Coille Beith Wind Farm

Environmental Impact Assessment Scoping Report

July 2024

Contents

Figures

Appendices

1. Introduction

1.1 Background

1.1.1 Statkraft UK Limited ('the Applicant') is planning to seek consent from the Scottish Ministers under Section 36 of the Electricity Act 1989 (as amended) to construct and operate a wind farm and associated infrastructure, including a Battery Energy Storage System (BESS) ('the Proposed Development'). The Proposed Development is located on land approximately 15 km south west of Lairg and 18 km north west of Bonar Bridge, the Highlands, Scotland (**Figure 1.1**). The context of the Proposed Development in relation to other wind farm development is shown in **Figure 1.2**.

1.1.2 A provisional turbine layout has been prepared for the purposes of this Environmental Impact Assessment (EIA) Scoping Report and comprises up to 19 turbines with a maximum tip height of 200 m. Based on currently available turbine technology, the typical rated output per turbine is likely to be approximately 7.2 MW. The turbine layout design is at an early stage and will be developed to take account of environmental and technical constraints and stakeholder consultation feedback. The scoping turbine layout is shown on **Figure 1.3**.

1.2 Consenting Regime

1.2.1 It is anticipated that the Proposed Development would have an installed capacity of greater than 50 MW. Therefore, an application would be made to the Scottish Ministers under Section 36 of the Electricity Act 1989. The Applicant would also seek deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997.

1.2.2 The Proposed Development is of a type listed in Schedule 2 of the EIA regulations (item (1) "a generating station"). On the basis that "the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location" an EIA is required. In this case, the Applicant has volunteered to undertake an EIA rather than request a formal screening opinion.

1.3 The Applicant

1.3.1 The Applicant for the Proposed Development is Statkraft UK Limited.

1.3.2 Statkraft is a leading company in hydropower internationally and Europe's largest generator of renewable energy. The Group produces hydropower, wind power, solar power, greener grid parks, and supplies district heating. Statkraft is a global company in energy market operations.

1.3.3 Statkraft has operated within the United Kingdom since 2006, developing, owning, and operating renewable production facilities including wind farms in Wales and Scotland. Statkraft currently own or operate five onshore wind farms in Scotland, with a combined capacity of over 200 MW and has planning consent for two onshore wind farms in Scotland.

1.3.4 Statkraft has invested £1.3 billion in the UK's renewable energy infrastructure and facilitated over 4 GW of new-build renewable energy generation through Power Purchase Agreements (PPAs).

1.3.5 Statkraft is well positioned to enable a net-zero future; Statkraft is a solid, dependable partner, committed to playing a leading role in the UK energy market. The Proposed Development would make a very important contribution to Statkraft achieving this aim.

1.3.6 For further information about Statkraft in the UK visit https://www.statkraft.co.uk/.

1.4 Purpose of the Scoping Report

1.4.1 This report is provided to Scottish Ministers under Regulation 12 of the EIA Regulations in support of a request by the Applicant for a 'Scoping Opinion' regarding the information to be provided within the EIA Report that will accompany the application for planning consent.

1.4.2 The specific objectives of this report are to:

- Seek agreement on the likely significant effects associated with the Proposed Development, and confirm that all likely significant effects have been correctly included in the proposed scope of the EIA ('scoped in');
- Seek agreement where non-significant effects have been excluded ('scoped out');

- Invite comment on the proposed approach to baseline data collection, prediction of environmental effects, and the assessment of significance; and
- Invite feedback on the design of the Proposed Development.

1.4.3 All consultation responses will be collated and presented as a Technical Appendix to the EIA Report, as a record of the results of the scoping exercise.

1.5 Planning and Energy Policy

1.5.1 A summary of relevant policy and guidance documents that will be taken into consideration to help inform the design of the Proposed Development are outlined in **Appendix 1.1**.

1.5.2 The EIA Report will set out the relevant policies that have been considered as part of the assessments undertaken throughout the EIA. A separate Planning Statement will provide a detailed appraisal of the Proposed Development against the relevant Development Plan policies, national planning, energy policy, and other material considerations.

1.5.3 The EIA Report will also concisely reference climate change policy and the contribution of Proposed Development to the UK and Scottish Government's climate change goals and policy targets.

1.6 Public Consultation

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

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

1.7 Project Team

1.7.1 Ramboll has been commissioned by the Applicant to undertake the EIA for the Proposed Development, with input from specialist consultants as shown below in **Table 1.1.**

Table 1.1- Specialist Consultants

Technical Specialist	EIA Topic
David Bell Planning	Planning and Policy
Hayes Mackenzie	Noise and Vibration
Avian Ecology	Ecology and Ornithology
AOC Archaeology	Archaeology and Cultural Heritage
Pell Frischmann	Traffic and Transport
WPAC	Aviation
McKay Forestry	Forestry

1.8 Structure of the Scoping Report

1.8.1 The remainder of this report is structured as follows:

- Section 2 provides a brief description of the nature and purpose of the Proposed Development, typical construction activities and decommissioning proposals.
- Section 3 describes the scope of the EIA, the likely significant environmental effects and approach to assessing cumulative effects.
- Section 4-14 describes the baseline environment conditions, the likely significant environmental effects identified and proposed method for further data collection and evaluation of effects.
- Section 15 describes the effects that are considered not to be significant, and proposes that these be excluded from the EIA, providing a rationale in each case.
- Section 16 provides information on the process for making representations on the Scoping Report.

2. Proposed Development

2.1 Site Selection

2.1.1 The Site for the Proposed Development is considered by the Applicant to be suitable for wind farm development for the following reasons:

- It is situated in an established area for wind farm development;
- It is outwith areas identified within NPF4 as unsuitable for wind development, e.g., National Scenic Areas and National Parks (NPF4 Policy 11);
- It has high wind speeds based on available data; and
- It has a proposed viable grid connection to the electricity transmission network.

2.2 Site Description and Context

2.2.1 The 'Site', as defined by the red line boundary in **Figure 1.1** and centred on National Grid Reference (NGR) 241508, 898626, is located approximately 15 km south west of Lairg and 18 km north west of Bonar Bridge, the Highlands, Scotland. The Site occupies an area of approximately 1,057 hectares (ha). The Site is located entirely within the administrative boundary of The Highland Council (THC).

2.2.2 The Site is located on the southern slopes of Strath Oykel and within an area of commercial forestry, typical of the valley sides along Strath Oykel. The River Oykel and singletrack A837 pass along the base of the strath, less than 1 km north of the Site. There is another minor road around 215 m to the north east that runs along the southern side of the river linking up areas of dispersed settlement.

2.2.3 Wind farms are an existing feature of the surrounding landscape. As illustrated on **Figure 1.2** there is a cluster of existing and consented wind farms to the north east of the Site, the closest of these are the operational Rosehall and Achany group of turbines, approximately 6 km north east of the Site and located on the northern slopes and hills just beyond the strath. Extending east of these and to the south of Lairg there are further consented schemes and a small operational scheme of three turbines, around 17 km south east of Lairg.

2.2.4 There are also a number of other wind farm schemes at various stages of the planning process, including Strath Oykel Wind Farm (in planning) immediately adjacent to the Site.

2.2.5 There are no residential properties located within the Site boundary. There are various farmsteads and dispersed rural properties to the north west of Oykel Bridge, approximately 5 km north west of the Site. The majority of settlement lies to the east of the Site along the A837, although there are a small number of properties located on the minor road south of the river extending between Doune and Inveroykel, the closest of which are located around 2.2 km from the nearest proposed turbine. The nearest settlement is at Rosehall (4 km north east of the Site).

2.2.6 There are no Scheduled Monuments within the Site. There are also no designated sites within the Site, the closest statutory designated site within 5 km are listed below and shown on **Figure 2.1**:

- Wild Land Area (WLA) 29 - Rhiddoroch - Beinn Dearg - Ben Wyvis;
- WLA 34 - Reay – Cassley;
- Special Landscape Area (SLA)- Fannichs, Beinn Dearg and Glencalvie;
- River Oykel SAC; and
- Abhainn an t-Strath Chuileannaich Geological Conservation Site.

2.3 The Proposed Development

2.3.1 Details of the Proposed Development will not be finalised until later in the EIA process. The turbine layout will evolve in response to site survey information, environmental and technical constraints, stakeholder feedback, including scoping opinions, and feedback gathered through public engagement. To allow early engagement, the description of the Proposed Development provided herein is based on cautious maximum parameters, especially in relation to the number and height of the wind turbines.

2.3.2 The main elements of the Proposed Development would be as follows:

- up to 19 turbines, each with a maximum tip height of up to 200 m;
- permanent foundations supporting each wind turbine;
- associated crane hardstanding at each turbine location;

- new and upgraded access tracks with associated watercourse crossings;
- underground cabling within the Site;
- a control building, substation and storage compound;
- a BESS compound;
- a concrete batching plant;
- borrow pit(s); and
- temporary construction compound(s) and laydown area(s);

2.3.3 For the purposes of scoping, the indicative turbine coordinates are presented in **Table 2.1** and the Site Layout is presented in **Figure 1.3.**

Table 2.1- Indicative Turbine Coordinates

Turbine	X- Co-ord	Y- Co-ord
1	242060	899414
2	242618	899228
3	241070	899085
4	241483	898722
5	242111	898547
6	242875	898752
7	240340	898714
8	240733	898366
9	241133	897979
10	241686	897814
11	242429	898042
12	243155	898282
13	239584	898284
14	240028	897941
15	240422	897553
16	240848	897172
17	241464	897084
18	242130	897147
19	242878	897555

2.3.4 The Applicant has accepted a grid connection offer. The route of cabling has not yet been determined and assessment of the route is outwith the remit of this Scoping Report as it would be applied for via a separate Section 37 planning application.

2.3.5 Energy storage such as the use of batteries is being considered for inclusion as part of the Proposed Development. Battery storage would comprise a number of units with ancillary equipment such as inverters. The batteries could store excess power generated by the Proposed Development and release the power to the grid when the output from the Proposed Development falls due to decreased wind speed.

2.3.6 Biodiversity enhancement measures for the Site may include, but not be limited to, options such as peatland restoration, heathland restoration, grassland management, hedgerow creation and riparian tree planting. An Outline Biodiversity Environmental Management Plan (OBEMP) would be developed for the operational phase and agreed with consultees.

2.4 Design and Alternatives

2.4.1 The Proposed Development design process will be in accordance with NatureScot's current design guidance on Siting and Designing Windfarms in the Landscape[1] and will seek to establish a layout and turbine typology which is sufficiently coherent with neighbouring development, in particular, Strath Oykel Wind Farm (in planning) and Meall Buidhe Wind Farm (consented).

2.4.2 The design of the Proposed Development will be further optimised in relation to scoping responses, community consultation, and other stakeholder engagement. This will be reported upon within the EIA Report.

1 SNH (August 2017) version 3a Siting and Designing windfarms in the landscape. [pdf]. Available at: https://www.nature.scot/sitingand-designing-wind-farms-landscape-version-3a

2.5 Construction Works

2.5.1 Typical construction activities and work methods will be set out in the EIA Report. Information will also be provided on an indicative construction programme, construction traffic generation, and construction phasing.

2.5.2 An Outline Construction Environmental Management Plan (OCEMP) will also be submitted as part of the EIA Report which will contain details of appropriate environmental management measures, including pollution prevention measures (in line with Scottish Environment Protection Agency (SEPA)'s Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs)), and waste minimisation and management measures.

2.6 Wind Farm Lifecycle and Decommissioning

2.6.1 Once constructed it is anticipated that the Proposed Development would have an operational lifetime of 50 years.

2.6.2 At the end of the operational life, the Proposed Development would either be decommissioned, or an application would be submitted to extend the life or repower the Proposed Development. Decommissioning effects would likely be similar to those assessed during construction.

2.6.3 The ultimate decommissioning approach would be agreed with THC and other appropriate regulatory authorities in line with best practice guidance and requirements of the time. Financial provision for the decommissioning would be provided for.

2.6.4 With this in mind, an assessment of the decommissioning of the Proposed Development will not be undertaken as part of the EIA, as at this stage the future baseline conditions cannot be predicted accurately and both the proposals for refurbishment/decommissioning and the future regulatory context are unknown. Decommissioning is, therefore, scoped out for all environmental topics and is not discussed further, but is likely to be addressed by a condition on the consent requiring a decommissioning plan to be submitted for approval towards the end of life of the Proposed Development.

2.7 Community Benefits

2.7.1 The Applicant is committed to setting up a Community Benefit Fund for the Proposed Development, providing benefits to the value equivalent to £5,000 per installed megawatt per annum, index linked for the operational lifetime of the project. Statkraft is also committed to exploring opportunities for shared ownership with local communities, assessing options to improve local broadband provision, as well as working with local business groups to raise awareness of supply chain opportunities.

3. Scope of the EIA

3.1 Summary of Scope of the EIA

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

- population and human health;
- biodiversity, and in particular species and habitats protected under Council Directive 92/43/EEC on the conservation of natural habits and wild flora (1) and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (2);
- land, soil, water, air and climate; and
- material assets, cultural heritage and the landscape.

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

- landscape and visual amenity;
- cultural heritage;
- ecology;
- ornithology;
- hydrology, hydrogeology and geology;
- traffic and transport;
- noise;
- aviation and telecommunications;
- socio-economics;
- shadow flicker[2]; and
- climate change.

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

3.2 Cumulative Effects

3.2.1 The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration is also given to the cumulative effects which might arise from the proposal in conjunction with other existing and/or approved development proposals in the vicinity.

3.2.2 Cumulative effects are defined as those effects arising from the addition or combination of the Proposed Development to other existing and proposed developments, or those arising from synergistic effects[3] between factors.

3.2.3 A planning application search will be conducted to identify approved (committed) developments using relevant planning portals, and the following schemes will be considered:

- Those within 45 km of the Site boundary;
- Onshore wind developments where turbines are greater than 50 m to tip height and more than one wind turbine proposed;

2 Potential for generation of shadow flicker effects will be a design consideration and it is expected that potential for these effects can be avoided through the design process.

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

- Schemes under construction;
- Schemes which have been consented; and
- Schemes which have been submitted to the relevant authorities but not yet determined (subject to an agreed cut-off point to allow assessments to be undertaken).

3.2.4 In addition, the following criteria will need to be met:

- The committed development has a construction and/or operational phase that is concurrent with the Proposed Development;
- The committed development shares common sensitive receptors/resources which are assessed and described in the supporting environmental documentation, and have the potential to be significantly affected by the combination of the approved (committed) development and the Proposed Development; and
- The committed development has sufficient environmental assessment information freely and publicly available to inform a cumulative effects assessment.

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

3.3 Topics to be Scoped Out

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

- air quality;
- climate change[4];
- population and human health[5];
- risk of major accidents and/or disasters; and
- ice throw.

3.4 Consultation

3.4.1 Consultation alongside the EIA process is critical to the development of a comprehensive and proportionate EIA Report. The views of statutory and non-statutory consultees are important to ensure that the EIA from the outset focuses on specific issues where significant environmental effects are likely, and where further investigation is required.

3.4.2 The consultation, as an ongoing process, enables embedded and additional mitigation measures to be incorporated into the Proposed Development to limit adverse environmental effects and optimise environmental benefits. Early and ongoing engagement with consultees will be important to influence the design process of the Proposed Development by seeking an appropriate level of feedback from consultees, to ensure that comments are considered in the evolving design.

3.4.3 As part of the EIA process, consultation will be undertaken with a range of statutory and non-statutory consultees.

4 The Proposed Development's impact upon climate change will be considered across a number of disciplines in the EIA Report, but no specific assessment will be provided. A Carbon Calculator assessment will be undertaken as part of the EIA and impacts upon climate change will be presented within the results.

5 Population and human health will be considered across a number of disciplines in the EIA Report, but no specific assessment will be provided.

4. Landscape and Visual

4.1 Introduction

4.1.1 This Chapter has been prepared by Ramboll UK Limited. The purpose of the Landscape and Visual Impact Assessment (LVIA) is to identify, predict, and evaluate potential landscape and visual effects that are anticipated to arise in connection with the construction and operation of 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; access tracks; borrow pits, substation, and BESS. The vertical scale of the wind turbines 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 Chapter is supported by the following figures:

- **Figure 4.1: Topography;**
- **Figure 4.2: Landcover/Landuse;**
- **Figure 4.3: Landscape Character;**
- **Figure 4.4: Landscape Designations and Classification;**
- **Figure 4.5: Visual Receptors;**
- **Figure 4.6: Zone of Theoretical Visibility and Assessment Viewpoint Locations;** and
- **Figure 4.7: Cumulative Context.**

4.2 Consultation

4.2.1 A pre-scoping consultation exercise was undertaken with both THC and NatureScot where they were invited to provide comment on the proposed viewpoint list. THC responded with a request for two additional VP's which have been included in **Table 4.3**. NatureScot responded saying they consider that the Proposed Development is unlikely to raise issues of National Interest in relation to its landscape, visual and/or cumulative effects and they would not provide landscape comments at application stage.

4.2.2 In addition to this scoping submission, further detailed consultations will be undertaken with THC and NS in respect of the following;

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

4.3 Method of Assessment and Reporting

Legislation, Policy and Guidance

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

- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[6];
- National Planning Framework (NPF)[7];
- Guidelines for Landscape and Visual Impact Assessment (GLVIA) Third Edition, Landscape Institute and Institute of Environmental Management and Assessment (2013) and subsequent technical notes and clarifications;
- Landscape Character Assessment: The Countryside Agency and Scottish Natural Heritage (2002)[8];

6 Available at https://www.gov.scot/policies/environmental-assessment/environmental-impact-assessment-eia/ (last accessed 29-02-24)

7 Available at https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf

8 Available at https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/what-landscape-character-assessment (last accessed 29-02-24).

- Technical Guidance Note (TGN) 06/19 Visual Representation of development proposals, Landscape Institute[9];
- Technical Guidance Note (TGN) 02/19 Residential Visual Amenity Assessment (RVAA), Landscape Institute (15 March 2019)[10];
- Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments, NatureScot (2021)[11];
- Landscape Sensitivity Assessment Guidance (Methodology), NatureScot (April 2022)[12];
- Siting and Design Wind Farms in the Landscape Guidance - version 3a, NatureScot (August 2017)[13];
- Assessing impacts on Wild Land Areas – technical guidance, NatureScot (September 2020)[14];
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[15];
- Visual Representation of Windfarms Guidance, Version 2.2 (February 2017), NatureScot[16]; and
- Visualisation Standards for Wind Farm Developments.[17]

Data and Information

4.3.2 The LVIA will utilise a range of published data and information, including:

- Site survey data;
- Aerial photography;
- NatureScot's Scottish Landscape Character Types – Maps and Descriptions;
- NatureScot's Local Landscape Area 2017 map; and
- NatureScot's Natural Scenic Areas (NSAs) map.

4.3.3 This data will be verified during detailed field reconnaissance be checked during field reconnaissance.

Study Area

4.3.4 In order to ensure that all significant impacts are assessed, the Study Area for the LVIA is taken to be 45 km from the outermost turbine, in accordance with current NatureScot guidance regarding the visual representation of wind farms.

4.4 Landscape and Visual Baseline

Landscape Fabric

Topography and Hydrology

4.4.1 In general terms, the Study Area comprises of undulating topography with open hills rising both to the north and south. Elevation ranges from mean high-water level at the valley bottoms and coastal outer edges, to over 1100 m Above Ordnance Datum (AOD). Notable peaks include Ben More Assynt (998 m AOD), Beinn Dearg (1081 m AOD), An Teallach (1062 m AOD), Ben Wyvis (1046 m AOD) and Sgurr Mor (1109 m AOD). Straths and Glens including Strath Oykel, Glen Cassley, Strath Fleet and Strath Culleannach contain large rivers that bisect the Study Area. Additional hydrological features in the Study Area include Loch Shin, Loch Fannich, Loch Glascarnoch, Loch Assynt and an expansive network of streams and small rivers which feed into the larger tributaries and lochs.

9 Available at https://www.landscapeinstitute.org/visualisation/ (last accessed 29-02-24).

10 Available at https://www.landscapeinstitute.org/technical-resource/rvaa/ (last accessed 29-02-24).

11 Available at https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments (last accessed 29–02–2024).

12 Available at https://www.nature.scot/professional-advice/landscape/landscape-tools-and-techniques/landscape-sensitivity-studies (last accessed 29-02-2024).

13 Available at https://www.nature.scot/doc/siting-and-designing-wind-farms-landscape-version-3a (last accessed 29-02-2024).

14 Available at https://www.nature.scot/doc/assessing-impacts-wild-land-areas-technical-guidance (last accessed 29-02-2024).

15 Available at The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (legislation.gov.uk) (last accessed 29-02-2024).

16 Available at https://www.nature.scot/doc/visual-representation-wind-farms-guidance (last accessed 29-02-2024).

17 Available at https://www.highland.gov.uk/downloads/file/12880/visualisation_standards_for_wind_energy_developments (Last accessed 12th March 2024).

4.4.2 The Site is situated on the southern slopes of the Strath Oykel with the topography ascending southwards from mean High Water Level up to 400 m AOD on the southern edges. Hydrological features within the Site include numerous converging streams that flow north east, eventually into the River Oykel located immediately north of the Site boundary. Just beyond the Site boundary also lie two lochs, Lochan Phàil to the west, and Loch Mhic Mharsaill to the east.

Landcover and Land use

4.4.3 The Site is within the Meòir Langwell Wood commercial forest, with coniferous species dominating over half of the Site. In contrast the lower lying banks of the Site's main tributary typically consists of heather moorland.

4.4.4 The predominant land uses of the wider Study Area comprise of:

- Similarly coniferous forestry blocks predominantly along the valley sides;
- Open waters on the outer edges of the study area, including the Cromarty and Dornoch Firths on the east, and Loch Broom and Little Loch Broom on the west;
- A diverse coastline of open water, coastal crofts and farms, moorlands, woodlands, sandy beaches, dunes, and rocky knolls;
- A mosaic of coniferous forestry blocks, rough grazing, open moorland, and pastoral farmland;
- Scattered residential properties, crofts and settlements connected to the wider landscape pattern by narrow road systems and highways; and
- Other land uses in the vicinity include the Carnegie Club, Skibo Castle Golf Course, the Carnmore Bothy, and the Highland Shooting Centre.

4.4.5 In addition to the preceding list of key landuses, a key feature of the Study Area is the evolving cumulative context of energy developments. Those currently identified are shown on **Figure 4.7**.

Landscape Character

4.4.6 The Study Area contains 30 distinct landscape character types (LCTs), as shown in **Figure 4.3**. Those of most relevance to the LVIA and subject to theoretical visibility of the Proposed Development include:

- LCT 134: Sweeping Moorland and Flows;
- LCT 135: Rounded Hills – Caithness and Southerland;
- LCT 137: Cnocan – Caithness & Sutherland;
- LCT 139: Rugged Mountain Massif – Caithness and Sutherland;
- LCT 142: Strath – Caithness and Sutherland;
- LCT 145: Farmed and Forested Slopes with Crofting;
- LCT 328: Rugged Mountain Massif – Ross and Cromarty;
- LCT 329: Rounded Mountain Massif;
- LCT 330: Rounded Hills and Moorland Slopes – Ross and Cromarty; and
- LCT 332: High Rocky Moorland and Plateau – Ross and Cromarty.

4.4.7 The Site is located within LCT 135: Rounded Hills – Caithness and Southerland. This LCT comprises of valley sides and hills around Strath Oykel and stretches over most of the central highlands. In general, it is a large scale and open landscape, with some sparse settlements. The landcover is dominated by heather moorland with some coniferous forestry and small areas of broadleaf woodland.

Landscape Designations and Classifications

4.4.8 As shown on **Figure 4.4**, the Site is not subject to landscape designation or classification. However, the wider Study Area contains extensive designated and classified landscapes that would be considered in the LVIA (dependent upon an analysis of the visibility and potential for significant effects arising from the finalised development proposals), including:

- NSA 36: Assynt – Coigach, 14 km north west of the Site;
- NSA 39: Wester Ross, 30km south west of the Site;
- NSA 40: Dornoch Firth, 18 km east of the Site;
- WLA 29: Rhiddoroch – Beinn Dearg – Ben Wyvis, which, at its closest, is situated approximately 1.7 km to the west of the Site;

- WLA 32: Inverpolly – Glencanisp, approximately 22 km north west of the Site;
- WLA 34: Reay – Cassley, approximately 3 km north of the Site;
- WLA 35: Ben Klibreck – Armine Forest, 25 km north east of the Site;
- WLA 37: Foinaven – Ben Hee, approximately 22 km north of the Site;
- SLA 8: Ben Kilbreck and Loch Choire, 27 km north east of the Site;
- SLA 9: Loch Fleet, Loch Brora and Glen Loth, 31 km east of the Site;
- SLA 17: Ben Wyvis, 22 km south of the Site; and
- SLA 18: Fannichs, Beinn Dearg and Glencalvie, 3 km to the south west of the Site.

4.4.9 None of the Gardens and Designated Landscapes (GDLs) within the Study Area (**Figure 4.4**) would be subject to views of the Proposed Development and will therefore be omitted from the assessment.

Visual Amenity

4.4.10 Visual Amenity within the Study Area is primarily concerned with scenic views and the interplay of landscape and seascape characteristics of the area, particularly in respect of:

- views from elevated summits;
- recreational routes and formal vantage points;
- views of lochs and the Dornoch Firth;
- views along enclosed straths and glens; and
- views from settlements and residential properties.

4.4.11 Based on this analysis a series of visual receptors have been identified with which to assess potential effects on the visual amenity of the Study Area.

Recreational Routes

4.4.12 No long-distance walking or cycle routes are present in the vicinity of the Site. The nearest long-range trail is the Cape Wrath Trail, which at its closest, is located 1 km west from the Site. The nearest promoted cycling route, which is not part of the National Cycle Network, follows the A836 corridor, which is situated approximately 14.5 km to the east of the Site. There are various Core Paths in the vicinity of the Proposed Development, including the nearby Rosehall Trails, and other recreational local paths and tracks leading from the strath up into surrounding hills. It is proposed that those within 10 km of the Proposed Development will be considered in the LVIA.

Settlements

4.4.13 Key settlements within the Study Area include:

- Rosehall settlement, 4 km north east of the Site;
- Achnahanat settlement, 7.8 km east of the Site;
- Areas of other notable settlements between Auchintoul and Atlass, 6.5 km north east of the Site;
- Scattered farmsteads and rural properties to the north west of Oykel Bridge; and
- A small number of residential properties located 1.8 km north of the Site, along the southern side of the River Oykel.

4.4.14 The LVIA will address effects (including cumulative effects) on the amenity of settlements, and a detailed Residential Visual Amenity Study will be undertaken in respect of individual properties within 3 km of the Site.

Road Routes

4.4.15 Key roads within the Study Area that would provide potential views of the Proposed Development include:

- A837 which runs parallel to the River Oykel, less than 1 km north of the Site;
- A836, 14.5 km east of the Site; and
- Minor road, 2.5 km north east of the Site, which runs along the southern side of the River Oykel connecting dispersed settlements.

4.4.16 Consequently, these routes will be included in the LVIA; in contrast, other roads within the Study Area will have limited theoretical visibility due to their locations within incised valleys, and so it is not intended to assess effects on these routes.

4.5 Potential Sources of Impact

4.5.1 The LVIA will considers effects on:

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

4.5.2 The LVIA will assess both in-addition and in-combination effects arising from two different scenarios:

- the Proposed Development in conjunction with the baseline context of operational and consented developments only (but will provide a commentary on the effect of the inclusion of possible future application schemes where they have potential to play an important part in the cumulative effect of wind energy development); and
- the Proposed Development in conjunction with the cumulative baseline and Proposed Developments subject to a valid planning application.

4.5.3 **Table 4.1**, outlines the receptors likely to be impacted by construction of the Proposed Development, and states whether they are to be considered in the LVIA.

Table 4.1 – Potential Construction Effects

Potential Effect	To be assessed in the EIA (Yes/No)	Reason
Landscape Effects		
Construction effects on Landscape Fabric	Yes	Any potential significant effects are, however, likely to be highly localised and of short duration.
Construction effects on Landscape Character	Yes	Any potential significant effects are most likely to occur within the host landscape (LCT 135 – Rounded Hills – Caithness & Sutherland) and the landscape located immediately downstream of the Site (LCT 142 – Strath – Caithness and Sutherland). Such effects would be of short duration and reversible.
Construction effects on Landscape Designations and Classifications.	Yes	Any potential significant effects are most likely to occur in neighbouring designated/classified landscapes but are likely to be of short duration and reversible.
Visual Effects		
Construction effects on visual amenity of roads	Yes	Construction effects on neighbouring roads are likely to be localised and of limited duration. Road routes that are to be addressed in the LVIA include: – The section of A837 near to the Site; and – Minor roads which run along the southern side of the River Oykel, in close proximity to the Site.
Construction effects on visual amenity of recreational routes	Yes	Construction effects on nearby recreational routes are likely to be localised and of limited duration. The Cape Wrath Trail, located about 2.5 km from the nearest proposed turbine will be addressed in the LVIA.
Construction effects on settlements and residential properties.	Yes	It is anticipated that the construction stage will affect properties in close proximity to the Site for a limited duration. The LVIA will address effects on the small number of residential properties located 1.8 km north of the Site, along the southern side of the River Oykel.

