hydrological regime of the area. Information on site soils has been provided by the James Hutton Institute, specifically from its online Soil Information for Scottish Soils (SIFSS) portal. The southern proportion of the Proposed Development Area is mapped as peaty podzols, with additional more minor areas of peat and peaty gleys. In the north of the Proposed Development Area, soils are mapped as a combination of mineral podzols, brown earth soils and mineral gleys. The Carbon Soil and Peatland Classification Map produced by Nature.Scot indicates the north and east of the Proposed Development Area are mapped as mineral soil (no peatland vegetation), with the southern part of the Proposed Development Area being classified as Class 4 (predominantly mineral soil with some peat soil -heath with some peatland) and Class 5 (peat soil – no peatland vegetation).

5.6.8. **Phase 1 Peat Surveys**

Owing to the potential for peat to be present at the Proposed Development, and in alignment with current statutory guidelines for developments on peatland or where carbon rich soils may be present (see Section 3), a Phase 1 Peat Survey was undertaken across the Proposed Development. The survey comprised a 100 m grid survey of peat depths targeted specifically within areas mapped as Class 4 peat by Nature.Scot in the Carbon Soil and Peatland Classification Map. Table 13 provides a summary of the 415 points surveyed, whilst a visual representation of the peat depth can be found in Appendix A.4.

Soil Depth Range (m)	Results	% of Points
≤0.5	351	84.5
>0.5 - 1.0	52	12.5
>1.0 - 1.5	4	1
>1.5 - 2.0	2	0.5
>2.0 - 2.5	2	0.5
>2.5 - 3.0	0	0
>3.0	4	1

Table 13: Recorded Peat Depths

Source: Natural Power (2021)

The phase 1 peat depth survey indicates that 84.5% of the peat probed area recorded a depth of ≤ 0.5 m and are classified as peaty soils. Only 3% of peat depths measured were found to be greater than 1 m, most of which were found in the northwest section of the survey area, with the maximum peat depth measured to 4 m. The areas of deeper peat correspond with the mapped areas of carbon soil.

5.6.9. **Bedrock Geology**

According to the 1:50,000 scale BGS Solid Bedrock Geology Sheet much of the Proposed Development Area is underlain by bedrock of the Spey Conglomerate Formation consisting of gently dipping sedimentary bedrock formed 383-393 million years ago in the Devonian Period. The additional rock unit underlying the site is Grampian Group Psammite which is older metamorphic bedrock formed 541-1000 million years ago. Originally sedimentary rock, this was later altered by low-grade metamorphism and also underlies the Spey Conglomerate Formation.

The Rothes Fault line strikes southeast to northwest and bounds the western periphery, with another smaller fault line striking southwest to northeast to the east of the Proposed Development.

As identified in Section 4.5, Teindland Quarry (SSSI) is situated in the north of the Proposed Development. Whilst the SSSI is within the Proposed Development Boundary, no infrastructure would be positioned within the quarry, or in an adjacent position that would result in any potentially significant effects.

5.6.10. **Superficial Geology**

According to the 1:50,000 scale BGS Superficial Drift Sheet a substantial proportion of the solid bedrock is likely to be overlain by an assemblage of Quaternary glacial till deposits. Peat is the other superficial deposit present and mostly occurs in discrete areas in the northwest of the Proposed Development. There are also areas of alluvial sand and gravel deposits adjacent to the Red Burn. It is anticipated the general succession of facies is likely to be a layer of peat underlain by glacially derived sands and gravels, which may also have a clay matrix.

5.6.11. **Hydrogeology**

According to the 1:625,000 scale BGS Hydrogeology Sheet the Spey Conglomerate Formation is classed as a moderately productive aquifer, with sandstones, siltstones, mudstones, conglomerates, and interbedded lavas locally yielding small amounts of groundwater. The Grampian Group is classed as a low productivity aquifer with small amounts of groundwater in near surface weathered zone and secondary fractures. The primary flow mechanism for both aquifers is virtually all through fractures and other discontinuities.

Where there is low porosity of the underlying bedrock, it is possible that groundwater may exist within the weathered zone in fractures, or in superficial sands and gravel deposits. The volume of water corresponding to the aquifer transmissivity will be a primary function of the effective porosity derived from the content of clays and silts. Since most of these deposits are mapped around watercourses it is likely these locations may well support perched aquifers, supplying baseflow to some of the catchments. These may also support species and be considered as GWDTE, which again will require further assessment during the completion of the EIAR.

5.7. Potentially Significant Effect

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

- There is the potential to alter in-channel or overland flow regimes through excavations, disruption to artificial drains, exposure of bare earth or rock, alteration to forestry drains or field drains and the construction of watercourse crossings;
- There is the potential to increase 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;
- In the event that PWS are found to be in hydrological or hydrogeological connection to the Proposed Development, there is the potential that the quality or quantity of water supply could be affected. There is the potential for water supply at groundwater or surface water abstraction locations to be impacted;
- There is the potential to impact on receiving soils, groundwater and watercourse quality through the release of contaminated water and stored chemicals used on-site during construction works. Potential effects include those on water quality and indirect effects on aquatic ecology;
- There is potential to permanently alter or disrupt shallow groundwater flow, in particular through the removal of forestry, the construction of tracks, drainage measures and turbine foundations;
- The peat erosion potential of any carbon rich soil / peat disturbed during construction and operation of the Proposed Development may also be exacerbated as a consequence of localised drying of the peat and resultant oxidation;
- The removal of soil and bedrock close to or at the Teindland Quarry SSSI could result in degradation in its quality, partial or total loss of said feature;

- Excavation of soil and bedrock during the construction phase of the Proposed Development 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;
- The Proposed Development is positioned within a Drinking Water Protection Area. There is therefore the potential that the Proposed Development could affect drinking water supplies.

5.8. Effects Evaluation

An assessment of the effects associated with construction, operation and decommissioning of the project will be carried out in line with planning and CIEEM guidance. The assessment will follow the mitigation hierarchy by adopting the principles of avoidance, mitigation, compensation, and enhancement. The assessment will follow the established source-pathway-receptor approach, and effects will be assessed as being either not significant or of minor, moderate or major significance. Effects of moderate or major significance are considered to be significant in terms of the EIA Regulations. Following the determination of impacts, mitigation measures will be identified, and residual impacts identified.

Potential cumulative environmental impacts to soils, geology and water 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.

It is anticipated that as the assessment of potential impacts would inform the design of the Proposed Development and good practice measures would be implemented during the construction, operation and decommissioning of the Proposed Development, that significant residual effects to the geological and water environment would be avoided. However, if potential significant residual effects to the geological and water environment are identified through the assessment process described above, suitable mitigation measures will be set out in the EIAR.

5.9. Further Assessment Requirements

At this stage no hydrological, hydrogeological or geological receptors have been scoped out of the proposed EIAR.

The phase 1 peat depth survey undertaken as part of the preparation of this Scoping Report demonstrates the general absence of peat, peaty soils / carbon rich soils across the majority of the Proposed Development. Targeted detailed surveys would be completed for infrastructure where on-site surveys have indicated the presence of peat.

Depending on the findings of the detailed surveys, the EIAR may need to be supported by a Peat Management Plan (PMP) and or a Peat Landslide Hazard Risk Assessment (PLHRA). The requirement for these would be discussed with the Moray Council and SEPA prior to the submission of the EIAR.

Based on a review of SEPA Flood Maps, it is noted that flood risk is highly unlikely to be increased 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. As such, it is expected the assessment of flood risk would form part of the EIAR chapter without the need for separate reporting. This would include a conceptual description of Sustainable Drainage System (SuDS) measures to be employed at the Proposed Development to ensure runoff rates from the site are not increased. However, if assets are found to be at significant flood risk, or, should the Proposed Development be found to have a potential impact on flood risk in the surrounding area, a detailed Flood Risk Assessment would be prepared.

A detailed assessment of potential flow rates at proposed watercourse crossing locations would be carried out by the contractor at the detailed design stage after consent, such that all of the watercourse crossings identified for the Proposed Development would be designed in compliance with 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. Detailed flow rate calculations will not be carried out within the EIAR, however likely licencing requirements under CAR would be presented in a sperate technical appendix.

In the event that PWS at the Proposed Development 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). If a very limited number of PWS are identified, a risk assessment of the PWS will be incorporated into the hydrology chapter of the EIAR.

5.10. Questions for Consultees

Q6: Do the Consultees agree with the assessment approach set out in the hydrology section?

6. Archaeology and Cultural Heritage Scoping

6.1. Introduction

This chapter considers the potential impacts of the Proposed Development on archaeology and cultural heritage. It sets out the study areas proposed for the impact assessment and the cultural heritage baseline, established through an initial appraisal of current data drawn from the Moray Council Historic Environment Records (HER). The methodology to be adopted for the impact assessment within the EIA Report is set out and potential impacts are identified. Assets most likely to have their settings affected are identified. Standard and additional mitigation measures in relation to potential direct impacts are also set out.

6.2. Study Areas

Two study areas will be used for the assessment:

- The Inner Study Area: the Proposed Development site, defined by the site red line boundary, within which turbines and associated infrastructure are proposed, will form the study area for the identification of heritage assets that could receive direct effects arising from the construction of the Proposed Development.

- The Outer Study Area: a wider study area extending 10km from the outermost finalised proposed turbine locations will be used for the identification of cultural heritage assets whose settings may be affected by the Proposed Development (including cumulative effects). Consideration will also be given to designated heritage assets beyond 10km where long distance views and intervisibility are considered to be an important aspect of their settings.

6.3. Baseline Conditions

6.3.1. Inner Study Area (Figure A14)

The Proposed Development site lies wholly within an area of commercial forestry plantation to the north of Rothes and the HER records 67 non-designated heritage assets wholly or partly within the Site Boundary.

There are no Scheduled Monuments or Listed Buildings within the Inner Study Area, and no part of the Inner Study Area intersects with any Inventory Gardens and Designed Landscapes or Conservation Areas.

Prehistoric Periods

The HER records a large cairn identified by forestry workers. At 13m in diameter and standing 1.5m high, it seems likely that this is the remains of a burial cairn of Bronze Age date.

Other recorded prehistoric heritage assets are limited to two findspots, of artefacts of Bronze Age and Iron Age date.

There are no identified prehistoric settlement sites within the Inner Study Area.

Medieval or Later Settlement and Agriculture

The majority of recorded heritage assets within the Inner Study Area are related to farming and agricultural activities and include remains of five farmsteads of post-medieval date along with other farming related buildings, field banks and boundaries, and field enclosures. Mill ponds and dams, lades, the sites of wells, and a few stone quarries and gravel pits are also recorded.

The HER holds records of 26 groups (or series) of boundary marker stones. These tend to be set in linear alignments and mark the boundaries between parishes.

6.3.2. **Outer Study Area (Figure A15)**

There are 17 Scheduled Monuments (four of which are Properties in Care) within 10km of the Site Boundary. There are also 652 Listed Buildings (46 of Category A, 347 of Category B and 259 of Category C) within 10km of the Site Boundary. Of these, 13 of Category A, 77 of Category B and 61 of Category C are within 5km of the Site Boundary. The majority of listed buildings lie within urban settings, most of those being within the townscape of Elgin, to the northwest of the Proposed Development site.

There are three Inventory Gardens and Designed Landscapes and six Conservation Areas within 10km of the Site Boundary. There are no Inventory Historic Battlefields within 10km of the Site Boundary.

Not all of these designated heritage assets will fall within the proposed Outer Study Area described above.

6.3.3. **Potential Impacts**

Direct Impacts

The Proposed Development could potentially directly impact upon one or more of the non-designated heritage assets recorded within the Inner Study Area.

It is possible that there could be other, unknown, and buried remains of archaeological interest within the site and any such remains could be directly affected by construction of the Proposed Development.

Setting Impacts

The Proposed Development could give rise to potentially adverse impacts on the settings of Designated Heritage Assets within the Outer Study Area (as defined above).

Scoped In

It is proposed that the assessment will include consideration of potential impacts of the Proposed Development on the settings of:

- Scheduled Monuments, Category A and B Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscapes, and Inventory Historic Battlefields, where present within 10km of the outermost turbines.
- Category C Listed buildings and Non-Inventory Designed Landscapes (NIDLs) within 5km of the outermost turbines.

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

Consideration will also 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.

Those assets that are most likely to be affected are those where wide-ranging views, or prominence in the landscape, are important aspects of their settings. Initial appraisal has identified Bogton Stone Circle (SM 1215), to the north of the Proposed Development site, and Rothes castle (SM 2455) as sites where such qualities are important. The remains of the Church of Dundurcas (SM 5621) is the closest Scheduled Monument to the Proposed Development site.

Gordon Castle (LB 1595), Gordon Castle Tower (LB 1592), both Category A Listed, and the associated Inventory Gardens and Designed Landscape, lie to the northeast of the Proposed Development site and views and vistas in and around the GDL are important aspects of their setting. The Boat of Brig Tollhouse (LB 2324) is the closest Category A Listed Building to the Proposed Development site, and there are several Category A Listed Country Houses within 5km of the Proposed Development site, where views and designed vistas from principal façades may be important aspects of their settings.

The turbine blade tip and hub height 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 turbines and to assess the degree of potential visibility.

Scoped Out

It is proposed that impacts on the settings of listed buildings that lie within urban settings will be scoped out of the assessment on the basis that their settings are constrained to, and defined by, their locations within the built environment and their relationships with surrounding buildings and the local townscape.

6.4. Assessment Methodology

6.4.1. Guidance

The assessment will be carried out with reference to the following guidance documents:

- SNH & Historic Environment Scotland (2018) 'Environmental Impact Assessment Handbook'
- IEMA (2021) 'Principles of Cultural Heritage Impact assessment in the UK'
- Chartered Institute for Archaeologists (2014, updated 2020) 'Standard and Guidance for Historic Environment Desk-Based Assessment'.
- Historic Environment Scotland (2019) 'Designation Policy and Selection Guidance';
- Historic Environment Scotland (2016) 'Managing Change in the Historic Environment: Setting'.
- Scottish Government (2011) 'Planning Advice Note (PAN) 2/2011: Planning and Archaeology'.

6.4.2. Desk-based Assessment Method

A desk-based assessment will be conducted covering the Inner Study Area (as defined above). 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 Proposed Development site.

Sources to be consulted for the collation of data will include:

- Moray Council (THC) Historic Environment Record (HER)
- Historic Environment Scotland's (HES) on-line GIS Spatial Data Warehouse
- National Record of the Historic Environment (NRHE)
- Historic maps held by National Library of Scotland
- Modern aerial photographic imagery available online
- Historic Land-Use Assessment Data for Scotland (HLAmap)
- Readily accessible published sources, including any reports referenced in HER/NRHE records.

Data will be gathered for the Outer Study Area to identify designated heritage assets that may be subject to effects on their settings and to provide baseline information for the assessment of setting effects.

6.4.3. **Field Survey Method**

A walk-over field survey of the Proposed Development site will be carried out with the following aims:

- to assess the present baseline condition of the heritage assets identified through the desk-based assessment;
- to identify any further features of cultural heritage interest not detected from the desk-based assessment; and,
- to assess the Inner Study Area for its potential to contain currently unrecorded, buried archaeological remains

Previously recorded heritage assets that lie within commercial forestry compartments will be visited, where access is possible, to record their baseline character and condition. Detailed survey will not otherwise be carried out through areas currently covered by commercial forestry or in areas of recently felled forestry ground.

Identified sites will be recorded on pro-forma monument recording forms and by digital photography, and their positions (and where appropriate their extents) logged using a Global Positioning System (GPS). The survey data will be compiled in a GIS and used during the design iteration work. The results of the survey work will be provided to Aberdeenshire Council Archaeology Services (ACAS), advisors to Moray Council, for inclusion in the HER following completion of the project.

Site visits to key heritage assets in the Outer Study Area will 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 blade tip height Zone of Theoretical Visibility (ZTV), where it is considered, on the basis of professional judgement, that the effect on their settings could be significant.

6.4.4. **Assessment Method**

The effects of the Proposed Development on heritage assets will be assessed on the basis of their type (direct effects, impacts on setting 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.

- Adverse effects are those that detract from or reduce cultural significance or special interest of heritage assets.
- Beneficial effects are those that preserve, enhance, or better reveal the cultural significance or special interest of heritage assets.

Assigning Sensitivity to Heritage Assets

Cultural heritage assets are given weight through the designation process. Designation ensures that sites and places are recognised 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 its laws and policies (HES, 2019).

Table 14 summarises the relative sensitivity of heritage assets (including their settings) relevant to the Proposed Development.