4.5.4 **Table 4.2**, outlines the receptors likely to be impacted by operation of the Proposed Development, and states whether they are to be considered in the LVIA.

Table 4.2 – Potential Operational Effects

Potential Effect	To be assessed in the EIA (Yes/No)	Reason
Landscape Effects		
Landscape Fabric	Yes	Significant effects are, however, likely to be highly localised.
Landscape Character	Yes	Significant effects are most likely to occur within the host landscape (LCT 135 – Rounded Hills – Caithness & Sutherland) and the landscape located immediately downstream of the Site (LCT 142 – Strath – Caithness and Sutherland). However, the assessment will consider effects on the following additional LCTs within the Study Area that will have visibility of the Proposed Development, as indicated in the **Figure 4.6**: – LCT 134: Sweeping Moorland and Flows; – LCT 135: Rounded Hills – Caithness and Southerland; – LCT 137: Cnocan – Caithness & Sutherland; – LCT 139: Rugged Mountain Massif – Caithness and Sutherland; – LCT 142: Strath – Caithness and Sutherland; – LCT 145: Farmed and Forested Slopes with Crofting; – LCT 328: Rugged Mountain Massif – Ross and Cromarty; – LCT 329: Rounded Mountain Massif; – LCT 330: Rounded Hills and Moorland Slopes – Ross and Cromarty; and – LCT 332: High Rock Moorland and Plateau – Ross and Cromarty. Note: Consideration will be given to daytime effects on these character types as well as the effect of aviation lighting on turbines on the night character of these landscapes.
Landscape Designations and Classifications	Yes	As a precautionary measure, the LVIA will consider effects on the following Landscape Designations and Classifications: – WLA 29: Rhiddoroch – Beinn Dearg – Ben Wyvis; – WLA 32: Inverpolly – Glencanisp; – WLA 34: Reay – Cassley; – WLA 35: Ben Klibreck – Armine Forest; – WLA 37: Foinaven – Ben Hee; – NSA 36: Assynt – Coigach; – NSA 39: Wester Ross; – NSA 40: Dornoch Firth; – SLA 8: Ben Kilbreck and Loch Choire; – SLA 9: Loch Fleet, Loch Brora and Glen Loth; – SLA 17: Ben Wyvis; and – SLA 18: Fannichs, Beinn Dearg and Glencalvie. The LVIA will address both effects on the special qualities of designated landscapes, as well as their integrity, in accordance with guidance in NPF4. Note: Consideration will be given to daytime effects on these designated landscapes as well as the effect of aviation lighting on turbines on any relevant special quality.
Visual Effects		
Visual Amenity of Road Routes	Yes	Effects will be based on tourist and visitor experience rather than the commuters in the LVIA. Effects that will be assessed include the sequential effects, lighting effects, and cumulative effects. Road routes that are to be addressed include: – The A837 between Ledmore and Inveran; – The A836 located 14.5 km to the east; and – Minor roads which run along the southern side of the River Oykel. Note: Consideration will be given to daytime effects on the amenity of these routes, as well as the effect of aviation lighting on turbines.

Potential Effect	To be assessed in the EIA (Yes/No)	Reason
Recreational Routes and Summits	Yes	Effects, including sequential effects, lighting effects, and cumulative effects on the following routes will be addressed in the LVIA: Cape Wrath Trail; – Cycle Route along the A836; – Nearby Core Paths including the Rosehall Trails; and – Local Trails along the Oykel Strath. Note: Consideration will be given to daytime effects on the amenity of these routes, as well as the effect of aviation lighting on turbines.
Settlements and Residential Properties	Yes	The LVIA will address effects, including sequential effects, lighting effects, and cumulative effects, on the following settlements and properties: – Nearby residential properties along the southern side of River Oykel; – Rosehall; – Achnahanat; – Areas of other notable settlements between Auchintoul and Atlass; and – Scattered farmsteads and rural properties to the northwest of Oykel Bridge. Note: Consideration will be given to daytime effects on the amenity of these routes, as well as the effect of aviation lighting on turbines.

Assessment Viewpoints

4.5.5 In order to verify likely landscape and visual effects, a series of assessment viewpoints are proposed. The location of these viewpoints are shown in **Figure 4.6** and described in **Table 4.3**.

Table 4.3 – Potential Completed Development Stage Effects

Viewpoint Number	Location	Grid Ref.	Receptors Present at Viewpoint
1	Cul More Summit	216260 911908	Landscape Receptors: LCT 328, Assynt – Coigach NSA, Inverpolly WLA. Visual Receptors: Hill walkers.
2	Canisp Summit	220313 918718	Landscape Receptors: LCT 138, Assynt – Coigach NSA, Inverpolly WLA. Visual Receptors: Hill walkers.
3	Ben More Summit	232403 919305	Landscape Receptors: LCT 139, Assynt – Coigach NSA, Reay Cassley WLA. Visual Receptors: Hill walkers.
4	Glas Mheall Mor Summit	207877 885505	Landscape Receptors: LCT 328, Wester Ross NSA, Fishfield – Letterwe-Fannichs WLA. Visual Receptors: Hill walkers.
5	Bodach Mor	236081 889224	Landscape Receptors 139, Fannichs – Beinn Dearg and Glencalyie SLA, Riddoroch – Beinn Dearg – Ben Wyvis WLA. Visual Receptors: Hill walkers.
6	Carn Salaceidh	251825 887458	Landscape Receptors: LCT 139, Riddoroch – Beinn Dearg – Ben Wyvis WLA. Visual Receptors: Hill walkers.
7	Oykel Bridge	238527 900897	Landscape Receptors: LCT 142. Visual Receptors: Road users, nearby residential receptors.
8	A837 Strath Oykel	245672 901413	Landscape receptors: LCT 142. Visual Receptors: Road users.
9	A837, Kyle of Sutherland	250388 899413	Landscape receptors: LCT 330. Visual Receptors:
10	Footpath, Rappach Water	228273 899102	Landscape Receptors: LCT 330, Riddoroch – Beinn Dearg – Ben Wyvis WLA Visual Receptor: Hill walkers.
11	A949 Approach to Bonar Bridge	263634 889282	Landscape Receptors: Seascape Character Type 11, Dornoch Firth NSA. Visual Receptors: Road users.

Viewpoint Number	Location	Grid Ref.	Receptors Present at Viewpoint
12	Ben Wyvis Summit	246300 868405	Landscape Receptors: LCT 329, Ben Wyvis SLA, Riddoroch – Beinn Dearg – Ben Wyvis WLA. Visual Receptors: Hill walkers.
13	Diebidale Ridge	243161 883663	Landscape Receptors: LCT 139, Fannichs – Beinn Dearg and Glencalyie SLA, Riddoroch – Beinn Dearg – Ben Wyvis WLA. Visual Receptors: Hill walkers.
14	Summit of Beinn an Ebin	238967 908235	Landscape Receptors: LCT 332, Reay – Cassley WLA. Visual Receptors: Hill walkers.
15	Track west of Strath Cuilennach	237223, 897612	Landscape Receptors: : LCT 332, Fannichs – Beinn Dearg and Glencalyie SLA, Riddoroch – Beinn Dearg – Ben Wyvis WLA. Visual Receptors: Hill walkers.
16	Strath Cuileannach	242123 894750	Landscape Receptors: LCT 142. Visual Receptors: Hill walkers.
17	Seana Bhraigh Summit	228174 887892	Landscape Receptors: LCT 139, Fannichs – Beinn Dearg and Glencalyie SLA, Riddoroch – Beinn Dearg – Ben Wyvis WLA. Visual Receptors: Hill walkers.
18	Ben Kilbreck	258524 929893	Landscape Receptor: CT 138, Ben Kilbreck and Loch Choire SLA, Ben Kilbreck – Armine Forest WLA. Visual Receptors: Hill walkers.
19	Creag Mhor Summit	269799 924015	Landscape Receptors: LCT 135, Ben Kilbreck and Loch Choire SLA, Ben Kilbreck – Armine Forest WLA. Visual Receptors: Hill walkers.
20	Oykel Bridge to Glen Einig Footpath	238586 900129	Landscape Receptors: LCT 332. Visual Receptors: Hill walkers and nearby residential receptors.
21*	A837, Loch Craggie	232878 905200	Request from THC to help understand the effect of the Proposed Development on road user receptors at a transitional point in the landscape.
22*	A836, south of Lairg	258163 903570	Request from THC to help understand the effect of the Proposed Development, including cumulative effects, at this important population centre.

*Viewpoint 21 and 22 have been added by request of THC after undertaking a pre-scoping consultation exercise.

4.6 Matters Scoped Out

4.6.1 No potential landscape and visual effects during construction and operation of the Proposed Development have been scoped out.

4.7 Questions to Consultees

- Q4.1: Are the methodology, datasources, and extent of the Study Area accepted?
- Q4.2: Are the receptors and impacts scoped out of the assessment accepted?
- Q4.3: Are the assessment viewpoints proposed accepted?

5. Cultural Heritage

5.1 Introduction

5.1.1 This Chapter has been prepared by AOC Archaeology Group and summarises the potential environmental impacts and likely significant effects upon Cultural Heritage receptors that are anticipated to arise in connection with construction and operation of the Proposed Development. This Chapter outlines the baseline archaeological and cultural heritage conditions within the Site and Study Areas and outlines the methodology that will be utilised for the identification and assessment of direct and settings effects within the EIA Report.

5.1.2 This Chapter is supported by the following Figures:

- **Figure 5.1: Heritage Assets within the 1 km Study Area;** and
- **Figure 5.2: Designated Heritage Assets within the 10 km Study Area.**

5.2 Consultation

5.2.1 No direct consultation with relevant Consultees, namely Historic Environment Scotland (HES) and the Highland Historic Environment Team (HET), as historic environment advisors to THC, has been undertaken to date.

5.2.2 This Scoping Report constitutes the initial consultation with the Consultees. Further direct consultation with Consultees may be required, and if necessary, will be undertaken during the EIA process.

5.3 Method of Assessment and Reporting

Study Area

5.3.1 In order to assess the potential for effects on cultural heritage assets resulting from the Proposed Development, the following Study Areas have been identified:

- A Core Study Area (the Site), which includes all land within the Site, which will be subject to assessment for potential direct and setting effects. This Study Area will be subject to detailed walkover and cultural heritage assets which may be directly affected by the Proposed Development will be identified, setting effects will also be considered;
- A 1 km Study Area for the identification of all known heritage assets and known previous archaeological interventions in order to help predict whether any similar hitherto unknown archaeological remains are likely to survive within the Site and thus be impacted by the Proposed Development;
- A 5 km Study Area for the assessment of potential effects on the settings of all designated heritage assets including Scheduled Monuments, Listed Buildings, Inventory Gardens and Designed Landscapes, Inventory Battlefields, Conservation Areas, and assets deemed to be of National Significance in the Historic Environment Record (HER);
- A 10 km Study Area for the assessment of potential effects on the settings of all nationally important heritage assets including Scheduled Monuments, Category A Listed Buildings, and Inventory Gardens and Designed Landscapes, Inventory Battlefields and non-designated assets deemed to be of National Significance in the HER.

5.3.2 There are no World Heritage Sites, Inventory Garden and Designed Landscapes, Inventory Battlefields or Conservation Area within 10 km of the Site.

5.3.3 Consideration has also been given to the potential for setting effects upon assets beyond 10 km. This has been done using the Scoping Zones of Theoretical Visibility (ZTV) (**Figure 5.2**). This exercise has considered that the potential for significant effects beyond 10 km is highly unlikely and as such it is not intended to consider assets beyond 10 km as set out above.

Legislation and Policy

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

- Town and Country Planning (Scotland) Act 1997[18];

18 'Town and Country Planning (Scotland) Act 1997, (C8). [Online].' (London: The Stationary Office, 1997), Available at: https://www.legislation.gov.uk/ukpga/1997/8/pdfs/ukpga_19970008_en.pdf

- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (as amended)[19];
- Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended)[20];
- Ancient Monuments and Archaeological Areas Act 1979 (as amended)[21];
- Historic Environment (Amendment) (Scotland) Act 2011[22];
- Historic Environment (Scotland) Act 2014[23];
- National Planning Framework 4 (NPF4) (Scottish Government 2023)[24];
- Historic Environment Policy for Scotland (HEPS) (Historic Environment Scotland (HES) 2019)[25], including Designation Policy and Selection Guidance[26];
- The Highland Wide Local Development Plan 2012[27]; and
- Caithness and Sutherland Local Development Plan[28].

Technical Guidance

5.3.5 The following guidance documents will be consulted during the assessment to assist in the determination of potential effects on heritage assets:

- Planning Advice Note 2/2011: Planning and Archaeology[29];
- Managing Change in the Historic Environment: Setting[30];
- Environmental Impact Assessment Handbook v5[31];
- Institute for Archaeologists' (CIfA) Code of Conduct[32];
- CIfA Regulations for Professional Conduct[33];
- CIfA Standard and Guidance for Historic Environment Desk Based Assessment[34];

19 'Planning (Listed Buildings and Conservation Areas (Scotland) Act 1997, (C9). [Online]' (London: The Stationary Office, 1997), Available at: https://www.legislation.gov.uk/ukpga/1997/9/pdfs/ukpga_19970009_en.pdf

20 Town and Country Planning (Environmental Impact Assessment), 2017. [Online].' (London: The Stationary Office, 1997), Available at: https://www.legislation.gov.uk/uksi/2017/571/contents/made

21 'Ancient Monuments and Archaeological Areas Act, 1979 (C46). [Online].' (London: The Stationary Office, 1979), Available at: https://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf.

22 'Historic Environment (Amendment) (Scotland) Act, 2011 (Full) [Online].' (London: The Stationary Office, 2011), Available at: https://www.legislation.gov.uk/asp/2011/3/pdfs/asp_20110003_en.pdf.

23 Historic Environment Scotland Act, 2014. [Online].' (London: The Stationary Office, 1997), Available at: https://www.legislation.gov.uk/asp/2014/19/contents/enacted

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

25 Historic Environment Scotland, 'Historic Environment Policy for Scotland (HEPS)', 2019, Available at: https://www.historicenvironment.scot/advice-and-support/planning-and-guidance/historic-environment-policy-for-scotland-heps/

26 Historic Environment Scotland, 'Designation Policy and Selection Guidance', 2019, Available at: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=8d8bbaeb-ce5a-46c1-a558-aa2500ff7d3b

27 The Highland Council, 'Highland-Wide Local Development Plan' (Highland Council, 2012), Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans

28 The Highland Council, 'Caithness and Sutherland Local Development Plan', 2018, Available at: https://www.highland.gov.uk/info/178/local_and_statutory_development_plans/283/caithness_and_sutherland_local_development_plan

29 Scottish Government, 'Planning Advice Notes (PAN for Scotland', n.d.), Available at: https://www.gov.scot/collections/planning-advice-notes-pans/

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

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

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

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

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

- CIfA Standard and guidance for commissioning work on, or providing consultancy advice on, archaeology and the historic environment'[35]; and
- Highland Council Reporting Standards for Archaeological Work (2023)[36].

Archaeological and Historic Baseline Characterisation

5.3.6 The archaeological and historical baseline will be established with reference to the following information sources:

- Historic Environment Scotland (HES) for designated heritage asset data;
- Canmore and Pastmap (hosted by HES) for National Record of the Historic Environment (NRHE) data;
- The National Library of Scotland (NLS) for online old Ordnance Survey (1st & 2nd edition, small- and large-scale) and pre-Ordnance Survey historical maps;
- British Geological Survey (BGS) for bedrock and superficial deposit data and historic boreholes information;
- HLA maps (HES) for historic landscape characterisation and modern landscape information;
- The National Collection of Aerial Photography (NCAP) (HES) for accessible historic aerial photographs;
- Available client supplied data about the Site;
- Scottish Remote Sensing Portal for Phase 2 LiDAR data and imagery (note LiDAR data is only available via the Scottish Remote Sensing Portal for approximately half of the Site); and
- Any other relevant published works, such as previous archaeological reports and assessments.

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

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

5.3.9 Setting assessment visits to designated assets with the potential to be impacted by the Proposed Development will be undertaken. A ZTV will be used to initially identify designated heritage assets which require detailed assessment. A review of designated heritage assets outwith the ZTV will also be undertaken prior to site visits to identify any designated heritage assets with key views which would include the Proposed Development, and where appropriate these assets will also be subject to detailed setting assessment. Designated heritage assets outwith these criteria will be scoped out because they are unlikely to be significantly affected.

Assessment of Potential Effect Significance

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

5.3.11 Assessment of direct effects resulting from the construction phase will relate to whether the construction of the Proposed Development would remove, in part or whole, elements of the asset. The level of direct effect will be a result of the importance of the assets and the magnitude of impact predicted.

5.3.12 The setting assessment will be undertaken with reference to HES' Managing Change Guidance on setting[37] and will aim to establish the current setting of the identified heritage assets, how that setting

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

36 The Highland Council (2023) Highland Council Reporting Standards for Archaeological Work. Available at: https://www.highland.gov.uk/downloads/file/1022/standards_for_archaeological_work

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

contributes to the understanding, appreciation and experience of those assets and how the Proposed Development could impact upon this.

5.3.13 Cumulative effects will also be considered. The assessment of cumulative effects on heritage assets will be based upon consideration of the effects of the Proposed Development on the settings of heritage assets, in addition to the likely effects of other operational/under construction, consented, and proposed (at the application stage) wind farm schemes. Cumulative effects will be considered for designated assets as identified in the 5 km and 10 km Study Areas. 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. Cumulative wirelines from those assets most likely to experience significant cumulative impacts on their settings will be provided, if appropriate. The schemes to be included in the cumulative impact assessment will be those agreed with the planning authority via consultation and will be undertaken according to the guidance in NatureScot's Assessing the Cumulative Impact of Onshore Wind Energy Developments[38] and Historic Environment Scotland's Environmental Impact Assessment Handbook[39].

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

5.3.15 In terms of effects upon the setting of heritage assets, it is considered that only those effects identified as 'significant' in EIA terms will have the potential to significantly adversely impact upon integrity of setting. Where no significant effect is found it is considered that there would be no significant impact upon the integrity of an asset's setting. Where significant effects are found, a detailed assessment of adverse impacts upon integrity of setting will be made. Whilst non-significant effects are unlikely to significantly impact integrity of setting, the reverse is not always true. That is, the assessment of an effect as being 'significant' in EIA terms does not necessarily mean that the adverse effect to the asset's setting will significantly impact its integrity. The assessment of adverse impact upon the integrity of an asset's setting, where required, is a qualitative one, and largely depends upon whether the impact predicted would result in a major impediment to the ability to understand or appreciate the heritage asset.

5.4 Environmental Baseline

5.4.1 This scoping baseline has been informed by a review of the NRHE data held by HES[40], and regularly updated by local Historic Environment Records' (HER's) and a rapid review of historic mapping available online via the NLS. The location of all heritage assets within 1 km of the Site are shown on **Figure 5.1** and designated heritage assets within 10 km of the Site are shown of **Figure 5.2**. Where designated heritage assets have been discussed in the following text, these assets have been labelled on **Figures 5.1** and **Figure 5.2**.

5.4.2 HER data for THC has not been consulted for the purposes of scoping but will be included in the EIA Report. Historic maps, which are held by the National Library of Scotland (NLS)[41], have been consulted. Historic mapping has been used to provide a brief description of past land uses in the Site. A more detailed historic map regression will form part of the EIA Report. HES' Historic Land-use Assessment (HLA) map[42], which contains data on past and present land use, has also been consulted.

5.4.3 Each heritage asset identified has been given an Asset Number unique to this Scoping Report. A Gazetteer of Heritage Assets and Events (**Appendix 5.1**) includes information regarding the type, period, location, reference number, designation and any other relevant descriptions, as derived from the consulted sources.

5.4.4 The BGS records a single bedrock within the Site; the Altnaharra Psammite Formation – Psammite, a metamorphic bedrock formed between 1000 and 541 million years ago between the Tonian and

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

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

40 HES, Downloads 2024, Available at: https://portal.historicenvironment.scot/downloads [accessed 22/02/2024]

41 NLS, 'National Library of Scotland – Maps', 2024. Available at: https://maps.nls.uk/ [accessed 22/02/2024]

42 HES, 'HLAmap – Scotland's Historic Land Use', 2024, Available at: https://hlamap.org.uk/ [accessed 22/02/2024]

Ediacaran periods. The BGS records two superficial deposits across the Site formed between 2.588 million years ago and the present during the Quaternary period:

- Till – Diamicton, a sedimentary superficial deposit; and
- Peat – peat, a sedimentary superficial deposit.

5.4.5 The HLA characterises the majority of the Site as Plantation, described as plantations of 'coniferous species and tend to be densely packed within clearly defined boundaries'.

5.4.6 Roy's Military Map of Scotland (1747-52) depicts the majority of the Site within undeveloped moorland. The strip of land along the southern bank of the Strath Oykel appears to have been cultivated with several settlements and arable fields depicted.

5.4.7 The Ordnance Survey map of the late 19th century indicates that the larger part of the Site consisted of unimproved moorland. The strip along the southern bank of the Strath Oykel appears to have been well settled, with several settlements, tracks, kennels, sheepfolds and enclosed fields identified.

Designated Heritage Assets

5.4.8 There are no designated heritage assets recorded within the Site.

5.4.9 Within 1km of the Site, there is:

- One Scheduled Monument - Langwell, fort and dun 500 m WSW of (SM5302; Asset 1) is a prehistoric fort located on a prominent knoll overlooking Strath Oykel. The fort and later dun, consists of a stone wall around the top of the knoll and includes evidence of vitrification. An excavation was conducted in the 1970s which exposed the vitrified wall and post holes associated with the dun. HES states that its significance relates to its potential to contribute to an understanding of prehistoric defensive and domestic settlements; and
- One Category B Listed Building, Suspension Footbridge, Brae Doune (LB287; Asset 10).

5.4.10 Between 1 km and 5 km for the Site (**Figure 5.2**) there are:

- Four Category B Listed Buildings; and
- Two Category C Listed Buildings

5.4.11 Between 5 km and 10 km of the Site (**Figure 5.2**) there is:

- One Scheduled Monument, Dail Langwell, broch 1675 m north west of Croich (SM1852; Asset 2) which is located 10.8 km to the north of the Site; and
- One Category A Listed Building, Croick Parish Church (LB7181, Asset 3) which is located 6.5 km to the south east of the Site.

5.4.12 A preliminary review of the Scoping ZTV, suggests that the designated assets identified beyond 5 km of the Site (Assets 2 and 3) will have limited visibility of the Proposed Development.

Non-Designated Heritage Assets

5.4.13 The NRHE records five non-designated heritage within the Site:

- An Sgreadan Farmstead (NC40SW 12.00; Asset 13);
- Alltan Leacach (NC40SW 8.00; Asset 21) a large sandstone pebble which includes an oval hollow pecked out on one face;
- Langwell Farmstead (NC40SW 18.00; Asset 28) an area of ten buildings, enclosure and field system depicted on the First Edition OS mapping;
- Brae Township (NC40SW 19.00; Asset 29) an area of roofed and unroofed buildings and enclosures depicted on the First Edition OS mapping; and
- Bronze Age cist and inhumation (NC40SW 20.00; Asset 31) the site of a previously excavated cist, which was re-excavated in 2009.

5.4.14 Within 1 km of the Site, the NRHE records varied assets which include settlements and agricultural infrastructure such as farmstead and clearance cairns. The NRHE also records the location of two battle sites of medieval date (NC40SW 14.00; Asset 15 and NC40SW 15.00; Asset 16). Evidence of the earlier occupation of the area is also evidenced from the record of a possible Iron Age Broch (NC40SW 2.00; Asset 17) and bracelet (NH49NW 1.00; Asset 26).

5.5 Potential Sources of Impact

Direct Impacts

5.5.1 Direct physical impacts to assets occur when the fabric of known or undiscovered assets are removed or damaged as a result of Proposed Development. This will be permanent and generally occurs during the construction phase.

5.5.2 Indirect physical effects occur as an indirect consequence of the development such as increased/decreased erosion or damage from vibration of piling, such impacts are likely to be permanent.

5.5.3 Five non-designated heritage assets have been identified within the Site.

5.5.4 The extent and survival of the five non-designated heritage assets identified within the Site is currently unknown and will require to be defined through detailed walkover survey and analysis of HER data from HET. The results of these analyses will be used to inform the Proposed Development design and direct impacts will be avoided where possible. Where it is not possible to avoid direct impact the design will seek to minimise impacts and the cultural heritage assessment will outline appropriate mitigation measures to offset any impacts, via preservation by record, as required.

5.5.5 The Scheduled fort and dun (SM5302; Asset 1) are located 767 m to the north-west of the Site and as such no direct impact is expected.

5.5.6 There is the potential for hitherto unknown archaeological and paleoenvironmental deposits and remains to survive on the Site. As such the Proposed Development may have the potential to directly impact hitherto unknown archaeological remains. This potential will be taken into consideration when designing mitigation proposals to ensure that impacts are avoided or minimised or where this is not possible, offset.

Setting Impacts

5.5.7 The Proposed Development has the potential to impact upon the settings of heritage assets with which it is intervisible or where it can be seen in key views towards assets across the landscape. There is also a potential for cumulative impacts on the settings of heritage assets. The assessment will consider the identified heritage assets in the outlined Study Areas which could be subject to potential impacts upon setting. The EIA Report will be supported by a detailed ZTV which will be used to identify assets intervisible with the Proposed Development. It is envisaged that visualisations (either wireframes or photomontages) will be produced for some assets to aid in assessment of settings impacts.

5.5.8 In particular, a visualisation will be produced for The Scheduled Langwell, fort and dun 500 m WSW of (SM5302; Asset 1) as it has the potential to be subject to significant setting effect during the operational phase of the Proposed Development as a result of its location directly to the north-west of the Site boundary and thus the proximity to turbines. Consideration will be given to this during the iterative design process and will be informed by site visits to the asset. The Proposed Development will seek to minimise impact through avoiding placing turbines in locations which impact upon the key characteristics of setting. Consideration will also be given to enhancement measures which could compensate for impacts upon the setting of the asset if appropriate, any such measures would seek to enhance the understanding, appreciation and experience of the asset and maximise public benefit.

5.5.9 A preliminary review of all other designated heritage assets within 10 km of the Site, identified that there is a potential for setting effects, although the level of effect, at worst, is not anticipated to be significant in EIA terms. However, these assets will be subject to detailed settings assessments, informed by ZTV analysis and site visits. Designated heritage assets outwith the ZTV will also be considered for assessment and a review of their key views and characteristics will form part of the setting assessment.

5.6 Matters Scoped Out

5.6.1 Based on the baseline conditions, theoretical visibility, and distance from the Site, it is proposed that the following are scoped out:

- Physical effects to assets outside the Site;
- Impacts on the settings of non-designated cultural heritage assets and features, as these are generally considered less sensitive to changes in their settings and are judged to be unlikely to be subject to significant settings effects.
- Designated heritage assets, outwith the ZTV and not considered to have the potential for the Proposed Development to be seen in key views towards them across the landscape.

5.6.2 Impacts on the settings of heritage assets beyond 10 km of the Site due to the following reasons.

- AOC have reviewed the nationally important designated hertiage assets within the Scoping ZTV to a distance of 40 km. The majority of the Scheduled Monuments located beyond 10 km are largely to the north west, with several scattered to the north east and south east. The large majority of these assets are cairns and intial assessment of these assests has identified that they are largely located along major waterways and lochs, such as Loch Borralan, and the Kyle of Sutherland. Ritual and funerary assets in the ZTV beyond 10 km of the Site appear to relate to the fertile land and the historic locaitons of settlements as well as to the waterways mentioned above. Whilst the Proposed Development may be visible in views from some of these assets, it would not impact the relationship of these assets to the landform, the fertile land or to other possible contemporaneous assets. Thus, the Proposed Development is not anticipated to have a significant effect on their settings and they would be scope out of further assessment.
- There are a small number of defensive monuments beyond the 10 km Study Area, located along the Kyle of Sutherland and Loch Shin, which suggest that these assets, if contemporaneous, may have intervisibility with one another to facilitate defence and communication along waterways, and control access inland from the Dornoch Firth. Whilst the Proposed Development is likely to be visible as a modern addition to the wider landscape and, in part, be visible in views from and between these assets, the Proposed Development would not impact intervisibility as it would be located further to the west from the Dornoch Firth and thus not result in a significant effect upon the settings of these asset. As such these assets would be scoped out of further assessment.

5.7 Questions to Consultees

- Q5.1: Is the proposed assessment methodology, including proposed Study Areas, accepted?
- Q5.2: Are the receptors and impacts scoped out of the assessment accepted?
- Q5.3: Are there any assets beyond the proposed Study Areas that Consultees would like to see scoped into the assessment?
- Q5.4: Visualisations are proposed for The Scheduled Langwell, fort and dun 500m WSW of (SM5302; Asset 1). Do Consultee foresee any requirement for further visualisations?

6. Ecology

6.1 Introduction

6.1.1 This Chapter has been prepared by Avian Ecology Ltd. and provides a summary of baseline ecological information collected to date along with the proposed approach to assessment in accordance with best practice guidance.

6.2 Consultation

6.2.1 Prior to the commencement of baseline ecological surveys, preliminary consultation with NatureScot was undertaken in October 2020 to agree the proposed scope for ecological surveys. In consultation, NatureScot (Area Officer for Northern Isles & North Highland Area) confirmed they were satisfied with the proposed approach to baseline ecological surveys.

6.3 Method of Assessment and Reporting

6.3.1 The impact assessment presented within the EIA Report for ecological features will be based on current Chartered Institute of Ecological and Environmental Management (CIEEM) guidance (2018, updated 2019[43]).

6.3.2 Important ecological features that will be considered within the EIA will include:

- Relevant statutory designated sites, and their cited qualifying interests, such as Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs) and National Nature Reserves (NNRs);
- Internationally or nationally important habitats (e.g. habitats listed on Annex I of European Commission (EC) Habitats Directive[44]), habitats of principal importance for biodiversity conservation in Scotland (Scottish Biodiversity List[45]); and
- Populations of ecological species listed on Annex IV of the EC Habitats Directive or Schedule 5 of the Wildlife & Countryside Act 1981 (as amended), or scarce, or a priority for conservation under the UK BAP and/or Scottish Biodiversity List (SBL).

Study Area

6.3.3 The Study Area for baseline ecological information gathering have been based upon the Site boundary and have been established in accordance with best practice guidance. Study Areas adopted will be updated over the course of the EIA to account for changes in design and where land access permissions allow.

6.3.4 The Study Areas for the desk studies were a 2 km, 6 km, and 10 km extent from the Site, respectively for notable and protected species, non-statutory designated sites and notable habitat types and bat roosts, and statutory designated sites.

Relevant Policy and Legislation

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

<u>European</u>

- Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (hereafter the 'Habitats Directive'[46]).

<u>National</u>

- The Habitat Regulations 1994 (as amended) and The Conservation of Habitats and Species Regulations 2010, as amended in Scotland (hereafter the 'Habitat Regulations')[47];
- The Wildlife and Countryside Act 1981 (as amended)[48];

43 https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf [Accessed 08/03/2024]

44 Council Directive 1992/43/EEC on the conservation of natural habitats and of wild fauna and flora

45 https://www.nature.scot/scottish-biodiversity-list [Accessed 08/03/2024]

46 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31992L0043 [Accessed 08/03/2024]

47 https://www.legislation.gov.uk/uksi/1994/2716/contents/made [Accessed 08/03/2024]

48 https://www.legislation.gov.uk/ukpga/1981/69 [Accessed 08/03/2024]

- The Wildlife and Natural Environment (Scotland) Act 2011[49];
- The Nature Conservation (Scotland) Act 2004[50];
- Protection of Badgers Act 1992[51];
- The National Planning Policy Framework 4 (NPF4) (2023[52]);
- Scottish Planning Policy (2014[53]);
- The United Kingdom Biodiversity Action Plan (UK BAP) Priority Species and Habitats (2007[54]);
- Scottish Biodiversity List (SBL) (2020[55]); and
- NatureScot (2024) NatureScot pre-application guidance for onshore wind farms. Version: February 2024[56].

Local

- The Highland Nature Biodiversity Action Plan (2021-2026[57]);
- The Caithness and Sutherland Local Development Plan[58]; and
- The Highland-wide Local Development Plan[59].

Determining Importance

6.3.6 The EIA Report will only assess in detail impacts upon important ecological features which are likely to be significantly affected by the Proposed Development. A detailed assessment of features that are sufficiently widespread, unthreatened, and resilient to impacts of the Proposed Development will not be undertaken and justification for "scoping out" will be provided.

6.3.7 Relevant European, national, and local legislation policy and guidance will be referred to in order to determine the importance (or 'sensitivity') of ecological features. In addition, 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.

6.3.8 Importance will not necessarily relate solely to the level of legal protection that a feature receives, and ecological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.

6.3.9 The importance of ecological features will be defined in a geographical context from "Local" to "International".

Identification and Characterisation of Impacts

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

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

Significant Effects

6.3.12 CIEEM guidelines (2018) define a 'significant effect' as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general (i.e. the feature could be positively or negatively significantly affected).

6.3.13 CIEEM guidelines (2018) on ecological impact assessment note that, "A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning

49 https://www.legislation.gov.uk/asp/2011/6/contents/enacted [Accessed 08/03/2024]

50 https://www.legislation.gov.uk/asp/2004/6/contents [Accessed 08/03/2024]

51 https://www.legislation.gov.uk/ukpga/1992/51/contents [Accessed 08/03/2024]

52 https://www.gov.scot/publications/national-planning-framework-4/ [Accessed 08/03/2024]

53 https://www.gov.scot/publications/scottish-planning-policy/ [Accessed 08/03/2024]

54 https://jncc.gov.uk/our-work/uk-bap-priority-species/ [Accessed 08/03/2024]

55 https://www.nature.scot/scottish-biodiversity-list [Accessed 08/03/2024]

56 https://www.nature.scot/general-pre-application-and-scoping-advice-onshore-wind-farms [Accessed 08/03/2024]

57 https://www.highlandenvironmentforum.info/biodiversity/action-plan/ [Accessed 08/03/2024]

58 https://www.highland.gov.uk/info/178/development_plans/283/caithness_and_sutherland_local_development_plan [Accessed 08/03/2024]

59 https://www.highland.gov.uk/info/178/development_plans/199/highland-wide_local_development_plan [Accessed 08/03/2024]

permission. For example, many projects with significant negative ecological effects can be lawfully permitted following EIA procedures as long as the mitigation hierarchy has been applied effectively as part of the decision-making process."

Cumulative Impacts

6.3.14 The potential for cumulative effects on ecological features with other wind farm proposals will be assessed in accordance with NatureScot's guidance (SNH, 2012[60]) but will be restricted to those developments located within the same hydrological catchment(s) or within the regular range of mobile species (e.g., bats).

6.3.15 The assessment will encompass the effects of the Proposed Development in-combination with existing developments, either built or under construction; approved developments; awaiting implementation; and proposals awaiting determination within the planning process with design information in the public domain.

6.3.16 Non-wind farm proposals will not be considered unless specifically requested by NatureScot.

Habitat Regulations Appraisal (HRA)

6.3.17 The River Oykel SAC is 0.27 km north of the Site boundary, and this SAC has Atlantic salmon *Salmo salar* and freshwater pearl mussel (FWPM) *Margaritifera margaritifera* as qualifying features. Given the proximity of the SAC to the Site, the EIA Report will provide sufficient information to allow the competent authority to undertake a HRA of the Proposed Development in relation to the River Oykel SAC.

Avoidance and Mitigation

6.3.18 The adoption of embedded mitigation measures to avoid or minimise adverse impacts upon ecological features will be part of the iterative design process for the Proposed Development. Measures to avoid or otherwise minimise potentially adverse impacts upon ecological features during scheme design will include minimising land-take, number of watercourse crossings, avoidance of the most ecologically valuable habitats, watercourse buffers, and bat habitat buffers.

6.3.19 Full details of embedded mitigation measures in relation to ecology will be detailed within the EIA Report.

Residual Effects

6.3.20 An assessment to determine the significance of residual ecological effects (those remaining after mitigation measures) will be undertaken.

Compensation

6.3.21 Where significant residual effects still remain, compensation will be provided. This could include replacement habitat, or habitat improvements which would offset potentially significant residual effects. Note, compensation of any bog/mire habitat identified as 'priority peatland' will be considered for the Proposed Development, in accordance with recent NatureScot guidance (2023a[61]).

Enhancement

6.3.22 Suitable principles for ecological enhancement to be delivered as part of the Proposed Development will be outlined within the EIA Report, and with consideration given to the requirements of NPF4. This will particularly consider Policy 3 of NPF4 which states that "Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them". Furthermore, Policy 3 states that the proposal must provide "significant biodiversity enhancement…" and "should include nature networks, linking to and strengthening habitat connectivity within and beyond the development". Policy 5 of NPF4 will also be considered in relation to the protection of carbon-rich soils (peatlands). The appropriateness and feasibility of principles will be discussed with NatureScot and other relevant consultees over the course of the EIA, with a view to prescriptive enhancement measures being detailed post-consent, within a Nature Enhancement Management Plan (NEMP). An Outline NEMP will be presented in the EIA Report.

6.4 Environmental Baseline

Initial Desk Study

6.4.1 An initial desk study was undertaken in 2021 to inform the proposed approach to baseline information gathering, including the scope for baseline ecological surveys.

60 SNH (2012) Assessing the cumulative impacts of onshore wind energy developments. Guidance. March 2012.

61 NatureScot (2023a) Advising on peatland, carbon-rich soils and priority peatland habitats in development management. November 2023.

6.4.2 The following key sources, applicable at the time, were consulted:

- Sitelink[62];
- Aerial imagery[63];
- NatureScot pre-application guidance for onshore wind farms (NatureScot, 2024);
- Good practice NatureScot guidance on planning, development and protected species (NatureScot, 2023b[64]); and
- Highland Biological Recording Group (HBRG) for records of protected and notable species, and non-statutory sites within 2 km (extended to 6 km for bat roosts[65]).

6.4.3 Note, an updated desk study will be undertaken to gather any recent records (including an updated request to HBRG).

Statutory Designated Sites for Nature Conservation

6.4.4 Statutory (international and national) designated sites located within 10 km of the Site are shown in **Figure 6.1** and summarised in **Table 6.1**.

Table 6.1 – Statutory Designated Sites for Nature Conservation with Ecological Interests

Site Name	Approximate Distance from the Site (km)	Qualifying Interests
River Oykel SAC	0.27 km, north	– Atlantic salmon; and, – Freshwater pearl mussel.
Kyle of Sutherland SSSI	4.1 km, east	– Floodplain fen; – Wet woodland; and, – Vascular plant assemblage.
Grudie Peatlands SSSI	6.4 km, north east	– Blanket bog.
Caithness and Sutherland Peatlands SAC and Ramsar	6.4 km, north east	– Habitats, including blanket bog, acid peat-free lakes and ponds and very wet mires (quaking); and, – Rare wetland plants, incl. three nationally rare mosses, eight nationally scarce vascular plants and four nationally scarce mosses.
Amat Woods SAC	7.3 km, south	– Caledonian forest.
Amat Woods SSSI	7.3 km, south	– Native pinewood; and, – Upland birch woodland.
Alladale Pinewoods SSSI	8.4 km, south west	– Native pinewood.

Non-Statutory Designated Sites for Nature Conservation

6.4.5 There are no non-statutory designated sites within 2 km of the Site.

Ancient Woodland Inventory (AWI) Habitat

6.4.1 Within the centre and east of the Site (between blocks of commercial forestry) are areas (totalling 19.1 ha) identified as 'Meoir Langwell' which is 'ancient (of semi-natural origin)'[66].

Wildcat Priority Area

6.4.2 The Site is outwith 25 km of the nearest Wildcat Priority Area, with the nearest Strathpeffer 27 km south of the Site67. Assessment of the potential for wildcat Felis silvestris to be present within the Site

62 https://sitelink.nature.scot/home [Accessed 08/03/2024]

63 https://www.google.com/maps/place/River+Oykel/@58.0028036,-4.80331,12z/data=!3m1!4b1!4m6!3m5!1s0x488fc8ae923cc6ff:0x3a960f44ce74e6be!8m2!3d57.9724775!4d-4.7429836!16s%2Fm%2F026dp5_?entry=ttu [Accessed 08/03/2024]

64 NatureScot Advice, Planning and Development: Protected Animals, available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-protected-species [Accessed 08/03/2024]

65 https://www.hbrg.org.uk/ [Accessed 08/03/2024]

66 https://opendata.nature.scot/datasets/snh::ancient-woodland-inventory/explore?location=57.943782%2C-4.676395%2C14.00 [Accessed 11/03/2024]

67 https://www.nature.scot/sites/default/files/2017-07/Publication%202014%20-%20SNH%20Commissioned%20Report%20768%20-%20Survey%20and%20scoping%20of%20wildcat%20priority%20areas.pdf [Accessed 11/03/2024]

is scoped out (although any anecdotal evidence during terrestrial mammal walkovers indicative of the species would have been made).

Field Surveys

6.4.3 The following surveys have been completed to establish baseline ecological conditions and potentially important ecological features within the Site and surrounding area, which may be impacted by the Proposed Development:

- Phase 1 Habitat Survey (August 2021);
- National Vegetation Classification (NVC) Survey (August 2021);
- Ground-level Static Bat Activity Surveys (April – September 2021, inclusive);
- Terrestrial Mammal Walkovers (June and August 2021)[68]; and
- Fish Habitat Survey (including FWPM Habitat Survey) (November 2021).

Habitats and Vegetation

6.4.4 A survey was undertaken in August 2021 to establish baseline terrestrial habitat conditions at the Site and identify vegetation communities of notable importance including potential habitat listed on Annex 1 of the 'Habitats Directive' and as UKBAP Priority Habitats, with reference to the following key guidance documents: Averis, et al(2004[69]), JNCC (2010[70]), Rodwell (2006[71]), Rodwell (1992[72]), Rodwell (1993[73]), and Scotland and Northern Ireland Forum for Environmental Research (SNIFFER, 2009[74]).

6.4.5 The Study Area for the habitat surveys (Phase 1 and NVC) was land within 250 m of potential turbine locations and 100 m of potential access tracks and infrastructure (where accessible).

6.4.6 In summary, much of the Site (c.70%) is dominated by semi-mature coniferous plantation woodland (A1.2.2), with a species-poor understory due to high needle cover. There are however open habitats particularly in the north of the Site, which comprises of wet heath (D2), marshy grassland (B5), unimproved acid grassland (B1.1) and semi-improved acid grassland (B1.2), and mosaics of these habitats. There are some isolated pockets of bog habitat (E1.6.1) in the north of the Site, and further areas within the forestry rides in the south. Between some blocks of coniferous plantation are remnant areas of semi-natural broad-leaved woodland (A1.1.1), some of which is listed on the AWI (see details above). Waterbodies within the Site comprise a limited number of ponds (G1.4) and peat-stained streams flowing through the Site (G2.4).

6.4.7 Coniferous plantation was not subject to NVC survey. Where habitats were deemed to potentially support Annex I or Groundwater Dependent Terrestrial Ecosystems (GWDTE) habitats, they were subject to further NVC survey. The following NVC communities were identified on the Site:

- Dry heath H12a;
- Blanket bogs M2, M17a, M19a;
- Flush M6;
- Wet heath M15b;
- Marshy grassland M23b;
- Acid grassland U4, U5c;
- Bracken U20;
- Downy birch woodland with purple moor-grass W4; and
- Gorse and bramble scrub W23.

6.4.8 Full details of baseline habitats and vegetation conditions will be presented within the EIA Report.

68 Including a preliminary ground-level assessment of structures, trees and buildings (within ~300m of the turbine locations) for suitability to support roosting bats.

69 Averis, A., Averis, B., Birks, J., Horsfield, D., Thompson, D. and Yeo, M. (2004). An Illustrated Guide to British Upland Vegetation. JNCC, Peterborough.

70 JNCC (2010). Handbook for Phase 1 Habitat Survey - a technique for environmental audit. Revised Reprint 2016. JNCC, Peterborough.

71 Rodwell, J. S. (2006). National Vegetation Community Users' Handbook. JNCC, Peterborough.

72 Rodwell, J. S. (ed.) (1992). British Plant Communities. Volume 3. Grasslands and montane communities. Cambridge University Press, Cambridge.

73 Rodwell, J. S. (ed.) (1993). British Plant Communities. Volume 2. Mires and Heaths. Cambridge University Press, Cambridge.

74 Scotland and Northern Ireland Forum for Environmental Research (SNIFFER, 2009) WFD95: A Functional Wetland Typology for Scotland – Field Survey Manual. Version 1.

6.4.9 Where required, terrestrial habitat and vegetation surveys will be updated prior to assessment in response to changes in scheme design. This will seek to ensure compliance with current NatureScot guidance (2024[75]) and provision of sufficient information in accordance with Scottish Environment Protection Agency (SEPA) guidance (2017[76]), with regards the identification of GWDTE for subsequent hydrological assessment.

Terrestrial Mammals (including bats)

6.4.10 Terrestrial mammal and bat surveys referred to the following key documents[77]: Collins (2016[78]), SNH (2019[79]), and NatureScot (2020a-e[80,81,82,83,84]). The Study Area for terrestrial mammal searches was out to 250 m (where accessible) of the Site. Target species comprised water vole *Arvicola amphibius*, otter *Lutra lutra*, badger *Meles meles*, pine marten *Martes martes* and red squirrel *Sciurus vulgaris*. This followed the survey coverage required within NatureScot guidance (2020a-e[80,81,82,83,84]) and good practice industry standard survey methodologies.

6.4.11 Bat activity surveys to establish the bat species assemblage and the spatial and temporal distribution of activity on the Site were undertaken in 2021, with reference to the NatureScot guidance relevant at that time (SNH, 2019[79]).

6.4.12 A preliminary ground-level assessment of suitable structures, buildings, and trees within 200 m plus blade length (approximately 300 m) of proposed turbine locations for potential to support roosting bats has also been undertaken in accordance with NatureScot guidance (SNH, 2019[79]). This was carried out at the same time as the terrestrial mammal surveys in June and August 2021.

6.4.13 Bat activity surveys were completed during the spring (April-May), summer (June) and autumn (September) activity periods 2021, using a total of 10 automated monitoring stations located within areas of the Site where turbines were most likely to be located. Monitoring stations were positioned at preliminary turbine locations, where known at the time of survey commencement, with the remainder stratified across the Site based on the availability and variation of bat habitat features. This included open habitat areas outwith the dominant woodland habitats of the Site, to provide an indication of how bats may adapt to and use new habitat features created as a result of the Proposed Development (e.g. through felling or key-holing where required), in accordance with current NatureScot guidance (SNH, 2019[79]).

6.4.14 In summary, surveys undertaken during the 2021 spring, summer and autumn activity periods has recorded activity characteristic of a narrow range of species, including:

- Common pipistrelle Pipistrellus pipistrellus;
- Brown long-eared bat Plecotus auritus; and
- Myotis spp.

6.4.15 Note, that the bat survey results are currently undergoing detailed analysis.

6.4.16 Full details of baseline survey effort and bat activity levels including Ecobat analysis (or suitable alternative given Ecobat is currently not functioning and cannot be used[85]), will be presented within the EIA Report.

6.4.17 Results of the preliminary ground-level assessments of suitable structures, buildings, and trees for their potential to support roosting bats within 200 m of turbines (plus blade length), will also be presented within the EIA Report, based on the final scheme layout. In summary, no such suitable structures/features for roosting bats were identified.

75 https://www.nature.scot/general-pre-application-and-scoping-advice-onshore-wind-farms [Accessed 08/03/2024]

76 https://www.sepa.org.uk/media/136117/planning-guidance-on-on-shore-windfarms-developments.pdf [Accessed 11/03/2024]

77 Note, the key guidance used was the version relevant at the time of surveys. Some guidance like the NatureScot bat and wind farms guidance has been recently updated. It is however considered that there are no limitations with surveys having been undertaken in accordance with previous iterations of the guidance.

78 Collins, J. ed. (201678) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

79 SNH (2019). Bats and Onshore Wind Turbines: Survey Assessment and Mitigation. January 2019. Joint Venture with others including Natural England and Natural Resources Wales.

80 NatureScot (2020a) Standing Advice for Planning Consultations - Protected Species: Badger.

81 NatureScot (2020b) Standing Advice for Planning Consultations - Protected Species: Otter.

82 NatureScot (2020c) Standing Advice for Planning Consultations - Protected Species: Pine marten.

83 NatureScot (2020d) Standing Advice for Planning Consultations - Protected Species: Water vole.

84 NatureScot (2020e) Standing Advice for Planning Consultations - Protected Species: Red Squirrel.

85 http://www.ecobat.org.uk/ [Accessed 11/03/2024]

6.4.18 Terrestrial mammal walkover surveys conducted in 2021 recorded evidence of water vole along watercourses within the south of the Site.

6.4.19 Pine marten scats were recorded throughout the forestry tracks within the Site and on-site habitats provide foraging and den building opportunities.

6.4.20 No evidence of otter was observed during survey; however, watercourses may offer a foraging and commuting resource as part of a wider territory.

6.4.21 No evidence of badger was observed during the survey, but habitats within the Site are considered potentially suitable for badger for foraging and for the establishment of a sett (plantation woodland).

6.4.22 Where required, terrestrial mammal walkover surveys will be updated prior to assessment in response to changes in scheme design. This will seek to ensure compliance with current NatureScot guidance 2020a-e[80,81,82,83,84]) and the requirement for mitigation measures to avoid or reduce potentially adverse impacts upon protected terrestrial mammal species and ensure legislative compliance during the construction of the Proposed Development, including the provision of any Species Protection Plans (SPPs).

Fish Habitat and Freshwater Pearl Mussel Habitat Surveys

6.4.23 A fish habitat assessment of watercourses within the Site was undertaken in November 2021 following industry standard guidance (SFCC, 2007[86]), included the suitability of habitats for FWPM in accordance with NatureScot guidance (2024 [87]). The Study Area for the survey was watercourses within 100 m of the Site (where accessible).

6.4.24 In summary, the watercourses that flow through the Site drain into the River Oykel catchment to the north. Many of the watercourses passing through the Site have negligible or low potential for supporting fish species, with most watercourses on moderately steep to steep gradients, with peaty headwaters. The River Oykel and the lower reaches of the Allt a Bhraigh (which is the main tributary of the River Oykel) however, adjoining the northern boundary of the Site, have potential for supporting fish and FWPM, not least as the River Oykel SAC has Atlantic salmon and FWPM as qualifying features.

Additional Field Surveys

6.4.25 In accordance with NatureScot guidance (2024 [88]) there are some species groups which, providing the implementation of suitable mitigation measures, are unlikely to be subject to significant effects as a result of the Proposed Development, as such, do not require surveys. This includes invertebrates, amphibians (and reptiles).

6.4.26 The presence of great crested newt *Triturus cristatus* is considered unlikely, given the locality (Sutherland), and only common reptiles and amphibians are likely to be present. Likely significant effects will not occur with the adoption of standard construction mitigation (within a CEMP) embedded into the design of the Proposed Development.

6.4.27 The bat activity survey scope, in 2021, using 10 static detectors to record bat activity was based on a previous layout iteration of the Proposed Development. The Site is predominantly commercial forestry (c.70%) and thus is appraised likely of modest value for foraging bats. Embedded mitigation (including adoption of appropriately sized bat buffers between proposed turbines from the most suitable bat features, including buffers from forestry edge for key-holing would also minimise the risk of bats active within the Site). No further bat surveys (or any other targeted ecological surveys, such as terrestrial mammal searches) are proposed.

6.4.28 A habitat validation is however scheduled to be undertaken during the plant 'growing season' (April to October 2024, inclusive) to check that habitats within the Site have not notably changed since the ecological surveys undertaken in 2021. In the event that habitats have not changed (and are still predominantly commercial forestry, with no large-scale clear-felling having taken place in the interim period) the results of all ecological surveys carried out are considered to remain valid. Note, that any contemporary records of protected species (like terrestrial mammals) identified during the validation survey will also be considered. If large-scale habitat change has occurred, the requirement for further targeted species surveys will be considered.

86 Scottish Fisheries Co-ordination Centre (2007) Habitat surveys – Training Course Manual. Revised August 2007.

87 https://www.nature.scot/general-pre-application-and-scoping-advice-onshore-wind-farms [Accessed 08/03/2024]

88 https://www.nature.scot/general-pre-application-and-scoping-advice-onshore-wind-farms [Accessed 08/03/2024]

6.5 Potential Sources of Impact

6.5.1 Potential impacts upon deer, with reference to current NatureScot guidance (SNH, 2016[89]), will be considered as part of the assessment.

6.5.2 Potential impacts upon GWDTEs, hydrology, peat and forestry will be addressed separately as discussed within **Chapter 8** and **Chapter 14** of this report.

Construction

6.5.3 During construction of the Proposed Development, in the absence of mitigation, potentially significant adverse direct effects upon important ecological features to be assessed, may arise from:

- habitat loss, fragmentation or change as a result of the delivery and installation of development infrastructure; and
- disturbance, inadvertent killing or injuring of protected or otherwise notable species or inadvertent damage to their breeding sites or resting places.

6.5.4 The potential for indirect impacts upon ecological features during construction may occur as a result of;

- potential spillages and/or mitigation of pollutants and sediments; and
- new watercourse crossings causing pollution or nutrient enrichment or hydrological disruption.

Operation

6.5.5 During operation of the Proposed Development, in the absence of mitigation, impacts upon ecological features to be addressed within the assessment may arise from:

- disturbance to protected or otherwise notable species as a result of operational activities such as vehicular traffic and maintenance works;
- habitat loss or change, inadvertent killing or injuring of protected or otherwise notable species resulting from the potential spillage of pollutants; and
- interaction of bats with operational turbine blades leading to mortality due to collision or barotrauma.

6.6 Matters Scoped Out

6.6.1 Effects that are not likely to be significant do not require assessing under the EIA regulations. CIEEM (2018) guidance further allows features to be scoped out if they are not considered as 'important'.

6.6.2 On review of desk study and field survey information gathered, the following effects are scoped out of detailed assessment:

- Based on the distances from the Site (all over 4 km away), and the features for which they are designated, there is considered to be no connectivity and therefore no likely significant effects on statutory (and non-statutory) designated sites (with the exception of the River Oykel SAC).
- Effects on habitats and protected species (excluding bats) during operation. No further damage is anticipated to habitats during operation, and maintenance visits will be rare and unlikely to result in disturbance to protected species.
- Effects during construction on only notable habitats (including Annex 1, SBL, priority peatlands, potential GWDTEs) will be considered in the assessment, with effects on all other habitats scoped out of detailed assessment.
- Effects on protected mammal species (including roosting bats) are scoped out of detailed assessment. No suitable features which could support roosting bats were identified within 200 m (plus blade length) of the proposed turbines. Furthermore, there was no evidence of badger, red squirrel or otter. Water vole (including burrows) and pine marten (scat only) are present within the Site, but it is considered that with appropriate embedded mitigation (such as any necessary watercourse crossings avoiding those water stretches with evidence of water voles), SPPs in place (as part of the CEMP) and pre-construction surveys to be undertaken to ensure that any evidence of protected mammals in the interim period can be identified and appropriate mitigating measures adopted (if required) effects on protected mammals can be negated, and these are scoped out of detailed assessment.

89 SNH (2016) Planning for development: what to consider and include in deer assessments and management at development sites. Guidance. Version 2. March 2016.

- Effects on invertebrates, amphibians, and reptiles during construction and operation stages are scoped out of detailed assessment, with mitigation measures provided in the CEMP to be followed to ensure legal compliance.
- Other than, being considered in the assessment in relation to the River Oykel SAC (Atlantic salmon and FWPM), effects on fish will not be considered within the assessment, with appropriate embedded mitigation to be followed as part of the CEMP negating effects on watercourses.
- Non-wind farm proposals are scoped out for the cumulative assessment.

6.7 Questions to Consultees

- Q6.1: Do consultees agree that the range of ecology surveys carried are sufficient and appropriate? This includes the bat activity surveys undertaken in 2021?
- Q6.2: Do consultees agree that the survey areas and buffers adopted for each ecology survey are considered appropriate?
- Q6.3: Do consultees agree with the approach to the ecology surveys undertaken, including the approach for updated surveys (habitat validation survey in 2024)?
- Q6.4: Do consultees agree with those ecology surveys which have been scoped out?
- Q6.5: Do consultees agree with those ecology features which have been scoped out from detailed assessment within the EIA Report?
- Q6.6: Are there any other relevant consultees who should be contacted, or other sources of information that should be referenced with respect to the ecology assessment?
- Q6.7: Do consultees agree with the approach to the cumulative assessment? Are there any specific non-wind energy developments that consultees believe should be considered for inclusion within the cumulative impact assessment? If so, please advise of planning references for these.
- Q6.8: Is there a particular approach (such as a metric) that consultees would like used in the assessment to measure biodiversity net gain/benefits?