Sensitivity of Asset	**Definition / Criteria**
High	Assets valued at an international or national level, including: Scheduled Monuments Category A Listed Buildings Inventory Gardens and Designed Landscapes

	Inventory Historic Battlefields Non-designated assets that meet the relevant criteria for designation
Medium	Assets valued at a regional level, including: Archaeological sites and areas that have regional value (contributing to the aims of regional research frameworks) Non-Inventory Designed Landscapes (NIDL) (where these are identified in Local Authority records) Category B Listed Buildings Conservation Areas
Low	Assets valued at a local level, including: Archaeological sites that have local heritage value Category C listed buildings Unlisted historic buildings and townscapes with local (vernacular) characteristics
Negligible	Assets of little or no intrinsic heritage value, including: Artefact find-spots (where the artefacts are no longer in situ and where their provenance is uncertain) Poorly preserved examples of particular types of features (e.g. quarries and gravel pits, dilapidated sheepfolds, etc)

Table 14: Sensitivity of Heritage Assets

Criteria for Assessing the Significance of Effects

The magnitude of impact (adverse or beneficial) will be assessed in the categories, high, medium, low and negligible and described in Table 15.

Magnitude of Impact	**Criteria**	
	Adverse	**Beneficial**
High	Changes to the fabric or setting of a heritage asset resulting in the complete or near complete loss of the asset's cultural significance. Changes that substantially detract from how a heritage asset is understood, appreciated, and experienced.	Preservation of a heritage asset in situ where it would otherwise be completely or almost completely lost. Changes that appreciably enhance the cultural significance of a heritage asset and how it is understood, appreciated, and experienced.
Medium	Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is appreciably altered. Changes that appreciably detract from how a heritage asset is understood, appreciated, and experienced.	Changes to important elements of a heritage asset's fabric or setting, resulting in its cultural significance being preserved (where this would otherwise be lost) or restored. Changes that improve the way in which the heritage asset is understood, appreciated, and experienced.
Low	Changes to those elements of the fabric or setting of a heritage asset that contribute to its cultural significance such that this quality is slightly altered.	Changes that result in elements of a heritage asset's fabric or setting detracting from its cultural significance being removed. Changes that result in a slight improvement in the way a

	Changes that slightly detract from how a heritage asset is understood, appreciated, and experienced.	heritage asset is understood, appreciated, and experienced.
Negligible	Changes to fabric or setting of a heritage asset that leave its cultural significance unchanged and do not affect how it is understood, appreciated, and experienced.	

Table 15: Magnitude of Impact

The sensitivity of the asset (Table 14) and the magnitude of the predicted impact (Table 15) will be used to inform an assessment of the significance of the effect (direct effect or effect on setting), summarised using the formula set out in the matrix in Table 16. The matrix employs a graduated scale of significance (from Negligible to Major effects) and where two outcomes are possible through application of the matrix, professional judgement supported by reasoned justification, will be used to determine the level of significance.

Magnitude of Impact	**Sensitivity of Asset**			
	High	**Medium**	**Low**	**Negligible**
High	Major	Major / Moderate	Moderate / Minor	Minor / Negligible
Medium	Major / Moderate	Moderate	Moderate / Minor	Minor / Negligible
Low	Moderate / Minor	Moderate / Minor	Minor	Negligible
Negligible	Minor / Negligible	Minor / Negligible	Negligible	Negligible

Table 16: Significance of Effects

Major and Moderate effects are considered to be 'significant' in the context of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations). Minor and Negligible effects are considered to be 'not significant'.

Assessment of Effects on Setting

Historic Environment Scotland's guidance document, 'Managing Change in the Historic Environment: Setting' (HES, 2016), notes that:

> "Setting can be important to the way in which historic structures or places are understood, appreciated and experienced. It can often be integral to a historic asset's cultural significance."
>
> "Setting often extends beyond the property boundary or 'curtilage' of an individual historic asset into a broader landscape context".

The guidance also advises that:

> "If proposed development is likely to affect the setting of a key historic asset, an objective written assessment should be prepared by the applicant to inform the decision-making process. The conclusions should take into account the significance of the asset and its setting and attempt to quantify the extent of any impact. The methodology and level of information should be tailored to the circumstances of each case".

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

Adopting this approach, the turbine blade tip and hub height 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.

Cumulative Assessment

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 10km of the outermost turbines, in addition to the likely effects of other developments that are under construction, those that are consented but not yet built and those that are currently at the application stage(and for which sufficient detail is available upon which to develop an assessment). 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. The schemes to be included in the cumulative impact assessment will be those identified through the LVIA consultations with Moray Council and NatureScot.

The assessment of cumulative effects on the settings of heritage assets from the Proposed Development in combination with pre-existing developments will be addressed in the course of the assessment of effects of the Proposed Development alone, as pre-existing developments are part of the baseline environment.

The 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. The use of cumulative wireline visualisations will be used to aid the assessment.

Mitigation Measures

Planning Advice Note 1/2013: Environmental Impact Assessment (PAN1/2013) describes mitigation as a hierarchy of measures: prevention, reduction, compensatory (offset) measures. Prevention and reduction measures can be achieved through design, whilst compensatory measures can offset impacts that have not been prevented or reduced through design.

HEPS (2019) contains policies (notably HEP2 and HEP4) that are relevant for conservation and preservation of the historic environment.

HEP2 requires that "decisions affecting the historic environment should ensure that its understanding and enjoyment as well as its benefits are secured for present and future generations".

HEP4 requires that "changes to specific assets and their context should be managed in a way that protects the historic environment. Opportunities for enhancement should be identified where appropriate. If detrimental impact on the historic environment is unavoidable, it should be minimised. Steps should be taken to demonstrate that alternatives have been explored, and mitigation measures should be put in place".

The emphasis in Planning Advice Note 2/2011: Planning and Archaeology (PAN2/2011) is for the preservation of important remains in situ, where practicable, and by record where preservation

is not possible. The mitigation measures presented below recognises this planning guidance and provide options for mitigation of potential impacts.

Standard Mitigation / Best Practice Measures

Standard mitigation measures that will be applied to the Proposed Development, and incorporated into the CEMP, include the following:

- A professionally qualified Archaeological Contractor will be appointed to act as an Archaeological Clerk of Works (ACoW) during the construction phase. The role of the ACoW will be to provide advice to the appointed Construction Contractor regarding archaeological matters as they might arise, and to undertake archaeological monitoring of topsoil stripping operation in areas designated and approved by the Council's Archaeological Advisors (ACAS). The activities of the ACoW would be carried out according to the scope of work and terms specified in a Written Scheme of Investigation (WSI) submitted to and approved by ACAS, acting on behalf of Moray Council, prior to any construction works (including enabling works) commencing on-site.
- Implementation of the scope of works outlined in the WSI during the construction phase.
- Any heritage asset identified as potentially being affected by construction works that can be avoided would be marked out for avoidance, where possible, or other mitigation to be agreed with ACAS, would be implemented to reduce and offset unavoidable impacts.
- Written guidelines would be issued for use by all construction contractors, outlining the need to avoid causing unnecessary damage to known heritage assets. The guidelines would set out arrangements for calling upon retained professional support if buried archaeological remains of potential archaeological interest (such as building remains, human remains, artefacts, etc.) should be discovered in areas not subject to archaeological monitoring. The guidelines would make clear the legal responsibilities placed upon those who disturb artefacts or human remains.

Additional Mitigation

Archaeological Investigations / Excavation/ Watching Briefs

If discoveries are made during any required pre-construction archaeological investigations, or construction phase watching briefs, and if preservation in situ is not possible, the scope of any required set-piece excavations would be agreed through consultation with ACAS. Details of the agreed scope of work would be set out in a separate WSI for the approval of ACAS and would be implemented in accordance with the terms of the agreed WSI.

Post-excavation assessment and reporting

If new, archaeologically significant discoveries are made during any archaeological investigations or watching briefs, and it is not possible to preserve the discovered remains in situ, provision would be made for the excavation, where necessary, of any archaeological deposits encountered. The provision would include the consequent production of written reports on the findings, with post-excavation analysis and publication of the results of the works, where appropriate.

6.4.5. Questions for Consultees

Q7: Do Consultees agree with the proposed scope of the assessment, including the proposed Study Areas?

Q8: Do Consultees agree with the proposed assessment methodology?

Q9: Do Consultees agree with the Standard and Additional mitigation measures proposed?

Q10: Are Consultees satisfied that those designated heritage assets identified are those most likely to have their settings adversely affected?

Q11: Do Consultees agree with the proposal to 'scope out' impacts on the settings of listed buildings within the urban environment?

Q12: Are there any other designated heritage assets in the surroundings of the Proposed Development that they consider could have their settings adversely affected?

7. Forestry Scoping

7.1. Overview

This section has been prepared by Cawdor Forestry Limited.