7. Ornithology

7.1 Introduction

7.1.1 This Chapter has been prepared by Avian Ecology Ltd. and provides a summary of baseline ornithological information collected to date, and the proposed approach to assessment in accordance with best practice guidance.

7.2 Consultation

7.2.1 At the commencement of baseline ornithological gathering, preliminary consultation with NatureScot was undertaken in October 2020 to agree the proposed scope for ornithological surveys. In consultation, NatureScot (Area Officer for Northern Isles & North Highland Area) confirmed they were satisfied with the proposed approach to baseline ornithological surveys.

7.2.2 Further consultation with NatureScot was undertaken in September 2021 after completion of Year 1 ornithology surveys to discuss any requirement for further surveys. NatureScot confirmed that one year of ornithological surveys was sufficient to inform the assessment.

7.3 Method of Assessment and Reporting

7.3.1 The impact assessment presented within the EIA Report for ornithological features will be undertaken in accordance with NatureScot guidance (SNH, 2018a[91]), and based on current CIEEM guidance (2018, updated 2019[90]).

7.3.2 Important ornithological features that will be considered within the EIA Report will include:

- Relevant statutory designated sites, and their cited qualifying interests, such as SSSIs, SPAs, and Ramsars; and
- Populations of ornithological species listed on Annex IV of the EC Habitats Directive or Schedule 5 of the Wildlife & Countryside Act 1981 (as amended), or scarce, or a priority for conservation under the UK BAP and/or SBL.

7.3.3 Ornithological data considered sensitive (e.g., that pertaining to the breeding places of Schedule 1 of the Wildlife and Countryside Act (WCA) species) will be included within a confidential appendix to the EIA Report. This will not be made publicly available but will be issued to NatureScot and the Energy Consents Unit (ECU).

Study Area

7.3.4 The Study Areas for baseline ornithological information gathering have been based upon the Site boundary, extended to record flight activity, nest, roost, and display sites for target species in accordance with NatureScot guidance (SNH, 2018a[91]). The Study Areas adopted will be updated over the course of the EIA to account for changes in scheme design and where land access permissions allow.

7.3.5 The Study Areas for the desk studies were out to 10 km from the Site for eagle records and statutory designated sites, and typically out to 6 km for other notable and protected ornithological species.

Relevant Policy and Legislation

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

<u>European</u>

- Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (hereafter the 'Habitats Directive'[92]); and
- Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (codified version of Directive 79/409/EEC as amended) (Birds Directive)[93].

90 https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf [Accessed 08/03/2024]

91 SNH (2018a) Assessing significance of impacts from onshore wind farms outwith designated areas. Guidance. Version 2 – February 2018.

92 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31992L0043 [Accessed 08/03/2024]

93 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147 [Accessed 08/03/2024]

National

- The Habitat Regulations 1994 (as amended) and The Conservation of Habitats and Species Regulations 2010, as amended in Scotland (hereafter the 'Habitat Regulations')[94];
- The Wildlife and Countryside Act (WCA) 1981 (as amended)[95];
- The Wildlife and Natural Environment (Scotland) Act 2011[96];
- The Nature Conservation (Scotland) Act 2004[97];
- The National Planning Policy Framework 4 (NPF4) (2023[98]);
- Scottish Planning Policy (2014[99]);
- The United Kingdom Biodiversity Action Plan (UK BAP) Priority Species and Habitats (2007[100]); and
- Scottish Biodiversity List (SBL) (2020[101]).

Local

- The Highland Nature Biodiversity Action Plan (2021-2026[102]);
- The Caithness and Sutherland Local Development Plan[103]; and
- The Highland-wide Local Development Plan[104].

Determining Importance

7.3.7 The EIA Report will only assess in detail impacts upon important ornithological features which are likely to be significantly affected by the Proposed Development. A detailed assessment of features that are sufficiently widespread, unthreatened, and resilient to impacts of the Proposed Development will not be undertaken and justification for "scoping out" will be provided.

7.3.8 Relevant European, national, and local legislation policy and guidance will be referred to in order to determine the importance (or 'sensitivity') of ornithological features. In addition, 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.

7.3.9 Importance will not necessarily relate solely to the level of legal protection that a feature receives; ornithological features may be important for a variety of reasons, such as their connectivity to a designated site and the rarity of species or the geographical location of species relative to their known range.

7.3.10 The importance of ornithological features will be defined in a geographical context from "Local" to "International".

Identification and Characterisation of Impacts

7.3.11 The identification and characterisation of impacts on important ornithological features will be undertaken in accordance with the CIEEM guidelines (2018[90]) with reference made to magnitude (e.g. area or number of individuals to be impacted), extent, duration, and reversibility, as appropriate.

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

Significant Effects

7.3.13 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

94 https://www.legislation.gov.uk/uksi/1994/2716/contents/made [Accessed 08/03/2024]

95 https://www.legislation.gov.uk/ukpga/1981/69 [Accessed 08/03/2024]

96 https://www.legislation.gov.uk/asp/2011/6/contents/enacted [Accessed 08/03/2024]

97 https://www.legislation.gov.uk/asp/2004/6/contents [Accessed 08/03/2024]

98 https://www.gov.scot/publications/national-planning-framework-4/ [Accessed 08/03/2024]

99 https://www.gov.scot/publications/scottish-planning-policy/ [Accessed 08/03/2024]

100 https://jncc.gov.uk/our-work/uk-bap-priority-species/ [Accessed 08/03/2024]

101 https://www.nature.scot/scottish-biodiversity-list [Accessed 08/03/2024]

102 https://www.highlandenvironmentforum.info/biodiversity/action-plan/ [Accessed 08/03/2024]

103 https://www.highland.gov.uk/info/178/development_plans/283/caithness_and_sutherland_local_development_plan [Accessed 08/03/2024]

104 https://www.highland.gov.uk/info/178/development_plans/199/highland-wide_local_development_plan [Accessed 08/03/2024]

NatureScot's interests of bird species status at wider spatial levels. The significance of effects at a local scale may also be assessed where sufficient information allows a meaningful assessment.

7.3.14 The assessment of effects will be undertaken taking into consideration collated field survey information and information available from the desk study. Bird flight activity data will be collated and analysed to assess the potential risk to individual species of conservation concern from collision mortality, following the method described by Band et al. (2007[105]).

7.3.15 In order to assess significance, population information will be collated on relevant regional and national scales, where available. A precautionary approach on the basis of uncertainty, will be adopted.

Cumulative Impacts

7.3.16 Cumulative impacts will be assessed with reference to NatureScot guidance (SNH, 2012[106] and 2018b[107]) for all ornithological features subject to a detailed assessment. The potential for significant cumulative effects due to habitat loss, disturbance/displacement, and collision risk mortality will be assessed. The assessment will be based on the consideration of residual effects i.e. assuming that proposed mitigation and compensation measures (where relevant) are implemented.

7.3.17 The assessment will encompass the effects of the Proposed Development in-combination with existing developments, either built or under construction; approved developments; awaiting implementation; and proposals awaiting determination within the planning process with design information in the public domain.

7.3.18 No non-wind farm proposals will not be considered unless specifically requested by NatureScot.

7.3.19 With regard to the spatial extent of the cumulative assessment, NatureScot guidance (SNH, 2012[108] and 2018b[107]) stipulates that cumulative effects should typically be assessed at the relevant Regional Natural Heritage Zone (NHZ) scale, unless there is a reasonable alternative. The Proposed Development is located within the 'Northern Highlands' NHZ (Wilson et al., 2015[109]). It is therefore proposed that where the availability of relevant information is sufficient enough to allow for a meaningful cumulative assessment at the Northern Highlands NHZ scale to be undertaken, this will be done.

7.3.20 NatureScot guidance (SNH, 2012[106]) does however recognise that access to relevant data for other developments may be limited and therefore a meaningful assessment of cumulative effects of such developments is not always possible. It is our understanding that NatureScot are in the process of collating a list of other wind farm developments within each NHZ, along with documented impacts on key species (particularly Collision Risk Model (CRM) estimates) as a result of these developments. If available, and shared by NatureScot, it is proposed to use the information from the Northern Highlands NHZ to assess impacts on key species in-combination with other wind farm developments. It is considered that key species may include golden plover and golden eagle (for which CRM may be required). If not available, however, an alternative approach is proposed, whereby the core foraging range for each species (taken from SNH, 2016[110]) requiring consideration will be used to determine the spatial extent of the cumulative assessment, adopting a precautionary approach as necessary.

Avoidance and Mitigation

7.3.21 The adoption of embedded mitigation measures to avoid or minimise adverse impacts upon ornithological features will be part of the iterative design process for the Proposed Development.

7.3.22 Full details of the scheme design evolution and embedded mitigation measures in relation to ornithology will be detailed within the EIA Report. In accordance with the principles of proportionate EIA, these measures will be considered at the outset of the assessment process, in determining the likely 'importance' of ornithological features in the context of the Proposed Development. This will include the specification of any species-specific working buffers as a necessary requirement for the production of a Breeding Bird Protection Plan (BBPP) to ensure legislative compliance in line with current good practice guidance.

105 Band, W., M. Madders, and D. P. Whitfield. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. Pages 259–275 in M. de Lucas, G. F. E. Janss, and M. Ferrer, editors. Birds and wind farms: risk assessment and mitigation. Quercus, Madrid, Spain.

106 SNH (2012) Assessing the cumulative impacts of onshore wind energy developments. Guidance. March 2012.

107 SNH (2018b) Assessing the cumulative impacts of onshore wind farms on birds. Guidance. August 2018.

108 SNH (2012) Assessing the cumulative impacts of onshore wind energy developments. Guidance. March 2012.

109 Wilson, M. W., Austin, G. E., Gillings, S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504pp 72.

110 SNH (2016) Assessing connectivity with Special Protection Areas (SPAs). Guidance. Version 3 – June 2016.

Residual Effects

7.3.23 An assessment to determine the significance of residual ecological effects (those remaining after mitigation measures) will be undertaken.

Compensation

7.3.24 Where significant residual effects still remain, compensation will be provided. This could include replacement habitat, or habitat improvements which would offset potentially significant residual effects.

Enhancement

7.3.25 Suitable principles for biodiversity enhancement to be delivered as part of the Proposed Development will be outlined within the EIA Report, and with consideration given to the requirements of NPF4. The appropriateness and feasibility of principles will be discussed with NatureScot and other relevant consultees over the course of the EIA, with a view to prescriptive enhancement measures being detailed post-consent, within a NEMP. An Outline NEMP will be presented in the EIA Report.

7.4 Environmental Baseline

Initial Desk Study

7.4.1 An initial desk study was undertaken in 2020/21 to inform the proposed approach to baseline information gathering, including the scope for baseline ornithological surveys.

7.4.2 The following key sources, applicable at the time, were consulted:

- Sitelink[111];
- Aerial imagery[112];
- NatureScot pre-application guidance for onshore wind farms (NatureScot, 2024[113]);
- NatureScot guidance on bird survey methods at onshore wind farm (SNH, 2017[114]);
- NatureScot guidance on assessing significance of impacts from onshore wind farms outwith designated sites (SNH, 2018a[91]);
- NatureScot guidance on assessing connectivity with Special Protection Areas (SPAs) (SNH, 2016[110]);
- Royal Society for the Protection of Birds (RSPB) Scotland for records of protected, rare and/or notable avian species, within 6 km (extended to 10 km for eagles), of the Site;
- Highland Raptor Study Group (HRSG) for records of raptors and owls within 6 km (extended to 10 km for eagles), of the Site; and
- Highland Biological Recording Group (HBRG) for records of non-statutory sites, and protected, rare and/or notable avian species, within 2 km (extended to 6 km for Annex 1/Schedule 1 raptors), of the Site[115].

7.4.3 Note, an updated desk study will be undertaken to gather any recent records (including an updated request to RSPB Scotland, HRSG, and HBRG).

Statutory Designated Sites for Nature Conservation

7.4.4 Statutory (international and national) designated sites located within 10 km of the Site are shown in **Figure 7.1** and summarised in **Table 7.1**.

111 https://sitelink.nature.scot/home [Accessed 08/03/2024]

112 https://www.google.com/maps/place/River+Oykel/@58.0028036,4.80331,12z/data=!3m1!4b1!4m6!3m5!1s0x488fc8ae923cc6ff:0x3a960f44ce74e6be!8m2!3d57.9724775!4d-4.7429836!16s%2Fm%2F026dp5_?entry=ttu [Accessed 08/03/2024]

113 https://www.nature.scot/general-pre-application-and-scoping-advice-onshore-wind-farms [Accessed 08/03/2024]

114 SNH (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017, Version 2.

115 https://www.hbrg.org.uk/ [Accessed 12/03/2024]

Table 7.1 – Statutory Designated Sites for Nature Conservation with Ornithological Interests

Site Name	Approximate Distance from the Site (km)	Qualifying Interests
Grudie Peatlands SSSI	6.4 km, north east	*Breeding* – Dunlin *Calidris alpina schinzii*; – Golden plover; and, – Greenshank *Tringa nebularia*.
Caithness and Sutherland Peatlands SAC and Ramsar	6.4 km, north east	*Breeding* – Red-throated diver *Gavia stellata*; – Black-throated diver *G. arctica*; – Hen harrier; – Golden eagle; – Merlin *Falco columbarius*; – Golden plover; – Wood sandpiper *Tringa glareola*; – Short-eared owl *Asio flammeus*; – Dunlin; – Common scoter *Melanitta nigra*; – Wigeon *Anas penelope*; and, – Greenshank.

Non-Statutory Designated Sites for Nature Conservation

7.4.5 There are no non-statutory designated sites within 2 km of the Site.

Field Surveys

7.4.6 The following field studies were undertaken to establish baseline ornithological conditions and potentially important ornithological features within the Site and surrounding area, which may be impacted by the Proposed Development:

- Vantage Point (VP) Flight Activity Survey (September 2020 to August 2021) covering indicative turbine locations at the time of survey plus a 500 m buffer;
- Moorland Breeding Bird Survey (MBBS) comprising four visits covering the Site extent plus 500 m, where accessible, from April to July 2021;
- Annex 1 and Schedule 1 Breeding Raptor and Owl Searches covering the Site extent plus 2 km (extended to 6 km for eagles (where accessible)), from February to August 2021;
- Breeding Black Grouse Survey covering the Site plus 1.5 km, where accessible, in March and April 2021; and
- Breeding Diver Searches covering suitable waterbodies within 1 km of the Site (no suitable waterbodies within the Site itself), where accessible, in April and May 2021.

7.4.7 All ornithological surveys were carried out in accordance with NatureScot guidance (SNH, 2017[114]) and agreed with NatureScot at the start of the survey period.

Target Species

7.4.8 In review of existing ornithological information and consultation with NatureScot, the key ornithological sensitivities identified for this Site, are considered to comprise the following target species:

- all Annex 1 and Schedule 1 raptors and owls;
- all divers;
- breeding redwing Turdus lliacus;
- black grouse Tetrao tertix; and
- all other waders and waterfowl, including greylag goose (excluding feral species and mallard Anas platyrhynchos).

7.4.9 Secondary species comprised all non-Schedule 1 and non-Annex 1 raptors (buzzard *Buteo buteo, kestrel Falco tinnunculus* and sparrowhawk *Accipiter nisus*), all gulls and any notable passerines e.g.

Red-listed Birds of Conservation Concern (Stanbury et al., 2021[116]), and those listed on Schedule 1 of the WCA 1981 (as amended).

VP Flight Activity Surveys

7.4.10 Three VPs were used in Year 1, between September 2020 and August 2021. **Figure 7.2** provides a plan showing the VP locations and viewsheds.

7.4.11 Note, due to changes in Proposed Development layout subsequent to surveys ending one indicative turbine does not have full coverage, with the turbine located on the periphery of VP1's viewshed. It is expected that layout will be refined further but should there be any gaps in survey coverage or deviations from standard guidance, these will be acknowledged and addressed in the EIA Report.

7.4.12 Total VP flight activity (thus including flights not at-risk from collision with indicative proposed turbines) across the survey period was limited, with number of flights highest for pink-footed goose (14 flights), golden eagle (nine flights) and golden plover (six flights), with very low (≤2 flights) for nine other target species.

7.4.13 CRM will be undertaken on those target species with sufficient data to provide a robust assessment. Based on the Proposed Development layout, this is likely to be golden plover (and golden eagle) (although this will be confirmed based on final layout and turbine specification). Pink-footed geese will not be included within CRM as pink-footed goose flights are typically above the 'collision risk zone', and furthermore, there are no SPAs with 20 km with the species as a qualifying feature (so the birds are not considered to be part of a particular SPA population).

Breeding Bird Surveys

7.4.14 The range of breeding wetland species within the Study Area was narrow and included curlew Numenius Arquata and snipe Gallinago gallinago breeding in open habitats in the north of the Site, and oystercatcher Haematopus ostralegus and golden plover breeding in the surrounding habitats (within 500 m of the Site). The number of breeding territories were typically low (<2 territories), within the Study Area, with the exception of curlew (eight territories) and oystercatcher (five territories). Although of these, only three curlew territories were within the Site itself. No evidence of redwing, greenshank or wood sandpiper were recorded during the breeding bird surveys.

7.4.15 The Site did not support any nesting Annex 1 and/or Schedule 1 raptors or owls, but a barn owl roost and/or nest site was recorded >1 km from the Site, an osprey nest 1.75 km from the Site and a white-tailed eagle nest >10 km from the Site.

7.4.16 No breeding divers were recorded within the 1 km Study Area.

7.4.17 Black grouse were recorded within the 1.5 km Study Area, comprising of a larger lek (12 males) and two potential satellite/transient leks each with only one male. Only one satellite/transient lek was recorded within the Site (c. 2.1 km from the nearest indicative turbine), with the large lek offsite and north of the River Oykel.

Additional Field Surveys

7.4.1 No further ornithological surveys are proposed, as agreed with NatureScot and in accordance with NatureScot guidance (SNH, 2017[114]).

7.4.2 As outlined in **Chapter 6**, a habitat validation is scheduled to check that habitats within the Site have not notably changed and therefore the results of all ornithological surveys carried out are considered to remain valid. If large-scale habitat change has occurred, any requirement for further ornithological surveys will be considered and the results included in the EIA Report.

7.5 Potential Sources of Impact

Construction

7.5.1 During construction of the Proposed Development, in the absence of mitigation, potentially significant adverse effects upon important ornithological features to be assessed, may arise from:

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

116 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 fift 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.

7.5.2 Construction activities are 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.

7.5.3 The potential for direct disturbance from construction on designated sites, is considered unlikely by virtue of spatial separation from the designated sites, and the documented disturbance distances of the qualifying species (taken from Goodship and Furness, 2022[117]).

7.5.4 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 Site, but within defined working areas, phased over small areas.

Operation

7.5.5 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.

7.5.6 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.

7.5.7 Where flight activity data is sufficiently recorded (≥3 flights in the 'collision risk zone', or >20 birds), CRM following the Band Model, and in accordance with NatureScot guidance (Band et al., 2007[105]; SNH, 2000,) will be undertaken to quantify the likelihood of mortality for target species. Based on the field survey results this is likely to only be appropriate for golden plover and golden eagle (which will be subject to confirmation once layout frozen and turbine specification considered).

7.5.8 There is unlikely to be an effect on any ornithological interest of any designated site for nature conservation during the operation of the Proposed Development, due to the spatial separation of designated sites with ornithological interest from the Site, and the documented core foraging ranges of the qualifying species[110].

7.6 Matters Scoped Out

7.6.1 Effects that are not likely to be significant do not require assessing under the EIA regulations. CIEEM (2018[90]) guidance further allows features to be scoped out if they are not considered as 'important'.

7.6.2 On review of desk study, guidance and the results of one-year of field surveys, the following ornithological features are scoped out of detailed assessment:

- Effects on the Caithness and Sutherland Peatlands SPA and Ramsar (and component Grudie Peatlands SSSI) are scoped out. The SPA, Ramsar and component SSSI are located 6.4 km north east of the Site and is designated for breeding species including golden eagle *Aquila chrysaetos*, divers, hen harrier *Circus cyaneus*, and golden plover *Pluvialis apricaria*. The Site is only located within the core foraging range of breeding divers (taken from SNH, 2016[110]). However, no divers were recorded during the field surveys (and no confirmed diver nest sites within 5.5 km of the Site from the desk study records). Based on the distances from the Site, the core foraging ranges for the species for which they are designated (and information from baseline studies), there is considered to be no connectivity and therefore no anticipated significant effects between the Site and Caithness and Sutherland Peatlands SPA and Ramsar (and component Grudie Peatlands SSSI).
- Effects on other statutory designated sites (of which there are none within 10 km) and none with migratory goose interests within 20 km are anticipated and these are scoped out of assessment.
- Based on the distances from the Site there is considered to be no connectivity and therefore no anticipated significant effects between the Site and non-statutory designated sites.
- Given the lack of records from baseline studies breeding divers are scoped out of the detailed assessment.
- With the adoption of pre-construction checks for nesting birds as part of a Breeding Bird Protection Plan (BBPP) to ensure legal compliance, embedded mitigation, very low numbers of breeding target species within, and adjacent to, the Site, the spatial separation between indicative turbines and documented disturbance distances (see Goodship and Furness, 2022[117]), and enhancement measures which will benefit ornithological species, effects on ground-nesting wetland species, black

117 Goodship, N.M. and Furness, R.W. (2022) Disturbance distances review: an updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

grouse and Schedule 1 and Annex 1 raptors and owls are scoped out of detailed assessment (with the exception of golden eagle and golden plover in terms of collision risk, see below).

- Moorland passerines are scoped out of the assessment in accordance with NatureScot guidance (SNH, 2017[114]).
- Pink-footed goose was recorded in modest numbers during the VP flight activity surveys, with the majority of flights above the collision risk zone (possibly only two within the collision risk zone). The geese are not considered to be part of any SPA (no such designated site within 20km of the Site) and CRM on pink-footed goose is not proposed (given any effect will be inconsequential) and effects on the species are accordingly scoped out of detailed assessment.
- Target species with only a modest number of at-risk flights (<3, or <20 birds if fewer than 3 flights) will not be subject to CRM for the assessment. This is likely to be all recorded target species, with the exception of golden plover(and golden eagle.
- Non-wind farm proposals are scoped out for the cumulative assessment.

7.7 Questions to Consultees

- Q.7.1: Do consultees agree that the range of ornithology surveys carried out are sufficient and appropriate?
- Q.7.2: Do consultees agree that the survey areas and buffers adopted for each ornithology survey are appropriate?
- Q7.3: Do consultees agree with the approach to the ornithology surveys undertaken?
- Q7.4: Do consultees agree with those ornithology features which have been scoped out from detailed assessment within the EIAR?
- Q7.5: Are there any other relevant consultees who should be contacted, or other sources of information that should be referenced with respect to the ornithology assessment?
- Q7.6: Do consultees agree with the approach to the cumulative assessment? Are there any specific non-wind energy developments that consultees believe should be considered for inclusion within the cumulative impact assessment? If so, please advise of planning references for these.
- Q7.7: Can NatureScot provide an up-to-date list of those wind farm developments within the Northern Highlands NHZ which should be considered within the cumulative assesment? Can NatureScot provide a list of acceptive cumulative collision risks for golden plover, golden eagle, and for all ornithological species listed in Annex 1 of their guidance (SNH, 2018a[91]) for those wind farm developments within the Northern Highlands NHZ?

8. Geology, Hydrology, Hydrogeology and Peat

8.1 Introduction

8.1.1 This Chapter has been prepared by Fluid Environmental Consulting and sets out the proposed approach to the assessment of potential effects on hydrology, hydrogeology, geology and peat during construction and operation of the Proposed Development.

8.1.2 The scope of the assessment is based on a high-level review of the baseline information and will be confirmed through a review of additional data sources, a site visit and consultation with stakeholders.

8.2 Consultation

8.2.1 No formal consultation has been undertaken with regards to land, soil, and water at this stage. However, consultations will be carried out with the following stakeholders and organisations:

- SEPA in relation to hydrology and peat;
- NatureScot in relation to peatland habitats;
- The forest agent/landowner in relation to felling plans and compatibility of any peatland restoration measures;
- THC for private water supply records; and
- Scottish Water for public water supply infrastructure.

8.3 Method of Assessment and Reporting

Study Area

8.3.1 The Study Area will include the Site plus a buffer zone of 2 km. For hydrological receptors, impacts downstream up to 5 km from the Site will also be considered, as impacts such as pollution events can be transmitted downstream for greater distances.

Baseline Characterisation

8.3.2 The following data sources have been used to inform the scoping report:

- Topographical information at the Site, provided by OS contour mapping;
- 1:25,000 and 1:50,000 scale OS mapping to identify watercourses within the Site;
- Solid and superficial geology information provided by BGS mapping;
- SEPA online flood maps;
- Water quality information at and near the Site set out in SEPA River Basin Management Plans;
- Hydrogeology information given by BGS data accessed via Defra Magic Maps;
- Designated nature and conservation sites identified using information from NatureScot's mapping database;
- Soil information provided by the National Soil Map of Scotland; and
- Peat on Site, identified using the SNH Carbon and Peatland Map (2016), BGS mapping and a review of aerial imagery.

8.3.3 Consultation with SEPA, THC, and neighbouring residents within River Oykel catchment will be undertaken to obtain relevant flood, water supply, and further peat information, including any licenced abstractions and private water supplies.

8.3.4 GWDTEs will be identified based on habitat mapping and ecological surveys and reviewed by the hydrologists in the field.

8.3.5 Peat probing will be completed on a 100 m grid to obtain an initial understanding of the peat depth and distribution on Site. Further high-density peat depth surveys will be undertaken within the Site in accordance with the relevant guidance (Guidance on Developments on Peatland: Peatland Survey (2017)) across the footprint of proposed infrastructure and a micro-siting allowance to inform micro-siting of the layout to seek avoidance of all peat if possible, with particular emphasis on avoidance of peat >1 m and unmodified peat.

8.3.6 A walkover hydrological survey of the Site will be carried out to identify the existing baseline conditions, including identifying and documenting watercourse crossings (proposed and existing), identification of other water features such as wetlands and springs, undertaking an overview assessment of areas identified as floodplain within the SEPA Flood Maps and providing a general overview of landscape and land cover of importance to hydrology and soils including geomorphology.

8.3.7 A geomorphological walkover will be completed following the completion of a site geomorphological map. This will be used, along with other parameters, to assess the Peat Landslide Hazard Risk (PLHRA).

8.3.8 Private water supply visits will also be undertaken, if required, following consultation with the private water supply owners to verify the source location, the conveyance infrastructure, use, treatment, and any other pertinent details.

Assessment of Potential Effect Significance

8.3.9 The assessment will be undertaken through standard EIA methodology with the sensitivity of the receptor, magnitude of the potential effect, and likelihood of the effect being determined and then using the specified matrix to determine the significance of effect on specific receptors.

Sensitivity of Receptor

8.3.10 The sensitivity of a receptor will depend on its use, status, and level of designation. A receptor such as Class 1 carbon-rich soils or a watercourse supplying a private water supply or containing Atlantic salmon would have a high sensitivity. Other receptors such as waterbodies that do not support designated species, water supplies or are of high value will have a lower sensitivity.

Magnitude of Impact

8.3.11 The magnitude of the impact is a measure of the degree that the potential effect could manifest on the receptors. For example, excavation of deep peat has a high magnitude of impact.

Likelihood of effect

8.3.12 The likelihood of the effect will be assessed to determine the probability that a receptor would be impacted by the proposed development. This may be related to parameters such as distance from the source, likelihood of a connecting pathway or likely extent of disturbance.

Significance of Effect

8.3.13 The significance of the effect is calculated by a combination of the levels assigned for each parameter listed above. Significant effects are classified as those that are Moderate or above and will require mitigation measures to be employed above the standard good practice methods.

Constraints Input to Design

8.3.14 The findings of the baseline assessment and survey work will contribute to environmental constraints mapping and will provide input and feedback into design iterations and subsequent environmental assessment.

8.3.15 There are industry-established good practice measures that will be employed in the design of the Proposed Development and the methodologies used for the construction and operation to minimise, or mitigate for, impacts on water, peat, and the geological environment.

8.3.16 The infrastructure will be designed to minimise the number of watercourse crossings and 50 m buffer zones around all 1:25,000 Ordnance Survey water features.

8.3.17 The infrastructure will be designed to avoid peat where possible as defined by the detailed probing and coring across the infrastructure footprint. Where peat is unable to be avoided, floating tracks will be used, and if necessary piled foundations or other appropriate engineering solutions.