The Proposed Development would require clearing of areas of existing coniferous forest plantation. A targeted Forest Impact Assessment (FIA) will be carried out for the Proposed Development, which will include calculation of areas of temporary and permanent loss and measures for compensatory planting.

Future forest management will be carried out through specific wind farm Forest Plans in accordance with UK Forestry Standard (UKFS).

7.2. Study Area

The study area, in respect of potential impacts on forestry and woodland, will include all woodlands within the Site extent.

7.3. Consultation

Consultation will be sought with Scottish Forestry (SF), the Scottish Government's agency with responsibility for forests and woodland. SF is divided into five regional Conservancies; the Site is within the Grampian Conservancy with their local office in Huntly.

Consultation with SF will aim to establish the approach to felling and replanting to accommodate the Proposed Development and how the long-term forest management arrangements will be demonstrated through a wind farm Forest Plan. Specifically, the consultation will revolve around the Scottish Government's Control of Woodland Removal Policy (CoWRP) and compensatory planting requirements therein.

There will be liaison with Forestry & Land Scotland (FLS) during the development of the plan, to ensure that proposals are compatible with their strategy, specific management requirements & integration with the new Forest Plan.

7.4. Approach

It is considered that a FIA, which will be presented as a Technical Appendix to the EIAR, is the preferred method of describing the changes to the forest structure resulting from the Proposed Development.

As part of the FIA, a Forest Plan "with wind farm scenario" will be produced and then compared with a "without wind farm scenario". The FIA will describe temporary felling and restocking on site, permanent woodland loss and compensatory planting on or off-site.

This assessment would be limited to the effects of the Proposed Development on forest composition and yield. The FIA will refer to relevant industry guidance including, but not limited to:

- The Scottish Government's Policy on Control of Woodland Removal and Implementation Guidance (February 2019) 160;
- The UK Forestry Standard, The Government's Approach to Sustainable Forestry;
- Forests and Water. UK Forestry Standard Guidelines (and other guidelines in the same series);
- Guidance on the Management of Forestry Waste;
- Scotland's Forestry Strategy - 2019-2029;
- Scottish Planning Policy 2014 (A Natural, Resilient Place; Valuing the Natural Environment) Section 218 (Woodland);

- UK Woodland Assurance Standard (UKWAS), under which all FLS woodlands are managed; and
- Moray Forest & Woodland Strategy.

7.5. Baseline Conditions

Teindland Forest comprises approximately 1200ha of conifer plantations. These are a diverse range of species – Scots pine, Sitka spruce, lodgepole pine & other conifers, which were originally planted by the then Forestry Commission in various phases – the 1920's and 1950 – 1970's. Felling & restructuring has been taking place since the 1990's, and replanting has been changing to more appropriate species – less Sitka spruce, Lodgepole pine, western hemlock and more Scots pine. As a result the woodlands have an increasingly diverse age structure.

The previous Forest Plan – 2008-2018 has expired and a new plan is currently in production.

The FIA will compare the windfarm scenario with the new Forest Plan.

7.6. Effects Evaluation

Secondary effects resulting from forestry activities including effects on habitats and species, ornithology, hydrology and landscape and visual effects would be considered within their respective chapters of the EIAR and would not be covered by the FIA.

The FIA will identify and quantify areas of forest which will need to be removed to accommodate the Proposed Development, those areas available for replanting once construction is complete and the net area of forest land lost.

The FIA will also assess the potential impacts of this loss on the forest resource and structure, and will detail proposals for forest redesign, as required, and any proposals for mitigation compensatory planting, if necessary.

The significance of effects to forestry will be assessed against any area of permanent woodland loss in accordance with CoWRP.

7.7. Questions for Consultees

Q13: Do the Consultees agree with the assessment approach set out in the forestry section?

8. Noise

8.1. Introduction

8.1.1. This section describes how the noise effects from the construction, operation, and decommissioning of the Proposed Development will be assessed. The potential noise sources are discussed and the method by which the impacts are assessed is described.

8.1.2. Wind farms are usually situated in rural environments where there are few other sources of non-natural noise. The noise which is generated can be audible at nearby residential properties, depending on the turbine type and proximity to such locations, and noise limits are usually included in planning consents to protect amenity and prevent sleep disturbance.

8.1.3. Operational noise from wind turbines consists of aerodynamic noise from the movement of the blades and mechanical noise from the turbine components, such as the generator and the gearbox. Turbine manufacturers have, over time, been able to control most of the mechanical sources and, as a result, reduce mechanical noise emissions. Wind turbine aerodynamic noise can be restricted by control systems to regulate the pitch and rotational speed of the blades thus minimising noise as required.

8.1.4. The noise from modern wind turbines rises as wind speed increases from the 'cut-in' speed and then remains at the same level from close to the turbine's 'rated' power up to the 'cut-out' speed at very high winds at which point it automatically shuts down for safety reasons. The existing noise environment in rural areas usually consists of a combination of natural sources and those of human origin which, in most cases, vary in line with a standard diurnal cycle, with higher level of noise occurring during the day and lower levels occurring at night. Overlaid on this is the variation of noise from wind-blown trees and foliage, which varies with wind speed and, sometimes, direction. This noise is usually low at low wind speeds and increases steadily with wind speed. At high wind speeds this can mask the sound from wind turbines. Appropriate noise limits can be derived using ETSU-R-97, The Assessment and Rating of Noise from Wind Farms (DTI,1996) and the UK Institute of Acoustics document: A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IoA 2013). These limits are based on a set margin above the background noise level for day-time and night-time periods with a lower limiting value applied which depends on circumstances.

8.1.5. There may be a short-term noise impact at some locations from the construction and decommissioning of the wind farm site and associated infrastructure, and from traffic movements associated with the delivery of construction materials and turbine components. However, construction works will generally be carried out during daytime hours and only for a short period.

8.2. Environmental baseline and potential sources of impact

8.2.1. Baseline

2.3.1.1 The main sources of noise in the existing environment at dwellings surrounding the Proposed Development are anticipated to be:

- Wind induced from trees and foliage surrounding each dwelling;
- Water flow within nearby burns;
- Some traffic noise from the A941 and surrounding 'B' roads and occasional local traffic movements;
- Localised sources from human activities; and
- Birdsong and animal activity

2.3.1.2 Existing background (or baseline) noise levels will be measured where necessary (i.e. if predicted noise levels are above the simplified noise limit described below), as required by ETSU-R-97 and the Institute of Acoustics Good Practice Guide, referenced above. Where measurements are required, the duration will be two to three weeks. In reality, it may be required that the survey is extended to allow for an appropriate range of meteorological conditions (i.e. wind speeds and directions) to be experienced at the site, such that suitably representative/adequate results are obtained. Site-specific meteorological data, over the noise survey period, will be obtained such that the data analysis will be carried out in line with the requirements of the Good Practice Guide.

8.2.2. Potential Sources of Impact

Potential noise impacts may be generated by the construction, operation, and decommissioning of the Proposed Development. The significance of the noise impact is dependent on the noise being generated and the distance of noise sensitive receptors in the vicinity. In this case, noise sensitive receptors are generally residential receptor locations.

8.2.3. Construction and Decommissioning Noise

- Noise impacts may arise through activities associated with the construction of the wind farm such as extraction of rock for construction purposes, on-site track construction, construction of hard standings, construction of associated buildings, construction of turbine foundations, turbine erection, and from vehicles accessing the site. Noise from construction activities is relatively short term, and impacts are usually not significant and controlled through management plans prepared at the time of construction.
- Noise during decommissioning may arise from the dismantling of the turbines, and breaking up of the concrete foundations, hard standings, and access tracks.

8.2.4. Operational Noise

- Noise during the operation of the wind farm is generated by wind turbines as they rotate to generate power. This only occurs above the 'cut-in' wind speed and below the 'cut-out' wind speed (see above). Below the cut-in wind speed there is insufficient strength in the wind to generate electricity efficiently and above the cut-out wind speed the turbine is automatically shut down to prevent any malfunctions from occurring.
- PAN1/2011 identifies two sources of noise from wind turbines; mechanical noise and aerodynamic noise. It states that "good acoustical design and siting of turbines is essential to minimise the potential to generate noise". It refers to the 'web based planning advice' on renewables technologies for onshore wind turbines.

- Modern wind turbine noise is usually dominated by aerodynamic noise, such that any mechanical noise, which is often 'tonal', can be considered to be insignificant. Operational noise is controlled by ensuring that the site can operate within allowable noise limits that are applied to development via planning conditions attached to its consent. Although mechanical noise is usually negligible, it is also usually controlled through planning conditions that cover tonal noise.