8.3.18 An outline Peat Management Plan (PMP) will be developed and submitted in support of the application to present the total peat volumes that will be excavated, the methodologies for extraction and management to minimise impact on peat, and the strategy for storage and restoration or reuse. Peat restoration strategies will be in accordance with guidance, with any additional requirements specified by SEPA or NatureScot addressed as part of the assessment. Peat restoration will focus on areas where peat has been removed, eroded, or degraded for restoration.

8.3.19 Any peat landslide risk may require additional mitigation measures to be employed, such as installation of catch-fences as a precaution against runout into sensitive watercourses and the preparation of a geotechnical risk register providing explicit mitigation measures tailored to locations with elevated risk.

8.3.20 With respect to peat, mitigation of impacts through sensitive layout design will provide the best opportunity to limit the potential for significant effects. This is applicable both to minimising peat excavation and ensuring that undue risks associated with peat instability are avoided. Findings from the geomorphological assessment of peat will be compared with those from ecological surveys to

enable a holistic assessment of peatland condition across the Site and avoidance of the highest quality habitats.

8.4 Environmental Baseline

Geology, Hydrogeology and Soils

8.4.1 The bedrock underlying the majority of the Site is Altnaharra Psammite Formation metamorphic bedrock. A small south western part of the Site is underlain by Glen Achall Psammite and Semipelite.

8.4.2 There are six faults that intersect the Site; four run south west to north east and two run north west to south east.

8.4.3 The BGS Hydrogeology (1:625,000 scale) map shows the bedrock within the Site to be a low productivity aquifer, with 'small amounts of groundwater in near surface weathered zone and fractures. The bedrock does not support abstractions.

8.4.4 BGS geological mapping shows that there are areas of alluvium and glaciofluvial deposits to the north of the Site, along the River Oykel, with glacial till covering much of the Site, overlain in parts with peat. There are also significant areas where no superficial deposits are present and some small areas of hummocky glacial deposits in the centre of the Site.

8.4.5 The SNH Carbon and Peatland 2016 map shows the majority of the Site to have Class 5 peat soil (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.), with areas of Class 2 peatland (Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential) in the centre and north of the Site. There are smaller areas of Class 1 peatland (Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value) along the southern Site boundary, and Class 3 peatland (Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat) in the west of the Site. Mineral soils are present in the north of the Site in the vicinity of the River Oykel.

8.4.6 Soil mapping shows that the Site is underlain mostly by peaty gleys, with dystrophic blanket peat with peaty gleyed podzols, alluvial soils in the north of the Site and deep blanket peat on the southern boundary.

Surface Hydrology, Site Drainage and Flooding

8.4.7 The Site drains north east to the River Oykel either via the numerous tributaries of Allt a' Bhraigh, which joins the River Oykel at Brae to the north east of the Site boundary, or via the Allt an Fhithich and many other un-named watercourses in the north west of the Site. The River Oykel discharges to the Kyle of Sutherland 3.9 km east of the Site.

8.4.8 A very small area of the Site drains south west to Abhainn an t-Srath 'Chuileannaich. Abhainn an t-Srath 'Chuileannaich becomes the Black Water, 6.5 km south east of the Site and discharges to River Carron, 8 km south east of the Site. The River Carron discharges to the Dornoch Firth 18 km south east of the Site.

8.4.9 SEPA Flood Maps indicate localised flooding of watercourses and waterbodies within the Site. There are also areas of medium and high likelihood river flooding along the River Oykel, to the north of the Site and along the Allt an Fhithich.

Land Use and Designated Sites

8.4.10 The Site is located at the western end of a south east to north west ridge of peaks including Meall Dheirgidh, Meall Buidhe, Carn na Bo Maoile, and Cnoc nan Caorach. Carn na Bo Maoile and Cnoc nan Caorach are located on the southern Site boundary and both are 387 m above Ordnance Datum (AOD). The Site slopes moderately towards the north with steeper slopes in the north west.

8.4.11 There are a number of designated sites potentially connected to the Proposed Development including:

- The River Oykel SAC to the north of the Site, designated for the presence of Atlantic salmon and freshwater pearl mussel.
- The Oykel Gorge SSSI located 1.5 km north west of the Site, designated for earth sciences. It is also the site of the Oykel Bridge Geological Conservation Review (GCR) designated for Moine Psammite mullion structures.
- The Abhainn an t-Srath 'Chuileannaich Geological Conservation Review site located 1.3 km south of the Site, designated for fluvial geomorphology.

- The Kyle of Sutherland Marshes SSSI located 4.3 km downstream of the Site on the River Oykel, designated for wet woodland, fen and vascular plant asssemblage.

Water Quality and Water Use

8.4.12 SEPA has classified the River Oykel - Dornoch Firth to Loch Craggie (ID20116, 18.3 km in length) as Moderate Overall Status; and the Allt a Bhraigh (ID: 20120, 6 km in length) and the Abhainn a Gharbhrain (ID: 20182, 19.4 km in length) watercourses as Good Overall Status (last updated 2022).

8.4.13 There is one known water supply borehole for a private well water supply within the Site. This is located at Langwell Lodge in the north close to the River Oykel.

8.5 Potential Sources of Impact

8.5.1 Potential effects on hydrology, hydrogeology and soils will be assessed as part of the EIA. This will include the identification of both generic effects of construction (e.g. sediment release, pollution, fuel spills etc.), disturbance of soils and peat and effects on specific locations, such as sensitive habitats (i.e. GWDTEs, private water supplies, water features, etc) which are sensitive to pollution risk and/or disturbance from required engineering works.

8.5.2 Potentially significant effects are considered more likely to occur during the construction phase. The Applicant is committed to implementing good practice construction methods to complement the high standards expected by SEPA.

8.1 Matters Scoped Out

8.1.1 CIEEM guidelines (2018) stipulate that it is not necessary to carry out a detailed assessment of impacts upon ecological features that are sufficiently widespread, unthreatened and/or resilient to impacts of a development proposal. This premise can also be applied to other receptors and the following are considered appropriate to scope out of assessment.

8.1.2 Assuming that good practice is followed, including the siting of all infrastructure over 50 m from all 1:25,000 Ordnance Survey mapped water features, and the provision, and adherence to, a detailed and approved CEMP, it is considered that effects on all other surface waterbodies aside from the River Oykel SAC can be scoped out during both the construction, and operation phases.

8.1.3 The underlying bedrock is low permeability and does not support abstractions, therefore deep groundwater abstraction had been scoped out during the construction, and operation phases.

8.1.4 As all infrastructure, with the exception of any watercourse crossing will be located outside of any flood zones and drainage will be managed according to SuDS to avoid any increase in flooding due to infrastructure. Additionally, any watercourse crossing will be constructed to 1:200 year flow plus climate change. Therefore, flood risk during the construction and operation phases has been scoped out of the assessment.

8.2 Questions to Consultees

- Q8.1: Can you confirm that it is acceptable to scope out all surface water bodies with the exception of the River Oykel SAC, deep groundwater, and flood risk?

9. Noise and Vibration

9.1 Introduction

9.1.1 This Chapter has been prepared by Hayes McKenzie Partnership Ltd and summarises the potential environmental impacts and likely significant effects upon Noise and Vibration receptors that are anticipated to arise in connection with the construction and operation of the Proposed Development.

9.2 Consultation

9.2.1 The primary stakeholder is THC, and they would be consulted in relation to the assessment methodology, including the Study Area, assessment criteria, and the number and locations of baseline measurements. THC would be invited to attend the installation of the noise monitoring equipment.

9.2.2 The scope for the cumulative assessment would also be discussed with THC, including identification of wind farms to be included in the assessment.

9.3 Method of Assessment and Reporting

Scope of Assessment

9.3.1 The scope of the assessment is determined based upon an evaluation of the extent effects have the potential to result in adverse impacts at relevant receptors. Relevant receptors at this Site would be residential dwellings. Where it can be reasonably anticipated that adverse impacts would not occur, such potential effects are scoped out of further consideration. Where potential effects are scoped in, the methods of assessment are set out, along with relevant justifications or explanations where appropriate.

Study Area and Receptors

9.3.2 The assessment will identify all stakeholders potentially significantly affected by the Proposed Development. The Study Area pertains to the Proposed Development, existing, proposed, and consented wind farms, and residential dwellings, as per the requirements of ETSU-R-97[118] and the Institute of Acoustics Good Practice Guide[119] (IOA GPG).

9.3.3 Noise-sensitive and vibration-sensitive receptors in this case are residential dwellings, which are assumed to have a high sensitivity. The assessment Study Area will comprise all residential locations with predicted operational noise levels from the Proposed Development acting alone at 25 dB LA90 or greater.

9.3.4 This is because, where predicted operational noise levels from the Proposed Development are below 25 dB LA90, the contribution to cumulative levels at or above the simplified cumulative noise limit set out in ETSU-R-97 of 35 dB LA90 are considered negligible. Initial predictions have identified up to 60 potential receptors meeting this criterion.

Legislation and Guidance

9.3.5 NPF4[120] sets out the generalised policies for the support of renewable energy, and the Policy Statement for Onshore Wind[121], which references ETSU-R-97 and the IOA GPG is the framework by which noise from wind energy developments is measured and assessed.

9.3.6 Further planning guidance is provided in Planning Advice Note PAN1/2011[122] and the associated technical advice note[123] which collectively set out advice on the assessment of noise from new sources as well as the effects of noise on new residential development. For construction, it refers to the Control of Pollution Act[124] and the Pollution Prevention and Control Act[125] for relevant installations. The accompanying technical advice note lists BS 5228[126] as being applicable for the assessment of construction noise in EIA and planning purposes.

118 ETSU for the Department of Trade and Industry (1996). ETSU-R-97 The Assessment and Rating of Noise from Wind Farms.

119 Institute of Acoustics (2013). Institute of Acoustic Good Practice Guide to the application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise. Institute of Acoustics.

120 Local Government and Housing Directorate (2023) National Planning Framework 4. Edinburgh: The Scottish Government.

121 Energy and Climate Change Directorate (2022) Onshore wind: policy statement 2022. Edinburgh: The Scottish Government.

122 Local Government and Housing Directorate (2011) Planning Advice Note 1/2011: planning and noise. Edinburgh: The Scottish Government.

123 Environment and Forestry Directorate (2011) Assessment of noise: technical advice note. Edinburgh: The Scottish Government.

124 Control of Pollution Act 1974. (1974) London: HMSO.

125 Pollution Prevention and Control Act 1999. (1999) London: HMSO.

126 British Standards Institution (2014) BS 5228:2009+A1:2014 Noise and Vibration Control on Construction and Open Sites. London: BSI.

9.3.7 In addition, the Scottish Government provides further advice via the web-based planning advice for onshore wind turbines[127], which again refers to ETSU-R97 and the IOA GPG as the appropriate method for assessment of operational noise.

Proposed Surveys

9.3.8 No surveys are proposed in relation to construction effects; it is anticipated that the relevant lower limits set out in BS 5228 will be adhered to, which are not specifically set relative to existing baseline noise levels.

9.3.9 Early operational predictions indicate levels above the ETSU-R-97 simplified noise limit of 35 dB L_{A90} at several locations. As such, baseline noise data would be required in order to calculate baseline-derived noise limits.

9.3.10 Baseline measurements will be conducted at locations which are representative of all identified receptors (or at locations which would provide a worst-case estimate). The scope of such measurements will be discussed with THC. 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 IOA GPG.

Assessment Methodology

9.3.11 The criteria for significance are based upon threshold values in ETSU-R-97 and BS 5228 for operational noise and construction noise respectively.

9.3.12 Where noise levels exceed these thresholds, significant effects are predicted to occur. Similarly, noise effects are predicted to be not significant where noise levels remain below the applicable thresholds.

Construction Noise

9.3.13 Noise from construction effects would be assessed in line with BS 5228, based on the 'ABC method' described in Annex E, which sets out example limits for construction noise. The relevant noise limits for construction activities continuing for more than one month would be set based on a worst-case assumption that ambient noise levels in all locations fall within the lowest noise category, resulting in noise limits of 45, 55 and 65 dB L_{Aeq}, for night-time (23:00-07:00), evening and weekends, and daytime (07:00-19:00 weekdays and Saturdays 07:00-13:00) respectively.

9.3.14 Noise from construction activities would be considered at the nearest noise sensitive receptors to proposed construction activities. If the relevant construction noise limits are met at the nearest receptors, it can be concluded that they would also be met at more distant receptors.

9.3.15 Where noise from heavy duty vehicles accessing the Site requires assessment, levels of noise would either be assessed against the criteria discussed above, or by assessing the predicted increase in noise level along the access route relative to the existing baselined traffic flow levels, with reference to Calculation of Road Traffic Noise[128] and the Design Manual for Roads and Bridges[129], as appropriate.

Operational Noise

9.3.16 For operational noise, the assessment would consider the guidance and noise limits as presented in ETSU-R-97 as supplemented by the IOA GPG which is endorsed by Scottish government. Sound propagation calculations would be based on ISO 9613-2. For daytime periods (07:00 to 23:00), the noise limit is 35-40 dB L_{A90} or 5 dB(A) above the 'quiet day-time hours' prevailing background noise, whichever is the greater. The actual value within the 35-40 dB(A) lower limiting value range depends on the number of dwellings in the vicinity; the impact of the limit on the power able to be generated by the Proposed Development; and the duration and level of exposure. With reference to the night-time period, ETSU-R-97 sets out a noise limit of 43 dB L_{A90} or 5 dB above night-time background noise levels, whichever is greater. An exception to these criteria is made where a resident is considered to be financially involved with the Proposed Development, whereby higher noise limits are permitted to be adopted for those properties, typically adopting 45 dB(A) as the lower limiting value during both daytime and night-time periods. It is understood that THC typically prefer that wind farm developments meet noise limits (except where properties are financially involved) with lower limiting values of 35 dB for the daytime and 38 dB for the night-time. If noise limits greater than THC's preferred limits are adopted in the assessment, relevant supporting information and justification will be provided in terms of the criteria listed in ETSU-R-97.

9.3.17 ETSU-R-97 specifies that a penalty should be added to the predicted noise levels where any tonal component is present. The level of this penalty is described and is related to the level by which any

127 Local Government and Housing Directorate (2014) Onshore wind turbines: planning advice. Edinburgh: The Scottish Government.

128 Department of Transport (Welsh Office) (1988) Calculation of Road Traffic Noise. London: HMSO

129 Highways England (2020) Design Manual for Roads and Bridges, Sustainability & Environmental Appraisal LA 111 Noise and vibration, Revision 2. Available at https://www.standardsforhighways.co.uk/tses/attachments/cc8cfcf7-c235-4052-8d32-d5398796b364

tonal components exceed the threshold of audibility. It is proposed that tonal noise is controlled by a suitably worded planning condition, which is standard practice.

9.3.18 With regards to multiple wind farms in the area, ETSU-R-97 specifies that the absolute noise limits and margins above background should relate to the cumulative impact of all wind turbines in the area contributing to the noise received at the properties in question. Adopted noise limits would therefore apply to cumulative noise from all wind farm developments, whereby the available headroom for the Proposed Development will be determined. Existing wind farms would be included in cumulative predictions of noise level for proposed wind turbines and not considered as part of the prevailing background noise. Operational noise predictions would be carried out based on the installed or proposed wind turbine models for relevant developments in the vicinity and would consider any planning conditions relating to noise for such developments, alongside appropriate considerations of uncertainty.

9.3.19 Where noise from the Proposed Development is 10 dB(A) or more below the noise level from all other wind farm developments or the adopted noise limits, the contribution to cumulative noise from the Proposed Development will be considered to be negligible.

9.4 Environmental Baseline

9.4.1 The Site comprises a rural and remote location. Residential properties around the Site are unlikely to experience large amounts of noise of human origin, with such sources likely to comprise occasional road and air traffic, the operation of farm machinery and noise from other wind farm developments. Other sound sources are likely to include noise from animals (including birds), local watercourses, and from the movement of vegetation due to the wind.

9.5 Potential Sources of Impact

9.5.1 Noise from construction and operation of the Proposed Development has the potential to cause adverse effects on the health and quality of life of the occupants of nearby dwellings. Potential construction noise effects may occur from the noise due to the erection of wind turbines, construction of access tracks, and due to heavy duty vehicles. Potential operational noise effects may occur from noise due to the rotation of the turbines.

9.5.2 Noise limits are set based on relevant current guidance in relation to both construction and operational noise respectively. Where such limits are met, significant noise effects are not anticipated. Due to the distances between receptors and the Proposed Development, and the availability of mitigation options such as construction management, equipment selection, and noise-reduced turbine operational modes, it is likely that all applicable noise limits can be met, and thus all significant noise effects can be avoided through the careful and responsible design, construction, and operation of the Proposed Development.

9.6 Matters Scoped Out

Construction Vibration

9.6.1 The nature of wind farm construction works, and the distances involved, are such that the risk of significant effects relating to ground-borne vibration are very low. The closest receptor to the proposed turbine locations where main construction activities would occur is approximately 1.6 km. Therefore, due to the large distances between anticipated construction activities and receptors, construction vibration effects are scoped out.

Operational Vibration

9.6.2 The levels of ground-borne vibration generated by operational wind turbines is very low. The closest receptor to the proposed turbine locations is approximately 1.6 km. Therefore, due to large distances between turbines and receptors, operational vibration effects are scoped out.

Operational Traffic Noise

9.6.3 Vehicle movements during operation (for maintenance for example) will comprise a relatively small number of movements of primarily smaller vehicles. As such, the noise effects of these vehicles can be considered insignificant and are scoped out.

Cumulative Construction Noise

9.6.4 The risk of significant cumulative noise effects from the construction of multiple wind farm or other developments occurring at the same time or similar time-period to the Proposed Development is low. It is unlikely that multiple developments would occur simultaneously. Therefore, cumulative construction noise effects are scoped out.

Other Operational Effects Scoped Out

9.6.5 There are various aspects relating of operational wind farm noise that are frequently raised by third parties opposed to wind farm development in general, such as infrasound, low frequency noise and amplitude modulation. Each of these topics will be discussed in generalised terms within the noise chapter of the EIA Report, however a detailed assessment is either not possible and/or not considered necessary.

9.7 Questions to Consultees

- Q9.1: Is it considered acceptable to assess construction qualitatively using simplified predictions, and for such noise to be controlled by way of a CEMP, or equivalent, that would be prepared prior to construction?
- Q9.2: Would the operational noise impact be acceptable where cumulative operational predicted noise levels are below the relevant noise limits, which may be set relative to background noise levels where appropriate?

10. Traffic and Transport

10.1 Introduction

10.1.1 This Chapter has been prepared by Pell Frischmann and sets out the proposed approach to the assessment of potential effects of the Proposed Development on access, traffic and transport during construction and operation.

10.1.2 A Transport Assessment (TA) will be provided to review the impact of transport related matters associated with the Proposed Development. The TA will be appended to the EIA Report and will be summarised in the Traffic and Transport Chapter.

10.1.3 The following policy and guidance documents will be used to inform the Transport Assessment:

- Transport Assessment Guidance (Transport Scotland, 2012)[130];
- Environmental Assessment of Traffic and Movement (Institute of Environmental Management & Assessment (IEMA), 2023)[131]; and
- Guideance for the Preparation of Transport Assessments, (THC, 2014)[132].

10.2 Consultation

10.2.1 Consultation with the following stakeholders will be undertaken:

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

10.2.2 These consultations will be undertaken using National Highways abnormal load consultation system.

10.3 Method of Assessment and Reporting

10.3.1 The Environmental Assessment of Traffic and Movement (IEMA, 2023) 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.

10.3.2 The main transport impacts will be associated with the movement of general Heavy Goods Vehicle (HGV) traffic travelling to and from the Site during the construction phase of the Proposed Development.

10.3.3 The following rules taken from the guidance would 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.

10.3.4 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.

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

130 Transport Assessment Guidance, Transport Scotland, 2012

131 Environmental Assessment of Traffic and Movement , Institute of Environmental Management & Assessment (IEMA), 2023

132 Guideance for the Preparation of Transport Assessments, The Highland Council, 2014

10.3.6 A cumulative assessment will take place where a development has planning consent and would have a significant impact on the study network (i.e. over 30% increase in traffic flows). These traffic flows would be included into the baseline flows used within the assessment.

10.3.7 Planning proposals that are in scoping but are not committed development and as such would not be included in the cumulative assessment.

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

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

- Production of a Construction Traffic Management Plan (CTMP);
- 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.

10.3.10 It is not anticipated that a formal TA will be required as these are not generally considered necessary for temporary construction works. Instead, a reduced scope TA would be provided. This will include a Route Survey Report for Abnormal Indivisible Loads (AIL).

10.3.11 Detailed swept path analysis will be undertaken for the main constraint points on the route from the port of entry (likely to be Nigg) 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.

10.3.12 Each turbine is likely to require between 11 and 13 abnormal loads to deliver the components to Site. The components will be delivered on extendable trailers which will then be retracted to the size of a standard HGV for the return journey.

10.4 Environmental Baseline

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

10.4.2 The Proposed Development will be directly accessed from the C1136. A detailed access review is being undertaken to identify the most suitable access junction option for the Site and further consultation with THC will be held once the final access solution has been determined.

10.4.3 The access junction will provide the sole access to the Site for abnormal loads associated with the turbine equipment as well as access for construction materials and the ongoing site operation traffic.

10.4.4 A detailed Site access review will be provided to support the application and will be appended to the TA. This will detail the finalised access option in detail and will outline the reasoning for the selected access option.

10.4.5 The finalised access option would then be used to determine the traffic impact associated with the Proposed Development. This will be assessed in the TA. The impact assessment will be summarised in the EIA report which will also examine the impact upon affected receptors.

10.4.6 Traffic survey data for use in the assessment would be obtained from historic data sources that will include the UK Department of Transport (DfT) traffic survey database, Traffic Scotland database, and other public datasets that are available. New traffic survey data for the following links would also be obtained:

- C1136 at Cornhill;
- C1136 at Ardgay; and
- A836 at Ardgay.

10.4.7 Future traffic flows will be factored from surveyed data using High Growth factors estimated from National Road Traffic Forecasts.

10.4.8 Further traffic data would be obtained from Crashmap UK for the A836 and C1136 within the vicinity of the Site access junction to inform the accident review for the immediate road Study Area.

10.5 Potential Sources of Impact

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

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

10.5.2 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.

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

10.6 Matters Scoped Out

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

10.7 Questions to Consultees

- Q10.1: Do consultees agree with the proposed Study Area, data collection methodology and assessment methodology?
- Q10.2: Can consultees please confirm any cumulative developments that should be included.

11. Socio-Economics, Tourism and Recreation

11.1 Introduction

11.1.1 This Chapter has been prepared by Ramboll UK Limited. The assessment of socio-economic, tourism and recreation impacts include both direct economic impacts and wider indirect effects associated with wider capital investment, operational expenditure in developing the Proposed Development; potential impacts on the population and demographics; and potential impacts on tourism assets and recreational activities.

11.2 Consultation

11.2.1 Consultation would be undertaken through this EIA Scoping Report. No additional consultation is anticipated.

11.3 Method of Assessment and Reporting

Study Area

11.3.1 For the purposes of the EIA, the following socio-economic Study Areas would be considered:

- Local Area: the North, West and Central Sutherland electoral ward;
- Region: the Highland Council area;
- National: Scotland.

11.3.2 A desk based socio-economic assessment will consider the potential direct and indirect, adverse and beneficial effects of the Proposed Development on the Local Area, Region, and on a National level.

Guidance and Legislation

11.3.3 The NPF4 sets out the spatial strategy for Scotland highlighting the regional priorities and national planning policy to ensure sustainable, liveable, and productive places are made. Policies within NPF4 that are of relevance include:

- Policy 1 – Tackling the climate and nature crisis;
- Policy 15 – Local Living and 20 minute neighbourhoods;
- Policy 21 – Play, recreation and sport;
- Policy 25 – Community weath building;
- Policy 29 – Rural Development; and
- Policy 30 – Tourism

11.3.4 The Highland Wide Local Development Plan (LDP) (2012) sets out the vision for THC area and how land can be used by developers. Central to the LDP is supporting sustainable development and economic growth as well as safeguarding the environment in the Highlands.

11.3.5 The Proposed Development is located within the Caithness and Sutherland area, which LDP (Caithness and Sutherland Local Development Plan (CSLDP) (2018)) supplements the Highland Wide LDP. The LDP seeks to deliver key outcomes for; growing communities; employment; connectivity and transport; and; environment and heritage, which are particularly relevant to the socio-economic assessment.

Baseline Characterisation

11.3.6 Existing publicly held information, surveys, and assessments of socio-economic indicators for the Study Area will be collated and reviewed as part of the EIA. Visitors and tourist profiles, land uses and ownership and nearby public facilities will also be considered in the EIA. Public attitudes to wind farms will be referenced, along with other background information in order to assess the Proposed Development for significant effects.

Method of Assessment

11.3.7 There is no published scoping criteria or defined methodology for the assessment of potential socio-economic impacts from wind farms. The methodology used in this scoping assessment is based on professional judgement and EIA best practices.

11.3.8 In 2022, IEMA published guidance on "Effective Scoping of Human Health in Environmental Impact Assessment[133]. As part of the wider determinants of health, which contribute to the health status of individuals and populations, socio-economic factors are considered. Some of the determinants considered, but not limited to are: employment & income; housing; open space; education; transport modes and access; social participation. Due consideration will therefore be given to these socio-economic factors when assessing potential for likely significant effects.

11.3.9 The socio-economic assessment will be desk-based and consider the potential for direct and indirect, adverse and beneficial significant effect of the Proposed Development on the defined Study Area.

11.4 Environmental Baseline

Population

11.4.1 There are a number of scattered settlements and small villages within the vicinity of the Site. The following key settlements have been identified within the Local Area:

- Rosehall (approximately 4 km from the Site);
- Invercassley (approximately 4 km from the Site);
- Altass (approximately 6.5 km from the Site); and
- Auchintoul (approximately 8.5 km from the Site).

11.4.2 A number of residential properties are located at Oykel Bridge, to the north west of the Site, and further individual properties are located to the north west of the Site, in proximity to Doune.

11.4.3 No settlements with large populations have been identified in proximity to the Site. The Proposed Development is located within the North, West, and Central Sutherland electoral ward, which was estimated in 2021 to have a population of 5,706[134].

11.4.4 Further statistics to support the assessment of economic impacts, including information on the local labour markets and supply chain synergies with the Proposed Development will be provided in the EIA Report.

Tourism and Recreation

11.4.5 There are no core paths within the Site. Core paths within 5 km of the Site comprise:

- one core path running southwards from Oykel Bridge along Glen Einig; and
- a network of core paths around Rosehall, including to Achness Waterfall and within the forestry area to the east.

11.4.6 There are no identified tourism assets or destinations within the vicinity of the Site.

11.4.7 The village of Lairg is highlighted by VisitScotland[135] as a place of tourist interest. Lairg is located on the southern shore of Loch Shin and lies approximately 15.5 km east of the Site. Loch Shin is the largest loch in Sutherland, running for a distance of 17 miles.

11.4.8 The Highland Shooting Centre is located in the town of Auchintoul, approximately 8.5 km from the Site boundary.

11.4.9 Retail, catering, and accommodation facilities in the Local Area are largely concentrated in the settlements of Lairg. A few isolated B&Bs, guest houses and other local businesses have been identified in rural locations closer to the Site, specifically in Oykel Bridge, Invercassley and Aucharrigill.

11.4.10 The Inverness to John O'Groats National Cycle Network (NCN) route runs north to south approximately 14.5 km east of the Site, on the A836.

11.5 Potential Sources of Impact

Public Access to the Site

11.5.1 The provision for access to the Site, in line with the requirements of the Land Reform (Scotland) Act 2016, will be documented in the EIA Report. This will clarify the extent of current public access, define

133 IEMA (2022) Effective Scoping of Human Health in Environmental Impact Assessment. Available at: IEMA-EIA-Guide-to-Effective-Scoping-of-Human-Health.pdf [Last Accessed: 21/3/24].

134 Scottish Government (2021) Electoral Ward: North, West and Central Sutherland. Available at: statistics.gov.scot | North, West and Central Sutherland. [Last Accessed: 08/03/2024].

135 VisitScotland (2024) Lairg Visitor Guide. Available at: Lairg Visitor Guide - Accommodation, Things To Do & More | VisitScotland. [Last Accessed: 08/03/2024]

existing routes and identify restrictions during construction and operation of the Proposed Development. The impact of the Proposed Development on any public footpaths and rights of way will be clearly indicated. If any re-routing of paths under a Right of Way is required, alternative routes will be highlighted for consideration.

Economic Impacts

11.5.2 The EIA Report will include relevant economics information connected with the Proposed Development, including the potential number of jobs supported (local authority and Scotland wide), economic activity associated with the procurement, construction, community benefits and disbenefits and opportunities for local people to invest in the Proposed Development.

11.5.3 Based on the baseline review, the following potential likely significant beneficial effects have been identified:

- Economic Impacts;
- Expenditure;
- Community Benefits; and
- Non-domestic Rates.

11.6 Matters Scoped Out

11.6.1 Based on the nature of the Proposed Development (an onshore wind farm), its extent and duration of both construction and operational phases, effects on population and demographics in terms of demand for housing, health or educational services is expected to be negligible or none at all. As such it is proposed that these matters are scoped out of further consideration.

11.6.2 There are no tourism assets or destinations within the Site. The potential effects on visual amenity for tourism and recreational locations within 20 km of the Site, including recreational routes, will be fully assessed as part of the Landscape and Visual Amenity Assessment. In addition, research undertaken by BiGGAR[136] Economics suggests that there is no evidence that the presence of wind farm developments have an adverse effect on the tourism sector in Scotland, and no relationship has been identified between the development of onshore wind farms and tourism employment at the level of the Scottish economy, at local authority nor in the areas immediately surrounding wind farm development.

11.6.3 It is also anticipated that the construction of the Proposed Development would not entail significant road works, closures or diversions which would have potential to adversely affect access to tourism assets, therefore no potential for significant effects is identified.

11.6.4 As such it is proposed that potential socioeconomic impacts on tourism and recreational locations are scoped out of further consideration. A separate Economic Impact Statement will be produced as a technical appendix to the EIA Report in order to identify the relevant economics information related to the Proposed Development and assess the economic activities, opportunities for local people and community benefits and disbenefits from all phases of the Proposed Development.

11.7 Questions to Consultees

- Q11.1: Do Consultees agree with the proposed scope of the socio-economics, recreation and tourism assessment?

136 BiGGAR Economics (2021). Wind Farms and Tourism Trends in Scotland [pdf]. Available at https://biggareconomics.co.uk/wp-content/uploads/2021/11/BiGGAR-Economics-Wind-Farms-and-Tourism-2021.pdf. [Last Accessed: 08/03/2024].

12. Aviation and Radar

12.1 Introduction

12.1.1 This Chapter has been prepared by WPAC Limited and sets out the proposed approach to the assessment of potential effects on aviation and radar during the construction and operation of the Proposed Development.

12.1.2 Wind turbines have the potential to affect civil and military aviation and meteorological forecasting. This Chapter outlines the methodology that will be used to undertake the aviation and radar assessment, describes the baseline condition, consultation requirements, and potential mitigations to be applied if required.

12.2 Consultation

12.2.1 Consultation will be undertaken with all aviation and telecommunications stakeholders with assets identified as being subject to potential significant effects from the Proposed Development.

12.2.2 Aviation consultees will include NATS and the Ministry of Defence (MoD). Consultations have been completed with Atkins and the Joint Radio Company (JRC) in respect of energy and water industry scanning telemetry links.

12.3 Method of Assessment and Reporting

Criteria for the Assessment of Aviation Effects

12.3.1 The assessment of effects of the proposed turbines will be based upon the guidance laid down in the Civil Aviation Authority (CAA) Publication CAP 764 Policy and Guidelines on Wind Turbines Version 6 (February 2016)[137].

12.3.2 Specialist propagation prediction software, RView Version 5, will be used to identify potential aviation effects of the Proposed Development as its design evolves. The results will then be used as a basis for consultation and liaison with relevant aviation bodies.

12.3.3 There is no agreed definition for assessing significance in an aviation context. This is due to the fact that whilst technical effects on communications, navigation and surveillance (CNS) systems are simple to identify and evaluate, operational and flight safety effects can be subjective and are often challenged by third parties. It is enough in this context to identify any technical effects and then, taking into account the statements in CAP 764 regarding the status of aviation stakeholders, in general to accept the judgement of those stakeholders in assessing the significance of the effects. For example, CAP 764 states:

"*Where an ANSP (Air Navigation Service Provider) determines that it is likely that a planned wind turbine development would result in any of the above effects on their CNS infrastructure, this may not, in itself, be sufficient reason to justify grounds for rejection of the planning application. The ANSP must determine whether the effect on the CNS infrastructure has a negative impact on the provision of the ATS. The developer should pay for an assessment of appropriate mitigating actions that could be taken by the ANSP and/or wind energy developer to deal with the negative impact. The position of an ANSP at inquiry would be significantly degraded if they had not considered all potentially appropriate mitigations*."

12.4 Environmental Baseline

Study Area

12.4.1 Study Areas with the following radii from the Site boundary will be used to identify potentially affected aviation and defence facilities:

- airfield with a surveillance radar – 30 km;
- non radar licensed aerodrome with a runway of more than 1.1 km – 17 km;
- non radar licensed aerodrome with a runway of less than 1.1 km – 5 km;
- licensed aerodromes where the turbines would lie within airspace coincidental with any published Instrument Flight Procedure (IFP);
- unlicensed aerodromes with runways of more than 800 metres – 4 km;

137 https://www.caa.co.uk/publication/download/14561 (March 2024)

- unlicensed aerodromes with runways of less than 800 metres – 3 km;
- gliding sites – 10 km; and
- other aviation activity such as parachute sites and microlight sites within 3 km – in such instances developers are referred to appropriate organisations.

12.4.2 CAP 764 further states that these distances are for guidance purposes only and do not represent ranges beyond which all wind turbine developments will be approved or within which they will always be objected to. These ranges are intended as a prompt for further discussion between developers and aviation stakeholders and will be reported upon in the EIA Report. For example, Inverness Airport has stated a requirement to be consulted in relation to wind farms out to 56 km if there is the potential to affect their operations or Instrument Flight Procedures (IFPs).

Baseline Characterisation

12.4.3 The Proposed Development is located within Class G unregulated airspace and over 10 km to the west of Class E Regulated Airspace designated N560 which takes traffic from Inverness to Wick and beyond.

CAA Licensed Aerodromes

12.4.4 Inverness Airport is located 58 km to the south east of the Site. Operated by Highlands and Islands Airports Ltd (HIAL) it is currently being re-equipped with two new air traffic control radars, a Thales Star 2000NG and a Terma Scanter 4002 which has been acquired specifically to mitigate the effects of wind farms on radar. Radar modelling has been undertaken against the layout being considered at scoping and the results show that radar line of sight across the Site varies between 280 - 600 m above ground level (AGL). These results confirm that the turbines will all be screened by terrain from the Thales Star 2000NG. The results for the Terma radar show that radar line of sight will be between 700 - 1000 m AGL. Therefore, there is no possibility of the turbines being visible to or affecting the performance of either radar at Inverness Airport.

12.4.5 HIAL consultation policy for wind turbines requires an IFP check to be undertaken by a CAA Approved Procedure Design Organisation (APDO) for any development within 56 km of the Aerodrome Reference Point (ARP). Detailed mapping shows that the closest turbine to the ARP is at a distance of 57 km. An IFP check is therefore unnecessary. There is no requirement in this case to consult with HIAL in relation to the Proposed Development, however if they require any radar modelling information after scoping, this will be provided.

Unlicensed Aerodromes

12.4.6 There are no unlicensed aerodromes, gliding sites, parachute drop zones or microlight sites marked on aviation charts or known to exist within the required consultation distance of the Site.

Ministry of Defence

<u>MOD Air Traffic Control (ATC) Radars</u>

12.4.7 The Site is located 85 km to the west north west of RAF Lossiemouth. RAF Lossiemouth is currently the busiest military airfield in the UK. It has recently been re-equipped with a Thales Star 2000NG 4P radar. Radar modelling has been undertaken against the layout being considered at scoping and the results show that 13 turbines are screened by terrain, but that Turbines 14 to 19 are in theoretical view of the radar at a distance of between 82 - 84 km, which may generate clutter and potential obscuration in this location. The MOD will be consulted to determine if such effects will create any operational effects, however, given the location and distance from the airfield it is possible that the MOD will be able to tolerate and manage those effects. This issue will be addressed in detail in the EIA Report.

<u>MOD Air Defence Radars</u>

12.4.8 The closest air defence radars are at Buchan, near Peterhead and Benbecula in the Outer Hebrides. Radar modelling shows there is no possibility of either radar being affected by the Proposed Development. Radar line of sight is in excess of 900 m AGL.

<u>MOD Low Flying</u>

12.4.9 The Site is located in MOD Low Flying Area (LFA) 14 by day. This converts to Night Allocated Region (NAR) 1BE during the hours of darkness. The Site is also located in the Highland Restricted Area (HRA) specialist day/night training airspace. Although primarily a fast jet training area, the airspace is also used by both military and civilian helicopters by day and night. The Applicant will provide an aviation lighting scheme proposal, including infra red lighting, and obtain MOD approval as part of the consultation process and application for consent. This will be reported in the Aviation Lighting Technical Appendix of the EIA Report.

Meteorological Office Weather Radars

12.4.10 The Meteorological Office (Met Office) safeguards its network of radars using a European methodology known as OPERA (Operational Programme for the Exchange of Weather Radar Information). In general, any proposed turbine within 5 km in line of sight is considered unacceptable and the impact of any turbines within 20 km would be examined. Where a site is within 20 km, the Met Office will undertake an operational assessment based on three main criteria, having determined if there is a technical effect on the radar. The factors they will consider include:

- proximity to airports;
- river catchment response times; and
- population density.

12.4.11 In this case the closest Met Office radar is at Hill of Dudwick, near Aberdeen and over 150 km to the south east of the Site. Therefore, there will be no effect on Met Office radars and this issue can therefore be scoped out of the EIA Report.

NATS En Route Ltd (NERL)

12.4.12 An initial assessment has been conducted to determine any effect of the Proposed Development on the NERL Communications, Navigation and Surveillance (CNS) infrastructure. The closest long range radar in the system is at Perwinnes near Aberdeen and there is a shorter range radar at Alanshill, near Rosehearty. In this case of Perwinnes radar line of sight is in excess of 500 m and the turbines are beyond the maximum detection range for the Alanshill radar.

12.5 Potential Sources of Impact

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

- Ministry of Defence Airfields, both radar and non-radar equipped;
- Ministry of Defence Air Defence Radars;
- Meteorological Radars; and
- Military Low Flying.

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

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

12.5.4 A wind farm with tip heights in excess of 150 m will need to be illuminated at the hub of selected turbines with medium intensity red aviation obstruction lighting. A lighting layout will be designed to minimises the number of lit turbines whilst fulfilling flight safety requirements and gain approval for the lighting layout from the CAA. This will be reported in the EIA Report within a technical appendix to describe the effect of aviation lighting on the environment and to inform the LVIA. It will also articulate the mitigation techniques available taking into account extant legislation and guidance.

12.5.5 An infra-red lighting layout to fulfil MOD requirements will also be designed and approval obtained from the MOD and reported in the EIA Report.

12.6 Matters Scoped Out

12.6.1 It is proposed to scope out Met Office Rainfall Radars due to the fact that there are no Met Office radars within safeguarding distance of the Proposed Development

12.7 Questions to Consultees

- Q12.1: Does the UK Met Office agree that Met Office radars can be scoped out of the assessment?

13. Shadow Flicker

13.1 Introduction

13.1.1 This Chapter has been prepared by Ramboll UK Ltd and sets out the proposed approach to the assessment of Shadow Flicker associated with the construction and operation of the Proposed Development.

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

13.2 Consultation

13.2.1 Consultation would be undertaken through this EIA Scoping Report. No additional consultation is anticipated.

13.3 Method of Assessment and Reporting

13.3.1 Scottish Government web-based advice on onshore wind turbines[138] (previously known as PAN45) 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." On this basis, the Study Area is limited to 10 rotor diameters and building within 130 degrees either side of north relative to the proposed turbines.

13.3.2 Proprietary software (either Resoft WindFarm or WindPro) will be used to identify the potential areas susceptible to shadow flicker. The software identifies the Study Area for the assessment based on proposed turbine dimensions and orientations.

13.3.3 The shadow flicker modelling will provide details of the predicted occurrence frequency of shadow flicker at each window location.

13.4 Environmental Baseline

13.4.1 A desk-based analysis confirms that based on the Scoping Layout, there are three dwellings, located within a distance of 10 rotor diameters of the Proposed Development.

13.5 Potential Sources of Impact

13.5.1 As the turbine blades rotate, it causes the shadow of the turbine to flick on and off at the receptor property. This may have a negative effect on residents in affected properties. If shadow flicker cannot be avoided through design, technical mitigation solutions are available and a shadow Flicker Mitigation Protocol would be proposed and agreed if required.

13.6 Matters Scoped Out

13.6.1 Where moving shadows are cast over the ground, rather than through the windows of a building, this is known as 'shadow throw'. There are no guidelines to quantify the effect and no requirement to assess 'shadow throw'. Therefore, 'shadow throw' has not been considered further in this assessment.

13.7 Questions to Consultees

13.7.1 Q13.1: Can consultees confirm they are happy with the proposed scope of the Shadow Flicker Assessment?

138 Onshore wind turbines: planning advice. Scottish Government. 2014. Available at: https://www.gov.scot/publications/onshorewind-turbines-planning-advice/

14. Forestry

14.1 Introduction

14.1.1 This Chapter has been undertaken by McKay Forestry and sets out the proposed approach to the assessment of potential effects upon forestry and woodland during the construction and operation of the Proposed Development.

14.2 Consultation

14.2.1 The principal forestry consultees are:

- Scottish Forestry - the Scottish Government agency responsible for forestry policy, support and regulations.
- THC and specifically the forestry team.
- NatureScot - to be consulted with regarding the ancient or native woodlands on-site.
- SEPA - to be consulted with regarding the potential for forestry waste.

14.3 Method of Assessment and Reporting

14.3.1 A Forestry Impact Assessment (FIA) shall be provided as a stand-alone Technical Appendix (TA) to the EIA Report.

14.3.2 Forestry sub compartment databases will be sought from the owners or agents to identify the planting years and species within the Site. A site survey will also be undertaken to confirm data and determine the likelihood of windblow should felling take place.

14.3.3 Felling for the Proposed Development shall be to provide a “keyhole” design for the wind turbines which will be mainly determined by environmental offset requirements.

14.3.4 The TA will describe the felling for the Proposed Development in terms of “permanent felling” which will not be replanted throughout the construction and operational phases and “temporary felling” required to avoid predictable windblow and which may be replanted in situ. Temporary felling may also result from the requirements of temporary infrastructure such as temporary compounds.

14.3.5 The TA will identify the mitigation required through the Scottish Government’s Control of Woodland Removal Policy (COWRP)[139] and the area of compensatory planting.

14.3.6 The UK Forestry Standards, the UK Governments’ Approach to Sustainable Forestry[140], will be followed and any forest operations required by the Proposed Development will adhere to the commitments made through the forest certification schemes including the UK Woodland Assurance Standard 4.0 (2018)[141].

14.3.7 The TA will provide tables and figures showing the baseline species and age classes and baseline felling and replanting proposals (where these exist). Permanent and temporary felling will be described in text, tables, and figures.

14.3.8 The integration of the Proposed Development into a Forest Plan will be a key part of the design process. A wind farm felling plan will be prepared setting out the forestry felling and management requirements, including any replanting associated with the construction and operation of the Proposed Development. Similarly, a wind farm replanting plan would be provided as part of the Forest Plan which would clearly identify the areas where peatland habitat restoration is the prime objective and therefore would not be replanted.

14.3.9 The TA will clearly identify woodland loss and the requirement for compensatory planting. The Applicant is committed to meeting this mitigation.

14.3.10 The FIA will refer to relevant industry guidance including, but not limited to:

- The Scottish Government’s Policy on Control of Woodland Removal;

139 Scottish Government’s Policy on Control of Woodland Removal available at https://forestry.gov.scot/publications/support-and-regulations/control-of-woodland-removal (Accessed 20/03/2024)

140 UK Government (2023) The UK Forestry Standard available at https://www.gov.uk/government/publications/the-uk-forestry-standard (Accessed 20/03/2024)

141 UK Woodland Assurance Standard (2018) available at https://ukwas.org.uk/ (Accessed 20/03/2024)

- Implementation Guidance (February 2019)[142];
- The UK Forestry Standard, The Government's Approach to Sustainable Forestry[143];
- Forests and Water. UK Forestry Standard Guidelines (and other guidelines in the same series);
- Guidance on the Management of Forestry Waste[144];
- Scotland's Forestry Strategy - 2019-2029[145];
- Scottish Planning Policy National Planning Framework 4 (NPF4)[146] Policy 6 Trees Woodland and Forestry;
- THC, Highland Forest and Woodland Strategy[147]; and
- THC, Trees, woodlands and development supplementary guidance.

14.4 Environmental Baseline

14.4.1 The Site extends to approximately 650 ha of mainly coniferous plantation. Arial imagery shows generally fully stocked plantations with clear breaks as rides, watercourses, and forest tracks. Overall, the tree crop appears to be performing adequately although some areas of poorer growth can be identified through a weaker colour.

14.4.2 Scottish Forestry Map Viewer[148] reveals only Coille Ruadh West Forest has a Long Term Forest Plan (LTFP) approved in 2022. Other areas of the woodland do not appear to have any approved forest plans.

14.4.3 The map viewer also shows areas of native woodland and an area of Plantation on Ancient Woodland Sites (PAWS).

14.4.4 **Figure 15.1** illustrates the woodland within the Site and the woodland designations.

14.5 Potential Sources of Impact

14.5.1 The Proposed Development will potentially require earlier than optimal tree felling for parts of the coniferous plantations.

14.5.2 Woodlands listed in the Ancient Woodland Inventory (AWI) (Scotland)[149] and Native Woodland Survey of Scotland (NWSS)[150] are present within the Site.

14.5.3 Areas of woodland may be required for premature felling to wind firm boundaries, to avoid predictable windblow and replanted in situ.

14.5.4 There will be some woodland loss resulting from the site infrastructure and environmental buffers required through the NatureScot best practice guidance Bats and onshore wind turbines - survey, assessment and mitigation[151].

142 Scottish Government. (2009) Control of Woodland Removal Policy Implementation Guidance available at https://forestry.gov.scot/publications/349-scottish-government-s-policy-on-control-of-woodland-removal-implementation-guidance (Accessed on 11/03/2024)

143 UK Government, The UK Forestry Standard, available at https://www.gov.uk/government/publications/the-uk-forestry-standard (Accessed 11/03/2024)

144 SEPA Guidance, https://www.sepa.org.uk/media/28957/forestry_waste_guidance_note.pdf (Accessed 11/03/2024)

145 Scottish Government, Scotland's Forestry Strategy 2019–2029 available at https://www.gov.scot/publications/scotlands-forestry-strategy-20192029/ (Accessed 11/03/2024)

146 Scottish Government, National Planning Framework 4, available at: https://www.gov.scot/publications/national-planning-framework-4/ (Accessed 14/02/2024)

147 The Highland Council, Trees, woodland and trees. https://www.highland.gov.uk/info/1225/countryside_farming_and_wildlife/63/trees_woodland_and_forestry (Accessed 11/03/2024)

148 Scottish Forestry Map Viewer available at https://scottishforestry.maps.arcgis.com/apps/webappviewer/ (Accessed 11/03/2024)

149 Ancient Woodland Inventory, available at: https://www.data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland (Accessed 14/02/2024)

150 Native Woodland Inventory of Scotland, available at: https://www.data.gov.uk/dataset/da3f8548-a130-4a0d-8ddd-45019adcf1f3/native-woodland-survey-of-scotland-nwss (Accessed 14/02/2024)

151 NatureScot, Bats and onshore wind turbines - survey, assessment and mitigation, available at https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation (Accessed 11/03/2024)

14.6 Matters Scoped Out

14.6.1 The forestry proposals are interlinked with environmental effects which are outside the scope of the FIA but which should be read in conjunction with the following EIA Report chapters:

- Landscape and Visual;
- Ecology;
- Ornithology;
- Cultural Heritage;
- Geology, Hydrology, Hydrogeology and Peat;
- Traffic and Transport; and
- Socio-Economics, Tourism and Recreation

14.7 Questions to Consultees

- Q14.1: Do the consultees agree with the proposed methodology and scope of the Forestry TA?
- Q14.2: Do the consutees have any information that should be taken into account within the Forestry TA?

15. Other Considerations

15.1 Introduction

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

- infrastructure;
- telecommunications;
- television reception;
- ice throw;
- climate and carbon balance;
- air quality;
- population and human health;
- risks of major accidents and/or disasters; and
- environmental management.

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

15.2 Infrastructure

15.2.1 The locations and details of existing infrastructure such as overhead lines, underground cables and gas pipelines will be thoroughly reviewed and considered throughout the design of the Proposed Development.

15.3 Telecommunications

15.3.1 Effects on fixed telecommunications links will be determined by identifying any potentially affected links using the Ofcom Spectrum Information Portal; consulting the owners of any such links; and adjusting the turbine layout to ensure adverse impacts are avoided.

15.3.2 Tall structures such as buildings and turbines can adversely affect the performance of fixed telecommunications links, if positioned close enough to those links.

15.3.3 Ofcom data will be used in order to identify all fixed microwave telecommunications links within 3 km of the Site boundary; mapping the proximity of any such links to the Proposed Development; and, if required, calculating, using the Ofcom-recommended ‘Bacon Formula’, whether the Proposed Development has the potential to adversely affect the performance of the link(s).

15.3.4 Consultation will also be undertaken with key stakeholders to identify relevant microwave links and Ultra High Frequency (UHF) telemetry links.

15.3.5 Potential means of mitigation of effects on fixed telecommunications links include micro-siting of turbines, installation of higher performance antennae, or re-routing of links.

15.4 Ice Throw

15.4.1 The maximum potential distance of ice falling from turbines can be approximated using the formula 1.5 x (blade diameter + hub height). For the Proposed Development, the maximum distance from a turbine where ice could be expected to fall is therefore in the region of 420 m to 430 m. As such, the risk to public safety is considered to be very low because the distance from the turbines to the nearest public road, residential property or core path would be greater than 430 m.

15.4.2 However, in line with current guidance a permanent warning sign at the Site’s main entrances is proposed to alert the public to this issue. No detailed assessment is proposed as part of the EIA Report.

15.5 Climate and Carbon Balance

15.5.1 The EIA Regulations 2017 include for consideration of potentially significant effects on climate which includes greenhouse gas emissions. As a renewable energy project, the Proposed Development is likely to result in a significant saving in carbon and therefore benefit to the UK climate.

15.5.2 A carbon balance assessment will be undertaken for the Proposed Development using guidance Calculating Potential Carbon Losses and Savings from Wind Farms on Scottish Peatlands.

15.6 Air Quality

15.6.1 The Proposed Development is not considered likely to give rise to significant impacts on air quality. The main activities would be limited to construction works (dust from soil stripping and earthworks, from excavation, potentially including occasional blasting, and from vehicles running over unsurfaced ground) and exhaust emissions from fixed and mobile construction plant and construction vehicles. Construction works would be localised, short term, intermittent and controllable through the application of good construction practice.

15.6.2 The contributions of exhaust emissions (NO_2 and PM_{10}) from construction vehicles would likely be low, and orders of magnitude below current Air Quality Objectives. Therefore, it is proposed that the EIA will not address air quality impacts. An Outline CEMP will be included in the EIA Report which will include general pollution control measures for air quality.

15.7 Population and Human Health

15.7.1 The EIA will consider “human health” in terms of amenity through the assessment of potential likely significant effects associated with water supplies, noise, traffic and on visual amenity. No other sources or pathways for effects on human health have been identified. The potential for likely significant effects on “population” will be considered through the socioeconomics, recreation and tourism assessment (as described above). As such, a separate human health impact assessment chapter and population impact assessment chapter will not be presented. Appropriate control measure to ensure potential effects on air and water quality are managed appropriately in the construction phase will be addressed through an outline CEMP.

15.8 Risks of Major Accidents and Disasters

15.8.1 Due to the nature of the Proposed Development, the risk of a major accident or disaster is considered to be extremely low. In addition, the Site is located in a remote area, with few nearby receptors. A risk assessment process will be followed by the Principal Designer during the design stage as part of the requirements of the Construction (Design and Management) Regulations 2015. This will ensure that all potential risks are identified at an early stage and appropriate mitigation is implemented.

15.8.2 During the operational stage of the Proposed Development, routine maintenance inspections will be completed in order to ensure compliant operation of the Proposed Development.

15.8.3 No further assessment of the risk of major accidents and/or disasters is proposed.

15.9 Environmental Management

15.9.1 The Applicant is committed to pollution prevention and environmental protection. As such an environmental management strategy to minimise environmental effects of the Proposed Development during construction will be developed. The principles of this strategy will be presented in an Outline CEMP appended to the EIA Report. Should consent be granted, the Outline CEMP would be revised and updated to a CEMP, the content of which would be agreed with THC through consultation and enforced via a planning condition. The CEMP would be used by the Contractor to ensure appropriate environmental management is implemented throughout the construction phase of the Proposed Development.

16. Invitation to Comment

16.1.1 You are invited to provide comment on this Scoping Report. Please send all Scoping responses to ECU at:

Energy Consents Unit
5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Email: Econsents_Admin@gov.scotaddress

16.1.2 If you wish to discuss matters contained in this report in greater detail prior to responding to the scoping exercise, please contact:

Statkraft UK Limited
The Garment factory
10 Montrose Street
Glasgow
G1 1RE

Email: ukprojects@statkraft.com

1. Appendix 1.1 – Planning and Energy Policy Context

1.1 Introduction

1.1.1 This Appendix presents a summary of relevant policy and guidance documents that will be taken into consideration to help inform the design of the Proposed Development.

1.1.2 The EIA Report will set out the relevant policies that have been considered as part of the assessments undertaken throughout the EIA. A separate Planning Statement will provide a detailed appraisal of the Proposed Development against the relevant Development Plan policies, national planning, energy policy, and other material considerations.

1.1.3 The EIA Report will also concisely reference climate change policy and the contribution of Proposed Development to the UK and Scottish Government's climate change goals and policy targets.

1.2 Climate Change and Energy Policy

1.2.1 The burning of fossil fuels to produce electricity is a major contributor to climate change through the release of atmospheric carbon dioxide and other harmful gases known collectively as greenhouse gases.

1.2.2 The Proposed Development relates to the generation of electricity from renewable energy sources and comes as a direct response to national planning and energy policy objectives. The clear objectives of the UK and Scottish Governments will be summarised, in relation to encouraging increased deployment and application of renewable energy technologies, consistent with sustainable development policy principles and national and international obligations on climate change.

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

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

1.2.5 The Scottish Government has published a number of policy documents and has set its own targets. The most relevant policy and legislative documents, and more recent policy statements published by the Scottish Government include:

- The Scottish Energy Strategy (December 2017);
- The Scottish Government's declaration of a Climate Emergency (April 2019);
- The Scottish Climate Change Plan Update (2020);
- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 and the legally binding net zero target for 2045 and interim targets for 2030 and 2040;
- The Scottish Government's 'Programme for Government' (2023);
- The Onshore Wind Policy Statement (December 2022); and
- The Draft Energy Strategy and Just Transition Plan (January 2023).

1.2.6 Further deployment of renewable energy generating technology will be required throughout the 2020s in order to meet targets. As a mature technology, onshore wind has a continuing and important role to play, as confirmed by recently updated national planning and energy policy and in the new Onshore Wind Policy Statement.

1.2.7 Scotland's overarching statutory target is to achieve a 100% reduction in greenhouse gas emissions to net-zero by 2045, with interim targets of 75% by 2030 and 90% by 2040, now provided for in the Climate Change (Scotland) Act 2009 as amended by the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019.

1.2.8 A large increase in the deployment of this renewable energy technology is supported through a number of UK level policy documents including the latest UK Energy White Paper (2020) and Net Zero Strategy (2021). Scottish Government policy commitments are also clear – most recently expressed in the Onshore Wind Policy Statement which will be material to the energy and national planning policy position to be considered for the determination of the application.

1.3 National Planning Framework 4

1.3.1 National Planning Framework 4 (NPF4) forms part of the statutory Development Plan. Section 13 of the Planning (Scotland) Act 2019 amends Section 24 of the Town and Country Planning (Scotland) Act 1997 (the '1997 Act') regarding the meaning of the 'development plan' such that for the purposes of the 1997 Act, the development plan for an area is taken as consisting of the provisions of:

- The National Planning Framework; and
- Any Local Development Plan (LDP).

1.3.2 NPF4 introduces centralised development management policies which are to be applied Scotland wide, and also provides guidance to Planning Authorities with regard to the content and preparation of LDPs.