8.2.5. CONSULTATION

This scoping section on noise describes the methodology that is proposed to be used to assess the site for agreement with stakeholders and, in particular, Moray Council. Post-scoping consultation will also be carried out with Moray Council to discuss the proposed methodology set out in this chapter if any concerns are raised. If baseline noise measurements are required to enable the relevant noise limits to be derived, the specific methodology and siting of the measurement equipment will be discussed with Moray Council, who will be invited to attend the installation of the equipment.

8.2.6. Proposed Scope of Assessment and Reporting

- Operational noise associated with the Proposal will be assessed in accordance with the requirements of ETSU-R-97 and the Institute of Acoustics Good Practice Guide, as referred to above and both of which are referred to within relevant planning policy (PAN 1/11) and the associated Scottish Government's web-based planning advice.
- Predicted operational effects will be assessed against relevant noise limits derived in line with the above guidance. Although ETSU-R-97 requires all wind farm noise affecting a given location to be assessed cumulatively, there are currently no other wind farm developments which would contribute to that from the Proposed Development at potentially affected residential locations.
- It may be necessary to obtain background noise levels at potentially affected properties and, where measurements are carried out, the results will be correlated with the wind speed experienced on-site and a best fit curve will be applied to derive the 'prevailing background noise level' as required by ETSU-R-97. The derived prevailing background noise levels will be used to determine daytime and night-time noise limits, over a range of wind speeds, as per the requirements of ETSU-R-97 and the Good Practice Guide referenced above.
- Construction and decommissioning noise impacts will be discussed with reference to relevant guidance in the form of BS 5228 Code of Practice for Noise and Vibration Control on Construction and Open Sites (BSI, 2009 + A1, 2014).
- Where increases in road traffic are predicted during the construction phase of the development, the increase in predicted noise levels will be assessed using the Calculation of Road Traffic Noise (HMSO 1988), and the impact will be considered as not significant if the increase is less than 3 dB, or the relevant noise limits described in BS 5228 are met where existing traffic is negligible.

8.2.7. Potential Effects

- Predicted operational noise levels will be compared with the limits set out within ETSU-97 and the Proposed Development will be designed such that planning requirements in this respect will be met.
- Construction and decommissioning of the site will occur at distances that are unlikely to result in a breach of typical construction noise limits as prescribed within relevant guidance such as BS 5228 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' (BSI, 2009 + A1,2014). This, combined with the temporary nature of the works, means that a detailed assessment of the construction noise impacts can often be scoped out. However, possible upgrades to local roads and provision of additional tracks relating to construction access requirements could occur in close proximity to some dwellings depending on the route taken. As such, only these relatively minor aspects of the Proposal may require some consideration

in terms of potential noise impacts and a detailed assessment may not be necessary. However, this will be kept under review throughout the EIA process.

8.2.8. Impact Assessment

- The noise impact assessment will be divided into operational noise and noise related to construction activities. although noise from construction is likely to be scoped out unless potentially significant effects are identified during the EIA process.
- Where the ETSU-R-97 noise limits are shown to be met, operational noise impact will be deemed to be not significant. Where limits are found to be exceeded, example mitigation, by way of curtailing turbine operation for certain wind speeds and directions, will be proposed such that the limits can be met.
- Detailed construction noise predictions will not be carried out except where there is a possibility of short-term impact at residential properties during any track works or similar activities.
- Where construction noise levels can meet suggested limits in BS5228*, Code of Practice for Noise and Vibration Control on Construction and Open Sites*, the impact will be considered to be not significant.
- The noise from construction traffic movements will be assessed in terms of the increase in noise over that from existing traffic movements. Where this increase is shown to be less than 1 dB, this will be considered to be negligible, and where the increase is less than 3 dB, or overall noise from construction activities will be below 65 dB L_{Aeq}, the impact will be deemed to be not significant. Mitigation will be proposed where significant impacts are found.

8.2.9. Matters Scoped Out

- There are various aspects that will be scoped out of the assessment or only discussed in general terms. This includes detailed construction noise prediction, for the reasons discussed above, and issues frequently raised by third parties opposed to wind farm development in general, such as infrasound, low frequency noise, vibration and amplitude modulation. Each of these topics will be discussed in generalised terms within the EIA noise chapter for the Proposed Development and a detailed assessment is either not possible and/or not considered necessary.
- Noise from decommissioning activities will be scoped out as the overall noise impacts are usually lower than during the construction phase, and will be assessed and mitigated as required at the time of decommissioning.

8.2.10. Questions for Consultees

Q14: Do the Consultees agree that the proposed scope for assessing noise is acceptable?

9. Transport & Access

9.1. Introduction

The section covers the predicted transport and access issues that may arise from the construction of the Proposed Development, the significance of these effects and what suitable mitigation can be put in place to avoid, minimise or offset any adverse impacts.

The Transport & Access EIA Report Chapter will be supported by a Transport Assessment report, Abnormal Load Route Survey and technical figures.

The key issues for consideration as part of the assessment will be:

- The temporary change in traffic flows and the resultant, temporary effects on the study network during the construction phase;
- The physical mitigation associated with the delivery of abnormal loads;
- The design of new access infrastructure; and
- The consideration of appropriate and practical mitigation measures to avoid, minimise or offset any temporary effects.

The potential effects of these will be examined in detail.

The study area will be formed form the road network that will be used for import of raw materials, construction staff commuting and the proposed Abnormal Indivisible Load (AIL) route to the site.

The access route for AIL movements has yet to be determined, however access will be from the north from the A96. Further details of the access routes will be discussed with Moray Council as the access strategy is confirmed.

Locally sourced material or materials won on site will be used wherever feasible and traffic will avoid impacting on local communities as far is possible.

9.2. Design Considerations

The following policy and guidance documents will be used to inform the EIA Report Chapter:

- Transport Assessment Guidance (Transport Scotland, 2012);
- The Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (IEA), 1993);
- SPP (Scottish Government, 2014); and
- Moray Council Local Transport Strategy.

An appropriate access junction will be provided to cater for general construction traffic, abnormal loads deliveries and ongoing operational access to the Proposed Development. The junction will be described in the transport submissions and an indicative layout plan of the junction will be provided.

Abnormal Indivisible Loads (AIL) associated with the turbine will be examined in a Route Survey Report that will be appended to the EIAR. Swept path assessments and traffic management requirements necessary for the safe and efficient delivery of the loads will be detailed in this report.

9.3. Proposed Surveys and Assessment Methodologies

Existing traffic count data will be used from the Department for Transport (DfT) database for the A96. New ATC surveys for local road network leading from the A96 will commissioned and placed on the finalised study area links for one week to record classified traffic data for a neutral month.

Three years of traffic accident data will be collected using the online resource crashmap.co.uk for the local road network leading from the A96 to inform the baseline review.

Online sources such as the National Cycle Route map and Ordnance Survey maps will be used to obtain details of the sustainable travel network.

The Guidelines for the Environmental Assessment of Road Traffic (IEMA 1993) 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.

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%); and
- Rule 2: Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

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.

The estimated traffic generation of the Proposed Development will be compared with baseline traffic flows, obtained from existing traffic survey data, in order to determine the percentage increase in traffic.

Potentially significant environmental effects will then be assessed where the thresholds as defined above are exceeded. Suitable mitigation measures will be proposed, where appropriate.

Committed development traffic, i.e. those from proposals with planning consent, will be included in baseline traffic flows, where traffic data for these schemes is considered significant and is publicly available. Developments that are proposed or at Scoping would not be included.

It is not anticipated that a formal Transport Assessment will be required as these are not generally considered necessary for temporary construction works. A reduced scope Transport Assessment is therefore proposed.

Each turbine is likely to require between 11 and 14 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.

Detailed swept path analyses will be undertaken for the main constraint points on the route from the port of entry 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.

9.4. Potential Significant Effects

9.4.1. Potential Effects Scoped into Assessment

Potential impacts that may arise during the assessment may include the following for users of the road and those resident along the delivery routes:

- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity;
- Fear and intimidation; and
- Accidents and safety.

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 presents a robust assessment of the effects of construction traffic on the local and trunk road networks.

The effects that will be considered will be based upon percentage increases in traffic flow and reviewed against the impacts noted above.

9.4.2. Potential Effects Scoped out of Assessment

Once operational, it is envisaged that the level of traffic associated with the Proposed Development will be minimal. Regular monthly or weekly visits would be made to the wind farm for maintenance checks. The vehicles used for these visits are likely to be 4x4 vehicles and there may also be the occasional need for an HGV to access the wind farm for specific maintenance and/or repairs. It is considered that the effects of operational traffic would be negligible and therefore no detailed assessment of the operational phase of the development is proposed.

The traffic generation levels associated with the decommissioning phase will be less than those associated with the development phase as some elements such as access roads will be left in place on the site. As such, the construction phase is considered the worst case assessment to review the impact on the study area. An assessment of the decommissioning phase will therefore not be undertaken, although a commitment to reviewing the impact of this phase will be made immediately prior to decommissioning works proceeding.

9.5. Approach to Mitigation

Standard mitigation measures that are likely to be included in the assessment are:

- Production of a Construction Traffic Management Plan;
- The design of suitable access arrangements with full consideration given to the road safety of all road users;
- A Staff Sustainable Access Plan; and
- A Framework Abnormal Load Transport Management Plan.

Additional mitigation will be included should the assessment reveal criteria that are significant following the application of standard mitigation measures.

9.6. Consultee List

It is proposed that the following stakeholders will be consulted in relation the assessment:

- Moray Council as local roads authority;
- Transport Scotland as trunk roads agency; and
- Structures owners / operators along the site access route via the ESDAL consultation undertaken as part of the AIL assessment.

9.7. Questions for Consultees

Q15: Do the Consultees agree that the proposed methodology is acceptable?

Q16: Do the Consultees agree that the methods proposed for obtaining traffic flow data are acceptable?

Q17: Do the Consultees agree that the use of Low National Road Traffic Forecasts (NRTF) is acceptable for the whole of the study?

Q18: What committed development schemes should be included in the assessment?

10. Aviation

10.1. Introduction

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

10.2. Baseline Description

The Site lies approximately 16km south-east of the RAF Lossiemouth aerodrome, 50km east of Inverness Airport and 6km east of Easterton Airfield, home of the Highland Gliding Club. The assessment needs to consider potential impacts to the Lossiemouth ATC radar, the NATS radars at Alanshill and Perwinnes and to the activities of the Highland Gliding Club.

The Proposed Development lies outside of the safeguarded area for the Precision Approach Radar at RAF Lossiemouth and within an area identified as of low priority for military low flying. It is also beyond the limits of the area used by Inverness for radar based services and well beyond the limits of safeguarding areas for any navigational aids or radio communication stations.

10.3. Guidance and legislation

There are a number of publications providing key legislation, policy and guidance. Together these place a responsibility on the planning authorities and the developer to assess potential impacts on aviation. The summary below highlights the main generic documents; it is not exhaustive.

Scottish Planning Policy states that consideration should be given to the "impacts on aviation and defence interests and seismological recording".

CAA guidance, within CAP 764 (CAA Policy and Guidance on Wind Turbines), sets out recommended consultation and assessment criteria for the impacts of wind turbines on all aspects of civil aviation. Note that the CAA involvement in the Wind Farm Pre-Planning Consultation Process has ceased; CAP 764 now states that "developers are required to undertake their own pre- planning assessment of potential civil aviation related issues" and that "it is incumbent upon the developer to liaise with the appropriate aviation stakeholder to discuss – and hopefully resolve or mitigate – aviation related concerns without requiring further CAA input."

Scottish Onshore Wind Policy Statement, December 2017. This notes the potential impacts of wind developments, especially on radar, mitigation methods and suggests longer term strategic direction towards self-management of the issues by the aviation sector to reduce the financial burden on the wind energy sector;

Civil Aviation Authority (CAA) CAP 393, The Air Navigation Order and Regulations, specifies the statutory requirements for the lighting of onshore wind turbines over 150 m tall;

Planning Circular 2/03, Safeguarding of Aerodromes, Technical Sites and Military Explosives Storage Areas, contains annexes which describe the formal process by which planning authorities should take into account safeguarding, including in relation to wind energy developments. As a statutory consultee, the MOD will be consulted through the Section 36 scoping application. They publish a guidance document on www.gov.uk called 'Wind farms: MOD safeguarding', Updated July 2021. The MOD wind energy team liaises with a broad range of experts to formulate a comprehensive MOD response. Where the MOD has concerns about a development the team will work with the developer to look for ways to mitigate them.

Civil Aviation Authority (CAA) CAP 793, Safe Operating Practices At Unlicensed Aerodromes, provides guidance to manage impacts on the Easterton Airfield. The CAP recommends that there are no obstacles greater than 150 ft above the average runway elevation within 2,000 m of the runway mid-point, and further that "Anything that, because of its height or position, could be a hazard to an aircraft landing or taking off should be conspicuously marked if it cannot be practicably removed or minimised."

10.4. Assessment Methodology And Potential Impacts

The acceptability of the Proposed Development, in terms of net effects on aviation related interests, is established through direct consultation with all relevant stakeholders within the consenting process. The initial task is to independently assess the potential effects and where significant effects may occur, to enter a dialogue with the affected stakeholders. Where impacts are of concern additional analysis may be required and where impacts are deemed unacceptable, mitigation solutions identified and explored with the goal of reducing impacts to acceptable levels. While the aim of this dialogue is to enable the approval of all stakeholders before full submission, this is not always possible. In the case of impacts, typically solutions are identified but do not reach full maturity in terms of the assessment by the stakeholders and the contracting of mitigation (where required) until formal consent applications have been submitted.

The initial impact assessment aims to exhaustively identify all potential issues and the associated stakeholders affected by the Proposed Development. This involves considering all military and civil aerodromes in the wider area out to circa 60 km, all radar installations out to the limit of their range, all navigational aids, air-ground-air communications stations and low flying activities. A provisional lighting design will be generated to inform the LVI assessment. This will need to be finalised post consent, through agreement with the CAA before construction.

10.5. Anticipated Impacts

The Proposed Development is likely to impact the RAF Lossiemouth ATC radar. Under current circumstances this would generate concerns for the MoD.

No other issues are anticipated. There will be no impacts to the NATS radars. It is also likely that there will be no impacts to the Inverness radar, though the Site lies beyond the historic range of interest set by the airport.

The turbines are set back from the slope used by the Highland Gliding Club for soaring such that activities should not be impacted.

10.6. Mitigation

There are a number of potential means of mitigating the impacts to the Lossiemouth ATC radar. Several consented wind energy developments, including offshore projects, are actively working with the MoD to discharge radar mitigation scheme conditions. Mitigation is likely either through radar upgrade or the use of an additional sensor integrated into the Lossiemouth radar displays.

To mitigate any risk to civil and military low flying, both infra-red and visible spectrum lighting will be specified. The visible spectrum lighting will only operate under conditions of low light, principally from dusk to dawn. Every effort will be made to reduce lighting impacts, by minimising the number of turbines lit, their intensity and the hours of operation. The potential for an Aircraft Detection Lighting Scheme will be considered. ADLS aims to greatly reduce periods of lighting at night by triggering the lights only when an aircraft is in the vicinity at low altitude.

10.7. Consultation

The scoping submission will generate an initial view from the MoD and NATS.

The other key consultees relate to the design and approval of an aviation obstacle lighting scheme. This will require consultation with local airspace users such as Police Scotland and the

Scottish Air Ambulance Service, with responses supporting a scheme to be provided to the CAA for their assessment and approval.

10.8. Questions for Consultees

Q19: Do the Consultees agree with the assessment approach set out in the aviation section?

11. Shadowflicker

11.1. Shadowflicker Assessment

Under certain combinations of geographical position, time of day and time of year, the sun may pass behind a turbine rotor and cast a shadow over neighbouring properties. When the blades rotate a shadow forms for short periods and this effect is known as 'shadow flicker'. Shadow flicker is considered an issue when the blade shadow passes over a narrow opening, such as a neighbouring property's window. The main cause for concern is the potential annoyance to homeowners. This is an issue that can be completely mitigated, if required, through understanding the periods of concern and controlling the turbines appropriately during these periods.

A shadow flicker assessment is generally required if any properties lie within 10 rotor diameters of the wind farm. This is in line with Scottish Government online renewables planning advice on 'onshore wind turbines' which 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.".

For the purpose of initial assessment a candidate turbine with a rotor diameter of 155m is currently proposed for Teindland Wind Farm. 18 properties are located within 10 rotor diameter distance (1,550m) from the wind farm. The details of these dwellings are provided in Table 17 and Figure 1 below.