1.3.3 The Proposed Development would have national development status as per the policy provisions of NPF4.

1.3.4 In terms of development management and the application of national level policies, NPF4 states that:

1.3.5 "*The policy sections are for use in the determination of planning applications. The policies should be read as a whole. Planning decisions must be made in accordance with the development plan, unless material considerations indicate otherwise. It is for the decision maker to determine what weight to attach to policies on a case-by-case basis. Where a policy states that development will be supported, it is in principle, and it is for the decision maker to take into account all other relevant policies".*

1.3.6 The most relevant policies in NPF4 will include the following:

- Policy 1: Tackling the Climate and Nature Crisis;
- Policy 3: Biodiversity;
- Policy 4: Natural Places;
- Policy 5: Soils;
- Policy 6: Forestry, Woodland and Trees;
- Policy 7: Historic Assets and Places;
- Policy 11: Energy;
- Policy 22: Flood Risk and Water Management; and
- Policy 33: Minerals.

1.4 The Local Development Plan

1.4.1 The Site is located within the administrative area of The Highland Council (THC). The Local Development Plan (LDP) for the site comprises:

- Highland-Wide Local Development Plan (HwLDP) (2012) and associated Supplementary Guidance; and
- The Caithness and Sutherland LDP (CaSPlan) (2018).

1.4.2 The CaSPlan does not contain any development management policies of relevance to the Proposed Development.

1.4.3 The following policies of the HwLDP are considered relevant to the Proposed Development:

- Policy 28 – Sustainable Design;
- Policy 31 – Developer Contributions;
- Policy 51 – Trees and Development;
- Policy 52 – Principle of Development in Woodland;
- Policy 55 – Peat and Soils;
- Policy 57 – Natural, Built and Cultural Heritage;
- Policy 58 – Protected Species;
- Policy 59 – Other Important Species;
- Policy 60 – Other Important Habitats;

- Policy 61 – Landscape;
- Policy 62 – Geodiversity;
- Policy 63 – Water Environment;
- Policy 64 – Flood Risk;
- Policy 66 – Surface Water Drainage;
- Policy 67 – Renewable Energy; and
- Policy 77 – Public Access.

Supplementary Guidance

1.4.4 Supplementary Guidance forms part of the LDP. The relevant Supplementary Guidance pertaining to the Proposed Development is the Onshore Wind Energy Supplementary Guidance adopted in 2016 (OWESG).

1.4.5 The OWESG was adopted by the THC in November 2016 and sets out how the THC will manage onshore wind energy development proposals. The OWSEG sets out a spatial framework for onshore wind energy development however such a policy approach is not incompatible with NPF4.

1.4.6 The OWSEG does contain guidance separate from the spatial framework which remains relevant, and which will be referred to both in the EIA Report and in the Planning Statement.

1.4.7 A landscape sensitivity appraisal was introduced as an addendum to the OWSEG in December 2017. The addendum contains two landscape sensitivity appraisals, one for the Black Isle, Surrounding Hills and Moray Firth Coast study area and one for the Caithness study area and contains associated strategic capacity conclusions.

1.5 Conclusions

1.5.1 The Proposed Development would make a contribution to the attainment of renewable energy and electricity targets and emissions reduction at both the Scottish and UK levels and the quantification of this contribution would be described in the EIA Report.

1.5.2 The EIA Report will summarise the renewable energy policy framework, but the detail will be provided in a supporting Planning Statement to accompany the section 36 application which will also make reference to key policy documents such as the Onshore Wind Policy Statement (2022) which confirms the onshore wind target of an additional 8-12 GW of additional onshore wind capacity to be delivered by 2030.

Asset/Event Number	1
Asset/Event Name	Langwell,fort and dun 500m WSW of
Type of Asset/Event	Prehistoric domestic and defensive: dun
Date and/or Period	Prehistoric
Listing No./NRHE Number	SM5302
HER Number	
Status	Scheduled Monument
Easting	241030
Northing	900891
Parish	Highland
Council	Kincardine (Highland)
Description	https://portal.historicenvironment.scot/designation/SM5302 Description The monument consists of a fort and later dun. The fort and dun occupy a prominent knoll. The fort encloses the whole of the knoll and measures c. 120m N-S by 80m. The defences consist of a stone wall around the top of the knoll, in which traces of vitrification can be seen, and scarping on the lower slopes on all but the W side. The entrance is in the NE side. The dun is circular, 15.5m in diameter, with a vitrified wall 5m thick and up to 2m in height above the interior. Excavation in the 1970s indicated that the vitrified wall of the dun was originally timber-laced and also provided evidence for a radial set of post holes which probably supported a roof over the dun. The entrance is in the E and was flanked by a guard chamber. The area to be scheduled measures 200m E-W by 130m N-S, to include the whole knoll, as shown in red on the attached map. Statement of National Importance The monument is of national importance for its potential contribution to an understanding of prehistoric defensive architecture and domestic settlement. The development of the site, involving a fort which was later replaced by a dun, provides information for a sequence of defensive structures. In addition the dun is one of a very rare group of small timber-laced duns.

Asset/Event Number	2
Asset/Event Name	Dail Langwell, broch 1675m NW of Croich
Type of Asset/Event	Prehistoric domestic and defensive: broch
Date and/or Period	Prehistoric
Listing No./NRHE Number	SM1852
HER Number	
Status	Scheduled Monument
Easting	241170
Northing	911213
Parish	Highland
Council	Creich (Highland)

Description

https://portal.historicenvironment.scot/designation/SM1852

Description
The monument is a broch, a complex stone-built substantial roundhouse, dating to the Iron Age (between 600 BC and AD 400). The monument is visible as a roughly circular drystone-walled structure. It is located on the south side of Glen Cassley, approximately 85m above sea level and around 24m above the River Cassley.

The broch is positioned on the summit of a steep sided hillock above the River Cassley. Standing walls remain but much of the structure has collapsed forming a large debris field. The outer wall of the structure has an external diameter of 21m and measures up to 3.4m in height and up to 5.5m in width. The entrance passage, at the east, is around 5.5m long. There is evidence of a guard cell on the north side of the entrance passage and a set of projecting door checks and possible bar hole slot also within the entrance passage. An intramural cell is visible on the ground floor to the south of the entrance passage. Sections of the upper level intramural gallery with associated voids and lintels are visible at the southwest and north of the broch.

The scheduled area, centred on the broch, is circular in plan with a diameter of 40m and includes the remains described above and an area around them within which evidence relating to the monument's construction, use and abandonment is expected to survive, as shown in red on the accompanying map. Post and wire fences and above ground elements of the stone-built sheep fank are specifically excluded from the scheduling.

Statement of National Importance
Cultural Significance

The cultural significance of the monument has been assessed as follows:

Intrinsic Characteristics

The monument is an example of a broch, visible as a drystone-walled structure set on the top of a steep sided hillock, directly above the River Cassley. Overall the site survives in very good condition with records indicating the site has never been excavated. Stone from the broch may have been re-used to construct the adjacent, relatively modern, sheep fank. There are numerous features visible such as an upper level intramural gallery, entrance passage with door checks and a guard cell. The surviving evidence points to the structure having been a tall broch tower. The level of preservation of the broch is an important part of the monument's intrinsic characteristics.

By analogy with a number of excavated brochs there is potential for other structural remains to survive obscured by the extensive debris field. These could include intramural cells, scarcement ledges, internal stone partitions, hearths and water tanks/well within the broch. There is also potential for the buried remains of outbuildings just beyond the broch. Many of these features can provide information about broch architecture and construction methods.

The broch remains and any associated structures are likely to contain deposits rich in occupation debris, artefacts and palaeoenvironmental evidence that can tell us about how people lived, their trade and exchange contacts, and their social status. Brochs are typically thought to date from the mid first millennium BC through to the early part of the first millennium AD. There are few precise scientific dates for brochs in northwest Scotland and their dating has traditionally been based on typological studies of artefacts recovered from broch sites. Scientific investigation would allow us to develop a better understanding of the chronology of the site, its date of origin, state of completeness, survival of outworks and outbuildings or related structures, and any development sequence.

Broch towers are primarily seen as a specific specialised development of complex Atlantic roundhouses. They were large complex structures that could have accommodated either an extended family or a small community. While there would have been a social hierarchy within this community, the construction of these elaborate towers is often understood in terms of elite settlement. Other interpretations have stressed their likely role as fortified or defensive

sites, possibly serving a community across a wider area. Brochs are complex structures likely to have had numerous purposes and a complex role in prehistoric society.

Contextual Characteristics

Brochs are a widespread class of monument across northern Scotland with notable concentrations in Caithness, Sutherland, Orkney, Shetland, the Western Isles and the northwest Highlands. This monument is significant as an upstanding and well-preserved example of a broch and is the only recorded broch within a 10km radius. The nearest brochs are around 10.3km and 10.5km southeast, at the end of Glen Cassley, close to where the River Cassley meets the River Oykel. The two brochs are located close together and are known as Achness (Canmore ID 4857) and Achaneas (Canmore ID 4858). There is therefore potential for comparative study on a local and national scale to better understand the function of such monuments, their interrelationship and the significance of their placing within the landscape, in particular in relation to our understanding of Iron Age social hierarchy, changing settlement patterns and systems of inheritance.

The broch sits on a northeast facing slope, above the River Cassley, in a highly prominent position on a steep hillock. There are wide open views up and down the valley. The broch sits directly above a narrow and relatively shallow point in the river that, as noted during the site visit, acts as a natural fording point. Many broch towers were deliberately sited to be focal points in the landscape, and this example would have been clearly visible from within the valley and from hills across the river.

Associative Characteristics

There are no known associative characteristics which contribute to the site's cultural significance.

Statement of National Importance

The monument is of national importance because it has an inherent potential to make a significant addition to our understanding of the past, in particular the function, use and development of brochs in northwest Scotland. It is a well-preserved example of a tall broch tower that retains architectural features and has high potential for additional buried remains, including occupation debris, artefacts and ecofacts. It is a prominent feature in the landscape and adds to our understanding of the siting of brochs. This in turn can help our understanding of settlement patterns and social structure during the Iron Age in the Highlands. This potential and interest is enhanced by the proximity of other brochs. The loss of the monument would diminish our future ability to appreciate and understand the use of brochs in northwest Scotland, and the nature of its Iron Age society, economy and social hierarchy.

Asset/Event Number	3
Asset/Event Name	Croick Parish Church
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB7181
HER Number	
Status	Category A Listed Building
Easting	245682
Northing	891476
Parish	
Council	

Description	https://portal.historicenvironment.scot/designation/LB7181 Description Thomas Telford, 1827. (contractor, James Smith). Standard Parliamentary T-plan church, harled with tooled margins. Depressed arched outer paired doors in north elevation; similarly arched pair central windows with 2-light lattice (cast-iron) glazing. Similarly detailed windows in east and west gables and in (south) T-wing. Bellcote with stumpy finials at west apex. Interior; original interior fittings including pews, communion table and pulpit. Coped rubble walled burial ground with various 19th century tombs. Statement of Special Interest Building in ecclesiastical use as such. East window inscribed with names and signatures of those evicted from neighbouring straths (1845) and from Gruinards (Greenyards) 1854. Many families over wintered in the burial ground having nowhere to go. Unusual survival of original interior fittings and layout.

Asset/Event Number	4
Asset/Event Name	Oykel Bridge
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB273
HER Number	
Status	Category B Listed Building
Easting	238561
Northing	900922
Parish	Highland
Council	Creich (Highland)
Description	https://portal.historicenvironment.scot/designation/LB273 Description Early 19th century. High single span rubble bridge; dressed rubble arched ring and footings; dressed rubble parapet cope with splayed approach. Statement of Special Interest Now by-passed by realigned A837 road.

Asset/Event Number	5
Asset/Event Name	Rosehall House
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB275
HER Number	
Status	Category B Listed Building
Easting	247487
Northing	901585

Parish	Highland
Council	Creich (Highland)
Description	https://portal.historicenvironment.scot/designation/LB275

Description
1818-25, dated 1822 but probably incorporating earlier fabric, 'improvements' by Alexander Ross, 1873 (see Notes). Symmetrical 2-storey 7-bay classical mansion with projecting 2-storey and single storey rear wings forming shallow U-plan, partly infilled with later servant's passage additions. Unique notable late 1920s interior scheme designed by Coco Chanel (see Notes). Coursed grey and pink freestone with honey-coloured Moray sandstone dressings. Ribbon pointing. Deep eaves. In poor repair (2006).

SOUTH (PRINCIPAL) ELEVATION: slightly advanced central 5-bay block with central wide corniced doorpiece with 4-panel timber 2-leaf door with rectangular margined fanlight above and flanked by narrow sidelights between paired Roman Doric pilasters. Above, blind 1st floor window with datestone above. Wide open pediment with deep bracketed soffits spans central 3 bays.

Predominantly 16- and 24-pane timber sash and case windows. Corniced end, lateral and ridge stacks. Slate roofs.

INTERIOR: simple classical interior with Chanel scheme. Wide entrance hall flanked by pair of large well-proportioned reception rooms with 6-panel 2-leaf timber doors, timber dado and simple cornices. That to right with Ionic columned recess, that to left with simpler Doric pilastered recess. Some lesser rooms stripped to stone walls due to dry rot. Barrel-vaulted gun room with metal door and barred window, former kitchen with cast-iron range, both to West wing.

Chanel scheme: very simple, throughout principal rooms. Hessian-textured wallpaper painted shades of beige with matt darker buff/beige coloured paintwork. Stage-set style simple (buff/beige) painted timber chimneypieces, some original cast-iron grates, some brick/tile replacements. First floor room with hand-blocked French floral wallpaper. Some bathrooms painted green. Early Shanks bidet to first floor bathroom to W (see Notes).

WALLED GARDEN: immediately to E of house, rubble walls with flat coping. Incorporating to W pair of mirrored L-plan single storey and loft ancillary buildings with steeply pitched roofs with pointed arch windows facing garden.

Statement of Special Interest
A good example of a simple classical mansion house with a unique interior scheme by the internationally renowned fashion designer Gabrielle 'Coco' Chanel (1883-1971).

Rosehall was built for Richard Dunning, 2nd Lord Ashburton (1782-1823). He bought Rosehall Estate in 1806 and the house burnt down in May 1817. It was replaced with this classical house which Beaton notes is in the style of William Robertson. Ashburton linked Rosehall with the River Oykel by a no longer extant canal and used it to ship the Moray stone for the dressings. It is likely that the present Rosehall incorporates some fabric from the former house, such as the West wing with its barrel vaulted ceiling. The work undertaken by Ross in 1873 probably included adding further servants' quarters parallel to the rear of the house. The previous list description notes that there are underground passages below the house, with entrances in the retaining walls, to accommodate a footpath which formerly passed in front of the South elevation.

Rosehall was acquired by Hugh Grosvenor, 2nd Duke of Westminster (1879-1953), in the late 1920s. At this time, Chanel was his mistress. Although he only owned Rosehall for a very short time (possibly as few as 2 years) the interior was not to Chanel's liking and she redecorated it in her celebrated chic style. The striking simplicity, with shades of beige and basic replacement chimneypieces in painted timber, would have been significantly radical for its time. This is the only known house in Scotland with an interior by Chanel and its survival is remarkable. Beige was a colour which Chanel frequently used in her interiors, such as her office door at the

famous Rue Cambon Chanel showrooms in Paris and the sofa in her apartment on the second floor. Local knowledge had suggested that the house contained the first bidet in Scotland, installed as part of Chanel's scheme, however this seems unlikely as bidet's were being manufactured in Scotland from the early 1900s. This particular model appears to feature in Shank's 1912 catalogue, albeit produced for the French market.

The house has been uninhabited since 1967 and is now (2006) in poor condition with extensive dry rot. Much of the beige wallpaper is peeling away from the wall.

Asset/Event Number	6
Asset/Event Name	Walled Garden, Rosehall House
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB275
HER Number	
Status	Category B Listed Building
Easting	247566
Northing	901533
Parish	Highland
Council	Creich (Highland)
Description	https://portal.historicenvironment.scot/designation/LB275

Description
1818-25, dated 1822 but probably incorporating earlier fabric, 'improvements' by Alexander Ross, 1873 (see Notes). Symmetrical 2-storey 7-bay classical mansion with projecting 2-storey and single storey rear wings forming shallow U-plan, partly infilled with later servant's passage additions. Unique notable late 1920s interior scheme designed by Coco Chanel (see Notes). Coursed grey and pink freestone with honey-coloured Moray sandstone dressings. Ribbon pointing. Deep eaves. In poor repair (2006).

SOUTH (PRINCIPAL) ELEVATION: slightly advanced central 5-bay block with central wide corniced doorpiece with 4-panel timber 2-leaf door with rectangular margined fanlight above and flanked by narrow sidelights between paired Roman Doric pilasters. Above, blind 1st floor window with datestone above. Wide open pediment with deep bracketed soffits spans central 3 bays.

Predominantly 16- and 24-pane timber sash and case windows. Corniced end, lateral and ridge stacks. Slate roofs.

INTERIOR: simple classical interior with Chanel scheme. Wide entrance hall flanked by pair of large well-proportioned reception rooms with 6-panel 2-leaf timber doors, timber dado and simple cornices. That to right with Ionic columned recess, that to left with simpler Doric pilastered recess. Some lesser rooms stripped to stone walls due to dry rot. Barrel-vaulted gun room with metal door and barred window, former kitchen with cast-iron range, both to West wing.

Chanel scheme: very simple, throughout principal rooms. Hessian-textured wallpaper painted shades of beige with matt darker buff/beige coloured paintwork. Stage-set style simple (buff/beige) painted timber chimneypieces, some original cast-iron grates, some brick/tile replacements. First floor room with hand-blocked French floral wallpaper. Some bathrooms painted green. Early Shanks bidet to first floor bathroom to W (see Notes).

WALLED GARDEN: immediately to E of house, rubble walls with flat coping. Incorporating to W

pair of mirrored L-plan single storey and loft ancillary buildings with steeply pitched roofs with pointed arch windows facing garden.

Statement of Special Interest
A good example of a simple classical mansion house with a unique interior scheme by the internationally renowned fashion designer Gabrielle 'Coco' Chanel (1883-1971).

Rosehall was built for Richard Dunning, 2nd Lord Ashburton (1782-1823). He bought Rosehall Estate in 1806 and the house burnt down in May 1817. It was replaced with this classical house which Beaton notes is in the style of William Robertson. Ashburton linked Rosehall with the River Oykel by a no longer extant canal and used it to ship the Moray stone for the dressings. It is likely that the present Rosehall incorporates some fabric from the former house, such as the West wing with its barrel vaulted ceiling. The work undertaken by Ross in 1873 probably included adding further servants' quarters parallel to the rear of the house. The previous list description notes that there are underground passages below the house, with entrances in the retaining walls, to accommodate a footpath which formerly passed in front of the South elevation.

Rosehall was acquired by Hugh Grosvenor, 2nd Duke of Westminster (1879-1953), in the late 1920s. At this time, Chanel was his mistress. Although he only owned Rosehall for a very short time (possibly as few as 2 years) the interior was not to Chanel's liking and she redecorated it in her celebrated chic style. The striking simplicity, with shades of beige and basic replacement chimneypieces in painted timber, would have been significantly radical for its time. This is the only known house in Scotland with an interior by Chanel and its survival is remarkable. Beige was a colour which Chanel frequently used in her interiors, such as her office door at the famous Rue Cambon Chanel showrooms in Paris and the sofa in her apartment on the second floor. Local knowledge had suggested that the house contained the first bidet in Scotland, installed as part of Chanel's scheme, however this seems unlikely as bidet's were being manufactured in Scotland from the early 1900s. This particular model appears to feature in Shank's 1912 catalogue, albeit produced for the French market.

The house has been uninhabited since 1967 and is now (2006) in poor condition with extensive dry rot. Much of the beige wallpaper is peeling away from the wall.

Asset/Event Number	7
Asset/Event Name	North Lodge, Rosehall
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB276
HER Number	
Status	Category C Listed Building
Easting	248000
Northing	901810
Parish	Highland
Council	Creich (Highland)
Description	https://portal.historicenvironment.scot/designation/LB276

Description
Lodge; early 19th century single storey, square rubble gate lodge, with harled west and south elevations. Centre door in west elevation with narrow flanking windows;
lean-to extension to south elevation. Single window in north elevation (facing road); varied glazing; single bay extension to east incorporated in abutting wall.
Pyramidal slate roof terminating in centre apex stack. Walls; high coped rubble walls abut

lodge at west and east, breaking (without gate piers) at centre entrance
pair cast-iron gates. Pedestrian entrance to left of gates, and also to left of lodge.
Ball finials top coping to right (west).

Statement of Special Interest
Drive serves Rosehall House only as grassy track.

Asset/Event Number	8
Asset/Event Name	Cassley Bridge, Rosehall
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB277
HER Number	
Status	Category B Listed Building
Easting	247181
Northing	902274
Parish	Highland
Council	Creich (Highland)
Description	https://portal.historicenvironment.scot/designation/LB277

Description
Circa 1830. Double span rubble bridge, with dressed rubble arched rings and triangular cutwaters; dressed rubble parapet cope and splayed approach; shallow end buttresses.

Asset/Event Number	9
Asset/Event Name	United Free Church, Rosehall
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB278
HER Number	
Status	Category C Listed Building
Easting	248402
Northing	901448
Parish	Highland
Council	Creich (Highland)
Description	https://portal.historicenvironment.scot/designation/LB278

Description
Circa 1844. Simple rectangular church, rubble with tooled ashlar dressings. Round headed entrance in centre, east gable; 2 round headed windows in north and 4 in south elevation, all with lattice pane glazing. Slightly later hexagonal Ministers' porch of harled rubble at centre of south elevation, with hexagonal piended roof terminating with wooden finial.
Rectangular bellcote plinth at east gable apex; ball finial at west apex; flat skews and square skewputts; slate roof; stone ridge.

Simple drystone wall fronts church; pair cast-iron gates with spear-head detailing and plain monolith stone piers.

Statement of Special Interest
Building in ecclesiastical use as such. Now divided in half internally, and re-cast to west. The Rev Gustavus Aird (1813-98) "came <> at Croick, 1843, and subsequently became Free Church Minister at Creich (Migdale).

Asset/Event Number	10
Asset/Event Name	Suspension Footbridge, Brae Doune
Type of Asset/Event	
Date and/or Period	
Listing No./NRHE Number	LB287
HER Number	
Status	Category B Listed Building
Easting	244054
Northing	901382
Parish	Highland
Council	Creich (Highland)
Description	https://portal.historicenvironment.scot/designation/LB287

Description
John M. Henderson and Co, Aberdeen, Engineers. 1938. Single span suspension bridge; steel-girder pylons, wire-rope cables and iron-rod suspenders; wooden deck and woven wire hand rails. 200' (60m) span.

Statement of Special Interest
South bank of river in Kincardine parish

https://canmore.org.uk/site/4880/

NC40SW 9 44054 01382

(Location cited as NC 441 013). Suspension footbridge, Brae Doune, built 1938. A 300ft (97m) span bridge, with steel-girder pylons, wire-rope cables and iron-rod suspenders. The deck is wooden and the railing is of woven wire.

J R Hume 1977a.

(Suspension bridge of wire rope and unstiffened deck type with iron or steel pylons: location incorrectly cited as NG 441 013). Built in 20th century by J M Henderson and Co. Ltd., Aberdeen, engineers (ref. H7975). Steel girder pylons, wire-rope cables, iron rod suspenders, wooden deck, woven wire railings. Span about 220 ft (67m). Public footbridge.

J R Hume 1977b.

(Name cited as Tuitean Bridge). This bridge was built in 1938 by John Henderson and Co. of Aberdeen, has a span of 300 ft (91.5m) and appears disused.

G Nelson 1990.

This bridge carries a footpath over the River Oykel, which here forms the boundary between the parishes of Kincardine and Creich.

Information from RCAHMS (RJCM), 7 May 1998.

Asset/Event Number	11
Asset/Event Name	CLADH A CHNOCAIN
Type of Asset/Event	BURIAL GROUND (PERIOD UNASSIGNED), CROSS SLAB (EARLY MEDIEVAL)
Date and/or Period	Early Medieval
Listing No./NRHE Number	NC40SW 1.00
HER Number	
Status	Non-Designated Asset
Easting	243930
Northing	901500
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4865/

Early Medieval Carved Stones Project
Cladh a Chnocain, Sutherland, cross-slab
Measurements: H 1.22m, W 0.48m
Stone type: schist
Place of discovery: NC 4393 0150
Present location: in the graveyard lying on a nineteenth-century grave.
Evidence for discovery: recorded in the 1900s in the graveyard, which is near the confluence of the Tutim Burn with the River Oykel.
Present condition: good.
Description
The slab bears a pecked outline cross with a long shaft and rounded armpits.
Date: eighth or ninth century.
References: RCAHMS 1911, no 93.
Compiled by A Ritchie 2016

(NC 43930150) Cladh a Chnocain (NAT)
OS 6"map, (1967)
An old burial ground containing a pre-medieval cross slab and presumably the site of the 'kirk' mentioned by Pont as existing at Knockan about 1600. The slab of schist, covers a modern grave in the NW corner of the burial ground and measures 4' by 1'7". The incised cross, 3' long, is of the plain, long-shafted, Celtic type with expanded terminals and hollowed 'armpits'.
W Macfarlane 1906; RCAHMS 1911.
There is no trace and no local knowledge of a church or chapel within Cladh a'Chnocain (name verified), which is still in use.
The dressed cross slab as described by RCAHMS (RCAHMS 1911) lies loose on the grave of John Thomson (died 1887), the cross being on the underside.
Surveyed at 1:10 000.
Visited by OS (J B) 22 September 1976.
The burial ground is shown as an enclosure on the 1st edition of the OS 6-inch map (Sutherland 1878, sheet ci) and is similarly depicted on the current edition of the OS 1:10,000 map (1990).
Information from RCAHMS (SAH) 27 November 1995

Field Visit (30 June 1909)
RCAHMS County Inventory: Sutherland
93. Sculptured Cross, Tutim.

In the NW. corner of the old grave- yard which stands on the top of a bank some 300 to 400 yards E. of the shepherd's house at Tutim, in Strath Oykell, is a slab covering a modern grave. It is of the native schist, 4' long by 1' 7" broad, and has incised on its surface a plain long-shafted Celtic cross, with the arms expanded to the extremities and the angles at the intersections hollowed. The ends of the arms are straight, and the base of the stem is rounded. The full length of the cross is 3', the breadth across the arms 1' 6", and the width of the shaft 5"; the arms are 8" in length, and expand from 4" to 5" in breadth.
OS 6-inch map: Sutherland Sheet ci.
RCAHMS 1911, visited (AOC) 30th June 1909.

Field Visit (1 March 2011 - 3 March 2011)
Duchally and Rosehall Balnagown Estate, Creich, Sutherland Proposed New Native Woodland Planting Archaeological Survey
The burial ground is enclosed by a drystone dyke, and there is no indication that it extended further than the enclosed rectangular area. As this site is well recorded and was not investigated in detail.
Information from Catherine Dagg (Highland Archaeological Services) 1 April 2011. OASIS ID: highland4-101460

Asset/Event Number	12
Asset/Event Name	EASTER TURNAIG
Type of Asset/Event	TOWNSHIP (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 11.00
HER Number	
Status	Non-Designated Asset
Easting	240100
Northing	900200
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4867/ Archaeology Notes NC40SW 11 401 002 NC 398 003 Loch Thurnaig. A depopulated site of approximately six acres, two-thirds of which is strip cultivation. The house sites vary from 10ft to 30ft square, grouped, on raised banks, about two streets which converge into a square. There is a ditch surrounding them, possibly in case of river flooding. T C Welsh 1968. Welsh seems to have amalgamated the two depopulated sites of Wester and Easter Turnaig in his description. At Wester Turnaig (NC30SE 2) are two houses with outbuildings and steadings, and a large area of strip cultivation. At Easter Turnaig (NC 401 002) is a larger group of apparently older houses and enclosures, some square. Neither site is surrounded by a ditch, though they both occur on old river terraces with drainage ditches in their vicinity. Visited by OS (AA) 22 August 1974.

Asset/Event Number	13
Asset/Event Name	AN SGREADAN
Type of Asset/Event	FARMSTEAD (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 12.00
HER Number	
Status	Non-Designated Asset
Easting	243200
Northing	900600
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/4868/ NC40SW 12 432 006 Remains of farmstead on N side of track. T C Welsh 1968.