Map ID	Distance from the nearest turbine	Utilised grid reference
H1	980m from T11	E330411 N852896
H2	994m from T5	E326899 N852677
H3	1,102m from T15	E327363 N851779
H4	761m from T11	E330136 N852593
H5	905m from T13	E330289 N853865
H6	1,018m from T13	E330389 N854243
H7	966m from T13	E330186 N854573
H8	955m from T13	E329965 N854785
H9	1,326m from T1	E327469 N855665
H10	1,139m from T7	E327387 N851559
H11	1,453m from T12	E328016 N856154
H12*	1,504m from T7	E329729 N851177
H13*	1,451m from T7	E329466 N850932
H14*	1,323m from T7	E328535 N850648
H15*	1,406m from T7	E328678 N850581
H16	1,080m from T5	E326822 N852615
H17*	1,517m from T7	E329592 N850970
H18*	1,477m from T7	E329669 N851134

Table 17: Properties to be assessed for shadow flicker impacts (* - no shadow flicker impact expected at the property location)

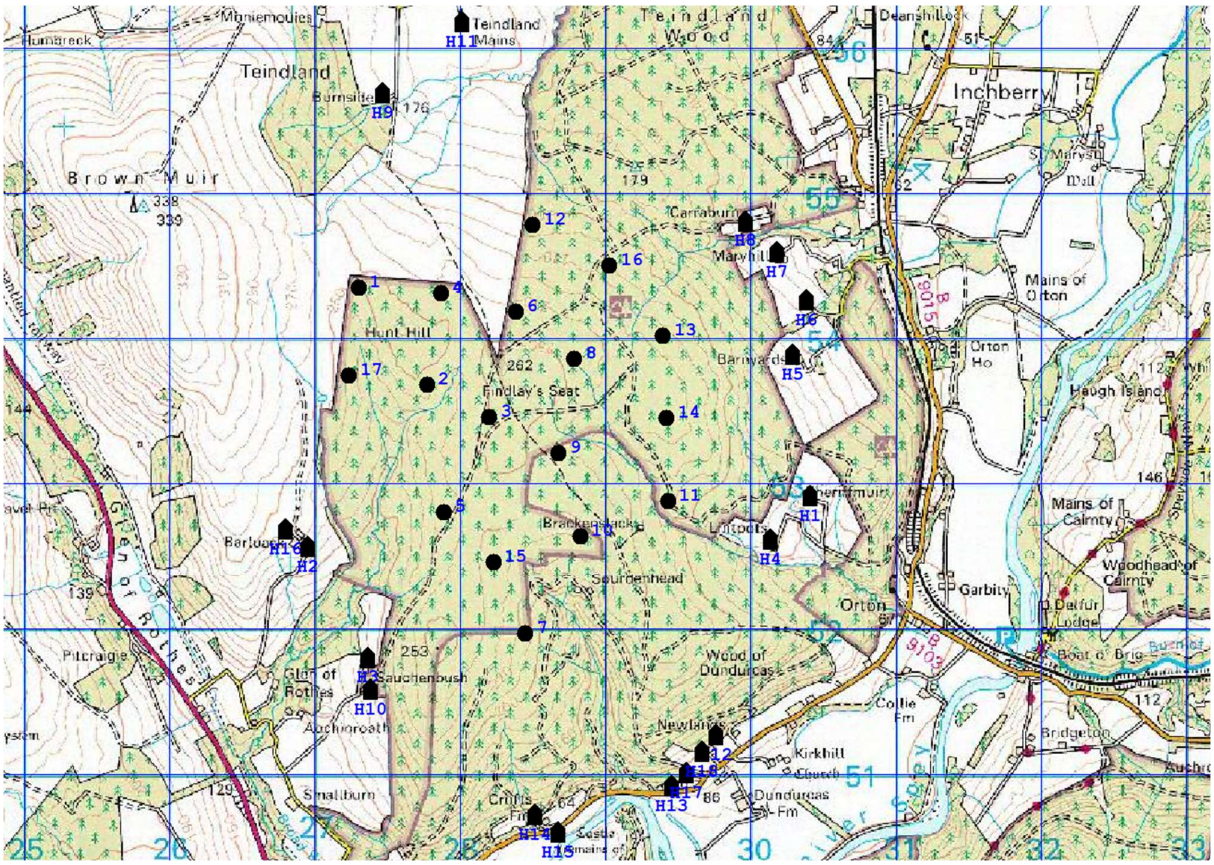

Figure 4: Map showing properties to be assessed for shadow flicker impacts

An assessment will be undertaken of the potential for shadow flicker to occur at properties within the 10 rotor diameter separation distance.

Where significant effects are likely, and to mitigate the issue of shadow flicker for the site, turbines can be programmed to shut down for the relevant periods of the year when shadow flicker would occur. Whilst it is unlikely that significant effects would occur, a shadow flicker calculation would be carried out and reported upon within the EIA Report. This will consider any variation away from the candidate size proposed at this stage.

11.2. Questions for Consultees

Q20: Do the Consultees agree with the assessment approach set out in the shadow flicker section?

12. Socio Economics, Tourism, Recreation and Land Use

12.1. Introduction

This section provides a brief introduction of potential socio economic, tourism, recreation and land use effects of the construction and operation of the Proposed Development. This includes a consideration of existing land uses within the site, local recreation and tourism activity, employment and Gross Value Added (GVA) generation and any indirect supply chain economic effects from the Proposed Development.

The assessment will include a description of the current socio-economic, tourism, recreation and land use baseline in the local area. This will include a summary of economic performance data for each study area and a description of the relevant tourism assets that will be covered in the assessment.

The socio economic, tourism recreation and land use chapter will be completed by MKA Economics. MKA Economics has completed a wide range of socio economic, tourism, recreation and land use chapters for onshore wind farms over the last ten years. MKA Economics is retained by HIE since 2013 on their Economic Impact Assessment Framework. Further details can be supplied on request.

12.2. Consultation

This document forms the start of the consultation process, further consultation may be undertaken as required during the EIA process.

12.3. Methodology and Guidance

Socio-economic effects will be considered based on the guidance from Guidelines for Environmental Impact Assessment and a Handbook for EIA (2004). A range of existing surveys and assessments of socio-economic and visitor profiles, land use and ownership, and public attitudes will be collated to provide background information against which to assess the potential for significant effects.

A desktop socio-economic assessment will consider the potential direct and indirect effects of the Proposed Development. During the construction of the Proposed Development, local sourcing will be preferred where possible, bringing direct economic benefits from the Proposed Development. An estimate of economic benefits will be provided in the EIA Report.

As an important economic sector, an assessment of effects upon tourism receptors will also be undertaken and will take into account published data on visitor numbers and the value of tourism to the economy of Moray and Speyside. This will also include consultations with local businesses such as accommodation associations and providers, tourism businesses, transport operators and visitor attraction and tourism agencies such as VisitScotland, Visit Moray Speyside (VMS) and other relevant consultees within the vicinity of the Proposed Development.

In respect of recreation and access, consultations will take place to assess the effects to users of the public rights of way, cycle routes, and bridleways. This will include consultations with Moray Council and organisations such as British Horse Society, Ramblers Association, Scotways, Sustrans, and other relevant organisations.

It is also important that the socio-economic and tourism assessment takes account of the relevant local and national policy objectives. The most relevant objectives for this are expected to be included in the following strategies:

- Scotland's Economic Strategy 2015;
- Scottish Planning Policy 2014;
- Net Economic Benefits and Planning 2016;
- Climate Change Plan 2018;
- 2020 Routemap for Renewable Energy in Scotland;
- Moray 2026 – A Plan for the Future;
- Moray Economic Strategy 2019;
- Tourism Scotland 2030; and
- Moray Speyside Tourism Business Plan.

These policy documents would also feed into the baseline conditions for the site.

12.4. Baseline

The baseline environment will cover and compare three study areas:

- Local Area, comprising electoral wards (Speyside Glenlivet and Lhanbryde Fochabers) that cover the location of the development and nearest settlements (Rothes and Lhanbryde);
- Moray (the local authority); and
- Scotland.

The economic impacts will be quantified and presented for Moray and Scotland.

The baseline study will cover:

- the demographic profile of the local area within the context of the regional and national demographic trends;
- employment and economic activity in the local area within the context of regional and national economies;
- the industrial structure of the local area within the context of regional and national economies;
- the role of the tourism sector in the local and regional economy;
- an analysis of tourism statistics in Scotland, Moray and the local area (Speyside Glenlivet / Lhanbryde Fochabers);
- identification of local tourism and recreation assets, including accommodation providers, visitor attractions and assets and public paths, cycleways and other recreational uses (bridle paths, fishing, rambling etc.);
- wage and salary levels within the regional economy compared to the national level; also including educational attainment levels within the regional area and compared to the national level; and
- an assessment of relative deprivation based on a review of the Scottish Index of Multiple Deprivation, over the period from 2004, through to 2020, to show how the local area has changed over time, compared to the national level.

Tourist attractions and accommodation will be identified within 5, 10 and 15km of the site boundary. Tourist attractions include permanent fixtures (e.g. museums, attractions, castles and trails) as well as temporary events (e.g. music, sport, cultural or arts festivals).

Important attractions within Moray and Speyside will also be identified due to their increased sensitivity.

12.5. Potential Effects

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

An economic impact analysis will be undertaken using the methodology developed by Renewables UK and deployed by MKA Economics, which has been used to assess over 30 onshore wind farms across Scotland. The potential socio-economic effects that will be considered are:

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

The link between onshore wind energy developments and the tourism sector is a subject of debate. However, recent research has not found a negative link between tourism employment, visitor numbers and onshore wind development. For example, research completed by the Scottish Government found 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 farm developments.

Nevertheless, the tourism sector is an important contributor to the Scottish economy and so there is merit in considering whether the Proposed Development will have any significant, adverse effect on the tourism sector.

This will consider the implications of any effects identified for the tourism sector in the local area and wider region.

Other issues, such as the implications for the agricultural and forestry sectors, may emerge during the assessment that will require consideration.

Effects will be considered based on the guidance from guidelines for Environmental Impact Assessments and a Handbook for EIA (2004).

12.6. Impact Assessment

There is no specific legislation or guidance available on the methods that should be used to assess the socio-economic impacts of a proposed onshore wind farm development. The proposed method has however been based on established best practice, including that used in the UK Government and industry reports on the sector. This assessment will draw from two studies by the UK onshore wind energy sector: a report published by RenewableUK and the Department for Energy and Climate Change (DECC) (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 (2015). These reports will provide the input assumptions if the data for the Proposed Development is not available.

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 and recreation interests. The proposed method would consider individual attractions and tourism facilities to assess if there could be any effects from the Proposed Development.

It is anticipated that the contents of the assessment and EIA Report Chapter will include:

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

- baseline socio-economic context;
- baseline tourism and recreation context;
- socio-economic assessment;
- tourism and recreation impact assessment;
- proposed measures and actions to maximise local economic and community impacts;
- a cumulative impact assessment;
- proposed measures and actions to mitigate any harmful effects (if required); and
- summary of findings and conclusion.

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

12.7. Questions for Consultees

Q21: Do the Consultees agree with the assessment approach set out in the Socio Economics, Tourism, Recreation and Land Use section?

Q22: Do the consultees agree with the proposed consultee list?

13. Television and Telecommunications

13.1. Television Reception

Terrestrial television signals propagate from transmitters to receiving aerials which in turn are connected to television receiving equipment. Wind turbines can cause interference to terrestrial television in three ways, namely

1. As a physical structure that blocks/weakens the transmitted signal, reducing the strength of the coverage in the shadow zone. Losses in strength due to this mechanism are called 'diffraction losses';

2. The wind turbine blades intermittently 'chop' through the direct coverage path, causing fluctuations in received power; and

3. The wind turbines can reflect the signal in an unwanted direction, such that the same signal arrives twice at a receiving aerial with a time delay.

In practice, reflection effects are the main contributor to wind farm interference at surrounding residences.

A desk-based study will be undertaken to determine the potential interference of the Proposed Development upon terrestrial television signal considering a 400km2 area centred on the Proposed Development. If adverse effects on television services occurs as a result of the Proposed Development, mitigation measures will be required.

The most effective form of mitigation is dependent on the specific impact. A mitigation strategy can be implemented pursuant to a planning condition. It is common practice for wind developers to assess potential impacts related to a new wind development and, where necessary, mitigate them.

It is extremely uncommon for wind developments to be modified on the basis of television signal issues. This is largely because technical solutions generally exist and are commercially viable.

13.2. Telecommunications

Wind turbines have the potential to impact telecommunication operations and infrastructure. There are many forms of telecommunications infrastructure in the UK. The most relevant aspect in the context of potential restrictions / mitigation requirements for wind developments is the presence of wireless fixed links between radio antennae. Such links broadly fall into two categories.

The first is 'microwave links', which provide high-frequency data transfer between antennae and are utilised by mobile phone operators and the emergency services to support their communications network.

The second is Ultra High Frequency (UHF) links, which are utilised by operators including utility companies.

There are several stakeholders that might be affected by the Development including: O2, Vodafone, Atkins global, Ericsson, Arqiva, BT, JRC, Airwave, and Telefonica.

An assessment will be carried out to determine whether there is an impact and if so, its magnitude. Link data will be requested from stakeholders and will be used to model 2-D exclusion zones of each link and to calculate the clearance/ infringement of the Proposed Development. If it cannot be established whether the turbine is affecting the link, a 3-D analysis can be carried out.

If the outcome of the analysis confirms the infringement, mitigation will be necessary. The process for mitigation is to engage with the stakeholder managing the link to discuss a strategy.

The available mitigation options are re-networking the links, increasing the antennas height or using an alternative technology.

It is common practice for wind developers to assess potential impacts and, where necessary, mitigate them with existing technical solutions.

13.3. Questions for Consultees

Q23: Do the Consultees agree with the approach set out in the television and telecommunications section?

14. Climate Impact Assessment

Information will be drawn from the relevant sections referred to above to inform the Carbon Balance Assessment and Climate Impact Assessment. These assessments will consider the Proposed Development's impact in terms of carbon dioxide emissions against the total carbon savings attributed to the Proposed Development.

The Carbon Balance Assessment calculates the gains over the project lifetime and the carbon dioxide released during construction. The assessment will be undertaken using the latest version of the Carbon Calculator available prior to submission of the Application.

15. Residual, Synergistic Effects & Mitigation

This Section will summarise the residual effects of the construction, operation and decommissioning of the Proposed Development. It will identify all proposed mitigation, including mitigation by design, that will be undertaken to reduce effects in the event that the Proposed Development receives consent.

16. Summary of all questions for Consultees

16.1.1. Landscape and Visual Amenity

Q1: Do Consultees agree with the proposed methodology and scope of assessment?

Q2: Are Consultees content with the proposed 45km radius Study Area?

Q3: Do the Council and Consultees agree with the proposed list of viewpoints as listed in Table 2 and illustrated on Figures XX.

16.1.2. Ecology

Q4: Do the Consultees agree with the assessment approach set out in the ecology section?

16.1.3. Ornithology

Q5: Do the Consultees agree that the proposed scope for assessing ornithology is acceptable?

16.1.4. Hydrology

Q6: Do the Consultees agree with the assessment approach set out in the hydrology section?

16.1.5. Archaeology and Cultural Heritage

Q7: Do Consultees agree with the proposed scope of the assessment, including the proposed Study Areas?

Q8: Do Consultees agree with the proposed assessment methodology?

Q9: Do Consultees agree with the Standard and Additional mitigation measures proposed?

Q10: Are Consultees satisfied that those designated heritage assets identified are those most likely to have their settings adversely affected?

Q11: Do Consultees agree with the proposal to 'scope out' impacts on the settings of listed buildings within the urban environment?

Q12: Are there any other designated heritage assets in the surroundings of the Proposed Development that they consider could have their settings adversely affected?

16.1.6. Forestry

Q13: Do the Consultees agree with the assessment approach set out in the forestry section?

16.1.7. Noise

Q14: Do the Consultees agree that the proposed scope for assessing noise is acceptable?

16.1.8. Transport and Access

Q15: Do the Consultees agree that the proposed methodology is acceptable?

Q16: Do the Consultees agree that the methods proposed for obtaining traffic flow data are acceptable?

Q17: Do the Consultees agree that the use of Low National Road Traffic Forecasts (NRTF) is acceptable for the whole of the study?

Q18: What committed development schemes should be included in the assessment?

16.1.9. **Aviation**

Q19: Do the Consultees agree with the assessment approach set out in the shadow flicker section?

16.1.10. **Shadow Flicker**

Q20: Do the Consultees agree with the assessment approach set out in the shadow flicker section?

16.1.11. **Socio Economics, Tourism, Recreation and Land Use**

Q21: Do the Consultees agree with the assessment approach set out in the Socio Economics, Tourism, Recreation and Land Use section?

Q22: Do the consultees agree with the proposed consultee list?

16.1.12. **Television and Telecommunications**

Q23: Do the Consultees agree with the approach set out in the television and telecommunications section?