Asset/Event Number	14
Asset/Event Name	STRATH OYKEL
Type of Asset/Event	BUILDING(S) (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 13.00
HER Number	
Status	Non-Designated Asset
Easting	243200
Northing	901100
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4869/ NC40SW 13 432 011 Centred NC 432 011 Unnamed depopulation. W Roy 1747-55. Footings of five buildings. Visited by OS (WDJ) 3 April 1963. An unroofed building is depicted on the 1st edition of the OS 6-inch map (Sutherland 1879, sheet ci), but is not shown on the current edition of the OS 1:10,000 map (1990). Information from RCAHMS (SAH) 22 September 1995

Asset/Event Number	15
Asset/Event Name	STRATH OYKEL
Type of Asset/Event	BATTLE SITE (15TH CENTURY)
Date and/or Period	Medieval
Listing No./NRHE Number	NC40SW 14.00
HER Number	
Status	Non-Designated Asset
Easting	240000
Northing	900000
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/4870/ NC40SW 14 unlocated. see also NG94SW 4. The Mackays defeated the Rosses in a skirmish at Allta-charrish in Strath Oykel about 1475. (Allt a' Charrish not located; Strath Oykel, name centred NC 4200). J Mackay 1897.

Asset/Event Number	16
Asset/Event Name	TUITEAM TARBHACH
Type of Asset/Event	BATTLE SITE (14TH CENTURY)
Date and/or Period	Medieval
Listing No./NRHE Number	NC40SW 15.00
HER Number	
Status	Non-Designated Asset
Easting	243600
Northing	901400
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4871/ NC40SW 15 436 014 Tuiteam Tarbhach is said to mean 'the abundant fall', and to commemorate the slain of a skirmish between the Mackays and the MacLeods about 1400 in which the Mackays were victorious. J Mackay 1896. Probably a defended site, though perhaps not a motte.

Letter from R E Kirby, Dahl House, Polloch to OS, 10 December 1978.

Tuiteam Tarbhach is a turf-covered natural knoll with an early modern rectangular enclosure occupying its flattened summit. There is no evidence of artificial scarping.

Visited by OS (NKB) 23 June 1980.

Asset/Event Number	17
Asset/Event Name	AN DUN, DOUNE
Type of Asset/Event	BROCH (IRON AGE)(POSSIBLE)
Date and/or Period	Prehistoric
Listing No./NRHE Number	NC40SW 2.00
HER Number	
Status	Non-Designated Asset
Easting	244450
Northing	900850
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/4873/

NC40SW 2 4445 0085.
(NC 44370084) An Dun (NR) (site of supposed Pictish Fort).
OS 6"map, Sutherland, 2nd ed., (1875)
The site of a 'doune' on a small knoll. The stones have been removed for building purposes except for 'a part of the base which is grown over and now resembles the rocky ground around.'
Name Book 1875.
The summit of the natural knoll about 18m in diameter and disturbed by turf-covered stones and an old field wall which crosses it from north to south. The site is a likely one for a broch, but no trace of any structure can be seen.
Visited by OS (W D J) 3 April 1963.
The site of the possible broch, as described in the previous field report, is at NC 4445 0085. No name is known locally.
Visited by OS(J B) 21 September 1976.

Field Visit (10 September 1943)
RCAHMS Emergency Survey (Archaeology)
This site was recorded as part of the RCAHMS Emergency Survey, undertaken by Angus Graham and Vere Gordon Childe during World War 2. The project archive has been catalogued during 2013-2014 and the material, which includes notebooks, manuscripts, typescripts, plans and photographs, is now available online.
Information from RCAHMS (GF Geddes) 4 December 2014.

Publication Account (2007)
Euan W Mackie Broch Corpus 2
NC40 3 AN DUN
NC/ 4445 0085
This possible broch in Kincardine stands on a small knoll (visited Oct. 1984). Most of the stones have been taken away but in 1875 part of the circular wall base was apparently visible [1]. Nothing can be seen now although the situation is a likely one for a broch [1].
Source: NMRS site no. NC 40 SW 2.

E W MacKie 2007

Archaeological Evaluation (21 March 2011 - 20 May 2011)
Desk-based assessment and trial trenching evaluation were undertaken at Doune, Strath Oykel, Sutherland to establish the nature of a recorded archaeological feature which could be affected by the construction of a house. Archaeological evidence was discovered but its extent is limited and its nature is unclear. It is recommended that the archaeological area should either be preserved in situ, or recorded fully if removal is unavoidable.
Information from OASIS ID: highland4-101448 (J Wood) 2011

Asset/Event Number	18
Asset/Event Name	GARBH LEATHAD
Type of Asset/Event	CLEARANCE CAIRN(S) (PERIOD UNASSIGNED), HUT CIRCLE (PREHISTORIC)
Date and/or Period	Prehistoric
Listing No./NRHE Number	NC40SW 5.00
HER Number	
Status	Non-Designated Asset
Easting	242410
Northing	901140
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4876/ NC40SW 5 4241 0114. At NC 42410114 situated on a false crest is a hut circle measuring 8.0m SE-NW by 6.5m within a slight earth and stone wall of 2.0m average spread, with a simple entrance in the SE. The area surrounding the hut has a few clearance heaps upon it, but the ground is still of a very stony nature. 200 metres to the N, a small area of clearance heaps and cleared ground is possibly associated with the hut. No measurable plots were noted. Surveyed at 1:10 000 Visited by OS (J B) 22 September 1976.

Asset/Event Number	19
Asset/Event Name	STRATH OYKEL
Type of Asset/Event	CLEARANCE CAIRN(S) (PERIOD UNASSIGNED), HUT CIRCLE(S) (PREHISTORIC)
Date and/or Period	Prehistoric
Listing No./NRHE Number	NC40SW 6.00
HER Number	
Status	Non-Designated Asset
Easting	243100
Northing	901400

Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4877/ NC40SW 6 431 014. Centred at NC 431014 on an undulating SE-facing slope is a settlement of three hut circles ('A'-'C'). 'A' is oval and measures 11.5m E-W by 10.0m internally within an ill-defined, peat-obscured wall spread to 2.5m. Part of the S, arc has slipped away. The entrance is in the E. 'B' is the best-preserved hut, and has been built onto a small hillock. It is 7.0m in diameter within a wall of 2.0m average spread widening slightly at the entrance in the E. At the entrance there is a build ip of material possibly natural, suggestive of a 'causeway'. 'C' is set into the hill in the N where the arc has been obscured by earth-slip and measures 8.0m in diameter within a wall spread to 3.0m. The entrance is in the S where a section of the wall has been mutilated. The associated field system of 6 hectares consists generally of widely scattered clearance heaps with small concentrations occurring in places; occasional lynchets are visible. No measurable plots were seen. Surveyed at 1:10 000. Visited by OS (J B) 22 September 1976.

Asset/Event Number	20
Asset/Event Name	STRATH OYKEL
Type of Asset/Event	CAIRN (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 7.00
HER Number	
Status	Non-Designated Asset
Easting	242740
Northing	900990
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4878/ NC40SW 7 4274 0099. At NC 4274 0099, on a low rise overlooking the flood-plain of the Oykel, is a heather-covered stone mound; probably a burial cairn. It measures 6.5m E-W by 5.5m N-S, and survives to a height of 0.9m, though it has been robbed possibly to build a shieling 7.0m to the east. On the south arc are three large slabs 0.5m high, which may be displaced kerbstones. Surveyed at 1:10 000. Visited by OS (J B) 1 September 1976.

Asset/Event Number	21
Asset/Event Name	ALLTAN LEACACH
Type of Asset/Event	FINDSPOT, BOWL (STONE)
Date and/or Period	
Listing No./NRHE Number	NC40SW 8.00
HER Number	
Status	Non-Designated Asset
Easting	242000
Northing	900000
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4879/ NC40SW 8 42 00 A large sandstone pebble, 5.6ins by 5ins by 2.5ins deep, with an oval hollow, 3.2ins by 2.9ins by 1.4ins, pecked out of one face, from Strathoykel (NC 4200) is in Dunrobin Museum. (Accession no X 62). Information from A Henshall (TS catalogue of Dunrobin Museum, 1966.

Asset/Event Number	22
Asset/Event Name	GOB NA FOIDE
Type of Asset/Event	HEAD DYKE (POST MEDIEVAL), TOWNSHIP (PERIOD UNASSIGNED)
Date and/or Period	Post-Medieval
Listing No./NRHE Number	NC30SE 8.00
HER Number	
Status	Non-Designated Asset
Easting	238600
Northing	900200
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/89622/ Note RCAHMS First Edition Survey Project A small township comprising, one roofed, one partially roofed and one unroofed building, two unroofed structures, four enclosures and a head-dyke is depicted on the 1st edition of the OS 6-inch map (Ross-shire 1881, sheet x). A row of cottages and a roofed building is shown on the current edition of the OS 1:10,000 map (1990). Information from RCAHMS (AKK) 28 September 1995.

Asset/Event Number	23
Asset/Event Name	WESTER TURNAIG
Type of Asset/Event	TOWNSHIP (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC30SE 2.00
HER Number	
Status	Non-Designated Asset
Easting	239200
Northing	900300
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4746/ NC30SE 2 392 003 NC 398 003 Loch Thurnaig. A depopulated site of approximately six acres, two-thirds of which is strip cultivation. The house sites vary from 10ft to 30ft square, grouped, on raised banks, about two streets which converge into a square. There is a ditch surrounding them, possibly in case of river flooding. T C Welsh 1968. Welsh (T C Welsh 1968) seems to have amalgamated the two depopulated sites of Wester Turnaig, at NC 392 003, and Easter Turnaig (NC 401 002 - see NC40SW 11) in his description. At Wester Turnaig are two houses with outbuildings and steadings, and a large area of strip cultivation. The site is not surrounded by a ditch, though it does occur on an old river terrace with drainage ditches in the vicinity. Visited by OS (AA) 22 August 1974. NC 393 004 Aldmatt. W Roy 1747-55,

Asset/Event Number	24
Asset/Event Name	TUITIM BURN
Type of Asset/Event	BUILDING (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 10.00
HER Number	
Status	Non-Designated Asset
Easting	243600
Northing	901600
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/4866/

NC40SW 10 436 016

Centred NC 435 015: Knockan (deserted)

Roy 1747-55, 35/4

No buildings appear to be marked on Roy's map (sheet 35/4) at this location, nor is there any evidence of cultivation.

An unroofed building is depicted on the 1st edition of the OS 6-inch map (Sutherland 1879, sheet ci), but it is not shown on the current edition of the OS 1:10,000 map (1990).

Information from RCAHMS (SAH) 22 September 1995

Asset/Event Number	25
Asset/Event Name	LANGWELL, TOR A' CHORCAIN
Type of Asset/Event	DUN (PERIOD UNASSIGNED), FORT (PERIOD UNASSIGNED), VITRIFIED STONE (PERIOD UNASSIG
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 3.00
HER Number	
Status	Event
Easting	241040
Northing	900888
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/4874/

NC40SW 3 41040 00888
NC 4104 0084. On Torr a' Chorcain, a prominent knoll rising some 100' above the floodplain of the River Oykell, are the remains of a vitrified fort, and a small circular vitrified dun.
The dun occupies the highest part of the knoll, the SW end, the measures 11.0m in internal diameter. The walling, now turf-covered and spread to a width of 9.0m, is heavily vitrified on the N and S, and on both sides of the entrance, which is in the E. The original width of the walling was probably about 4.0m.
The dun is enclosed within, and clearly overlies, part of the ruins of a vitrified fort which occupies the whole of the knoll and measures 120m NE-SW by 80m transversely. The fort defences consist of a scarping of the lower slopes of the knoll on the N and S, and much-robbed stone wall around the top of the knoll in which traces of vitrified material can be seen. There are no defences around the W side which falls away steeply to the river. The entrance is in the NE side.
The site is of some interest because (i) the only other known, small, timber-laced dun, is the example at Rahoy, Argyllshire, excavated by Childe (V G Childe and W Thorneycroft 1938), and (ii) the relationship of the dun and fort may provide a link in the problem of the evolution of the broch.
Surveyed at 1:2500.
Visited by OS (N K B) 23 November 1966.
V G Childe and W Thorneycroft 1938.
Partial excavation by Miss Nisbet in 1973 and 1974 was concentrated mainly on the dun but a section across the inner rampart of the fort showed that the existing feature consisted largely of upcast from stone-robbing overlying at least two occupation levels. Neither vitrification in situ nor evidence of timberlacing was found. Both beneath and outside the dun there were traces of occupation including ironworking. The dun was confirmed as being a timberlaced construction. It has a diameter of 15.5m within a wall 5.0m thick, standing to a height of over

2m internally, faced with well-coursed slabs and infilled with waterworn stones which show a core of vitrification. The entrance, 2m wide, flanked by post holes and floored with logs has a guard chamber on its left. Internally a ring of about fourteen stout posts set at a distance of 4.5m from the wall had supported a roof of timber, turf and twigs probably open in the centre. A wooden ramp or gangway had run up the hillside to the entrance, to be continued in the interior as a turf ramp. Two phases of occupation before the fire which caused the vitrification, and one after it could be determined. The last involved internal levelling of the debris from wall and re-roofing using new posts. Radio carbon dates for the dun give a range from 10 BC to 440 BC, but two samples taken from one roof timber give over-lapping dates of 210 to 290 BC. The only finds from the excavation, besides whetstones and other simple stone tools, were an iron knife blade and two stone beads. There was no pottery. A midden lies outside the dun entrance on the right.
H C Nisbet 1973; H C Nisbet 1974.
The vitrified dun, and the fort, probably not vitrified, are as described by Nisbet.
Revised at 1:10,000.
Visited by OS (J B), 1 October 1976.

Excavation (1973 - 1974)
Partial excavation by Miss Nisbet in 1973 and 1974
Source: H C Nisbet 1973; H C Nisbet 1974.

Publication Account (2007)
Euan W Mackie Broch Corpus 2
NC40 4 TOR a' CHORCAIN ('Lang-well')
NC/4104 0088
This vitrified dun or massive round-house (of broch-like proportions and stand-ing on top of an earlier hillfort) is included here because it may be an example of how a broch-like structure –in the sense that it is a complex wooden roundhouse protected by a ponderous shell wall of stone – has evolved from quite a different pedigree. The site is on high ground overlooking Strath Oykell and its river and with wide views up and down it (visited during the excavations in 1974).
Excavations were carried out on the dun by Helen Nisbet in 1973 and 1974 [4]. A single trial trench into the west flank of the hillfort failed to reveal any vitrification but located two occupation layers under fallen rubble. Signs of the hillfort occupation – with a few artifacts such as stone rubbers, hones and a few pounders – were also noted at the base of some post-holes and elsewhere.
The excavator gives a fairly detailed account of the likely structure of the timber-framed wall, and also discusses the wider significance of the site [4,inc. Appendix]. Here however, after a brief description of the wall and entrance, we will concentrate on the primary wooden roundhouse, traces of which were found in the central court of the 'dun'. The fact that only about half of the interior was excavated is to be explained by the concentration of the work on sectioning the vitrified wall, a huge task [4, pls. 5 and 6]. The project was paid for by the late Mr S P Fay of Los Angeles who was interested primarily in the phenomenon of vitrification.
1. Situation
The dun stands on the higher, western summit of the hill and on top of the remains of the hillfort defences. Heavy vitrification was visible before work started. The structure was found to be almost circular in plan with an entrance facing east, an internal diameter of 15.0-15.5m and a wall averaging 5.0min thickness; the inner face of this still stood in places to a height of over 2m above the primary floor. On the basis of the quantity of rubble lying about the original height was estimated at about 3-4 m.
2. Description
The dun wall
The inner and outer faces were of well-coursed slabs, with a core of roughly laid water-worn cobbles having a central spine of solid vitrified stone. The original presence of some kind of timber-framing inside the wall was proved by the finding of beam holes containing charcoal. The burning of such a drystone wall laced with wooden beams is usually supposed to have produced the vitrified masses in the wall core [5].
The entrance passage
The stone walls of the entrance passage were 2.50m apart and the floor had been paved with transverse logs. Massive upright posts – four on the south or left (with a fifth in line with them just inside the dun) and three on the right – had been partly set into the wall (in vertical post

slits) and must have supported a massive wooden entrance tunnel, presumably with some kind of tower on top and a wooden gate (no stone door-checks were found). The posts were presumably set in place before the stone walling was built and the excavator thought that they were likely to have been fastened to the timber framework in the wall core. There were signs that some of the posts had been pulled out, and the timber entrance presumably destroyed, before the burning and vitrification of the wall. No traces of stone lintels roofing the passage seem to have been found so doubtless the entire entrance structure was of wood; presumably this was connected with a fence or palisade which ran round the top of the wall near its front edge.

The guard cell

in the left wall of the passage is the opening to a mural chamber or guard cell, the upper part of the wall of which had vitrified; this had caused a slump of once-molten rock into the room itself. The chamber was 3.25m deep and about 2m wide, the entrance being 0.5m wide. There was no sign of corbelling in those parts of the vertical wallface which had survived (up to about 50 cm) below the vitrification. A thin black occupation layer rested on the subsoil and above this was a mass of carbonised logs, presumably the remains of the wooden roof capped with turf.

"The guard cell exhibits in miniature the entire vitrification process; well-built wallfaces passing upwards and sideways into vitrification, with cracking and bending of the stones, and mobile vitrified material appearing to 'ooze' between them. It leaves no room for doubt that in suitable blanketed conditions, stones do actually melt to give vitrified masses." [4, 56].

The interior

The stratigraphy of the interior provided evidence of a primary occupation on the old ground surface, then a layer of burning with collapsed roof material on top of this and, finally, traces of a secondary occupation on top of the ruins. A level platform with a very irregular surface was built up before the dun wall was constructed, and this was subsequently baked hard by the fire which destroyed the latter.

A ring of wooden posts was set up in the area enclosed by the dun wall, at a distance of about 4.0m from it; eight post-holes were actually exposed and the original total was probably fourteen. The holes were about 50cm deep but the size of the posts they contained was not estimated. The ring would have been about 8.5m (27.9ft) in diameter and must surely have supported the mid point of the roof rafters, the outer ends of which were presumably on the wallhead. No scarcement was found on the remaining inside wallface but if there was a raised wooden floor also attached to the posts these would surely have been attached to some of the beams which doubtless projected from the wall core.

However the burnt roof debris (below) formed a relatively thin layer and there was an absence of burned timbers from the central area of the floor which made the excavator think that the roof might have been a lean-to affair, with the middle of the floor having been left open to the sky.

Despite the uneven surface of the foundation platform the inhabitants seem to have lived on this, and a thin occupation layer, also baked hard, was found. However there were no artifacts inside "and there was a complete lack of evidence for normal domestic activities." [4, 60]; the interior had evidently been kept clean. Not a single sherd of pottery was found. There were some stone slab settings in this floor which might have been small hearths but one would normally expect a large central hearth inside a roundhouse of this size. It is possible that there was one which was not uncovered; the excavated areas could just have missed it, as they did at first at Rhiroy (NH19 3).

Traces of occupation were also found outside the dun and there was a distinct accumulation of midden material on the slope outside the entrance, which contained many fragments of the bones and teeth of sheep and cattle.

A layer of what appeared to be burned and collapsed roof material lay all over the outer part of the floor in the interior, forming a network of charred timbers, twigs and burnt turf. The charred stumps of several of the posts were found in position in their sockets. Between these posts and the wall lay a roughly radial pattern of fallen roof timbers mixed with turf, and the absence of such debris from the central area suggests, as noted, that the roundhouse had an annular, lean-to roof with a clear middle part.

There was evidence of two phases of occupation on top of the burned strata in the interior, implying that people continued to live there after the destruction and vitrification of the wall. The floor had first been levelled up with available rubble and debris which had fallen from the walls. Part of the interior at least was then apparently re-roofed using fresh posts, and occupation continued for some time thereafter (there are more details of this later habitation

in the report).
3. Dating
Radiocarbon dates
A set of five C-14 dates was obtained for burnt material. No. 1 was for charcoal from a large post-hole at the entrance to the guard chamber; no. 2 for charcoal from the foundation course of the inner face of wall; nos. 3-5 are all for charcoal from a fallen roof timber. It was observed that the roof timbers tended to be full of beetle holes, suggesting re-used wood, whereas the post-hole timbers were not. In the absence of any indication of how the dated fragments related to the start of the growth of the trees concerned one can only assume that the C-14 dates relate to a time a little before the cutting of the timbers for use in the building.
1. GaK 4860 2210 +/- 90 (260 bc)
2. GaK 4862 2240 +/- 90 (290 bc)
3. GaK 4861 2200 +/- 100 (250 bc)
4. GX 3274a 1040 +/- 210 (ad 1010)
5. GX 3274b 2040 +/- 140 (90 bc)
Table of uncalibrated radiocarbon dates obtained for Langwell. No. 5 was obtained after no. 4 had been received.
Although the reliability of the early Gakushuin laboratory dates (GaK) has been questioned the three from that laboratory are reasonably consistent and match the second Geochron date well. There is no obvious explanation for the first Geochron (GX) date being so much later. Broadly speaking the four consistent dates, when calibrated, suggest that the timber-framed dun was built at some time during the 3rd or the 2nd centuries BC [4, fig. 10].
Thermoluminescence dates
After the excavation was completed Sanderson and others obtained a number of TL dates for several vitrified forts including Langwell [6]. One would expect that such dates, being performed on the vitrified material itself, would give an indication of when the stone was last heated – that is, when the dun was destroyed by fire. The date for Langwell has a mean age of AD 205 which suggests that the site was in use for several centuries. However other dates from vitrified forts vary wildly from the equivalent C-14 dates [6, 7] so caution over the interpretation of this one seems advisable.
4. Discussion
in many ways the size, shape and internal wooden structure of Tor a' Chorcain resemble those of a hollow-walled broch far more closely than, for example, the drystone roundhouse at Buin Orkney (ND20 3), and the site provides an interesting case study of how some form of complex, and perhaps two-storeyed, wooden roundhouse – enclosed by a strong defensive wall – emerged from the timber-framed hillfort tradition in the 3rd or 2nd centuries BC. However the internal diameter is, at 15.4m, very large and raises the question of whether it would have been possible roof such a structure completely.
5. Finds
There were large numbers of whetstones and hones, and also pebble hammerstones and grinders, all over the site and in all levels; most of these stone tools are now at Langwell Farm. Other finds were extremely sparse. It is not entirely certain what the 'scoop' is, or what 'hand mortars' are.
From the primary occupation levels came 15 hones and whetstones, 3 sling-stones, 7 rubbing stones, 1 scoop, 1 quartzite strike-a-light, 1 bone bead (from the floor of the guard cell), and an unidentified iron object.
From the destruction debris came 28 hones and whetstones, 3 sling-stones, 8 rubbing stones, 2 hand mortars, 7 pounders and a well-preserved iron blade [4, fig. 9).
From the secondary occupation layers came 11 hones and whetstones, 1 sling-stone, 26 rubbing stones, 4 hand mortars, 3 scoops, 1 pounder and a polished ring-bead of green serpentine.
In the topsoil outside the dun was found a fragment of a shale bracelet [4, fig. 9.1).
Dimensions (taken from the plan)
Overall diameter about 25.7m (84ft 3in), internal diameter about 15.4m (50ft 6in), wall proportion about 40%. This is a very large roundhouse by broch standards; Mousa in Shetland (HU42 6), for example, could just about fit inside it.
Sources: 1. NMRS site no. NC 40 SW 3: 2. H. Nisbet in Discovery and Excavationin Scotland 1974, 59-60: 3. H Nisbet in do., 1973, 48-49: 4. Nisbet 1996: 5. MacKie 1977: 6. Sanderson et al. 1988: 7. Alexander 2002: 8. Church 2002, 74-5.
E W MacKie 2007

Project (15 December 2010 - 1 April 2011)
NC 4329 0228 and NC 3856 1595 A desk-based assessment and walkover survey were carried out, 15 December 2010–1 April 2011, in advance of a native woodland planting scheme. The scheme consists of five planting areas. Areas 1–3 centred on Dalnaclave (NC 3856 1595) and areas 4–5 centred on Carn Beag, Rosehall (NC 4329 0228). The survey covered a c815ha area and the land ranged in height from 16m above sea level at Rosehall to 260m N of Dubh Coille. The desk-based assessment identified two scheduled ancient monuments, Croich Broch (NC 4116 1121) and Langwell Fort and Dun (NC 4104 0084), whilst the survey identified land use features, which predated the sheep and deer forest. A number of features were marked out and exclusion zones defined. The protection of features from the effect of regenerating vegetation will be in included in any management plan.
Archive: RCAHMS
Funder: CKD Galbraith
Highland Archaeology Services, 2011

Note (3 February 2015 - 25 November 2016)
Atlas of Hillforts of Britain and Ireland
This fortification occupies the summit of a steep-sided hillock overlooking the right bank of the River Oykell to the W of Langwell. The defences comprise two elements: a circular dun with a heavily vitrified wall at the W end of the crest; and a larger fort that takes in the whole of the elongated crest of the hillock. The dun, which overlies the inner wall of the fort, measures about 15m in diameter within a wall 5m in thickness and standing some 2m high internally, with well-built faces encasing the heavily vitrified core; its entrance is on the E and has a guard chamber. Excavations carried out by Helen Nisbet 1973-4 revealed a complex history of occupation of the dun both before and after the fire that partly destroyed the wall. The defences of the fort comprise three circuits, the inner two marked by thin bands of rubble and the outer by a marked scarp, a cut feature which in places develops into a ditch with a counterscarp bank. The interior measures about 80m from ENE to WSW by about 24m transversely (0.15ha), taking in both the low summits on the crest of the hillock. There was probably an entrance on the S, though the outer circuit is unbroken on this flank, but there is also evidence of an entrance through the middle wall at the ENE end, though the depiction of the wall with hornworks on the plan published by Nisbet is ambiguous (1994, 53, fig 2). Nisbet sectioned the inner wall on the S, not only showing that it had been heavily robbed, but that the rubble overlay 'at least two occupation horizons' (1994, 51), indicating that the defences themselves may represent several periods of construction. The main finds from the excavations were a hones and hammerstones, but a serpentine bead, a bone bead and an iron knife blade were found, while a fragment of shale bracelet came from outside the dun. The only radiocarbon dates are now old dates, probably indicating that the dun belongs in the last quarter of the 1st millennium BC, while the attempt to date the destruction of the dun by thermoluminescence should be discounted.
Information from An Atlas of Hillforts of Great Britain and Ireland – 25 November 2016. Atlas of Hillforts SC2780

Asset/Event Number	26
Asset/Event Name	STRATH CUILEANNACH
Type of Asset/Event	BRACELET (BRONZE)
Date and/or Period	
Listing No./NRHE Number	NH49NW 1.00
HER Number	
Status	Non-Designated Asset
Easting	240800
Northing	896100

Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/82855/
	NH49NW 1 408 961.
	NH 408 961 Single piece annular copper alloy Bronze Age bracelet found during forestry planting; now in Inverness Museum (NVMG 1993.010).
	R Hanley 1993e.

Asset/Event Number	27
Asset/Event Name	TUITEAM TARBHACH
Type of Asset/Event	FARMSTEAD (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 17.00
HER Number	
Status	Non-Designated Asset
Easting	243500
Northing	901400
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/89647/
	RCAHMS First Edition Survey Project
	A farmstead comprising one unroofed and two roofed buildings and an enclosure is depicted on the 1st edition of the OS 6-inch map (Sutherland 1879, sheet ci). Two roofed buildings are shown on the current edition of the OS 1:10,000 map (1990).
	Information from RCAHMS (SAH) 22 September 1995

Asset/Event Number	28
Asset/Event Name	LANGWELL
Type of Asset/Event	FARMSTEAD (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 18.00
HER Number	
Status	Non-Designated Asset
Easting	241500
Northing	900900
Parish	HIGHLAND

Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/89651/ Note RCAHMS First Edition Survey Project A farmstead comprising eight roofed and one unroofed building, one enclosure and a field-system is depicted on the 1st edition of the OS 6-inch map (Ross-shire 1881, sheet xi). Ten roofed buildings and the fields are shown on the current edition of the OS 1:10,000 map (1990). Information from RCAHMS (SAH), 27 September 1995.

Asset/Event Number	29
Asset/Event Name	BRAE
Type of Asset/Event	TOWNSHIP (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 19.00
HER Number	
Status	Non-Designated Asset
Easting	243600
Northing	900900
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/89652/ Note RCAHMS First Edition Survey Project A township comprising sixteen roofed and one unroofed building, and two enclosures is depicted on the 1st edition of the OS 6-inch map (Ross-shire 1881, sheet xi). Seven roofed and one unroofed building of two compartments are shown on the current edition of the OS 1:10,000 map (1990). Information from RCAHMS (SAH) 27 September 1995

Asset/Event Number	30
Asset/Event Name	AMAT
Type of Asset/Event	HOUSE (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NH39NE 2.00
HER Number	
Status	Non-Designated Asset

Easting	239030
Northing	899990
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/111477/

Asset/Event Number	31
Asset/Event Name	LANGWELL FARM, STRATH OYKEL
Type of Asset/Event	CIST (BRONZE AGE), INHUMATION (BRONZE AGE), ORGANIC MATERIAL (BRONZE AGE), ORGANI
Date and/or Period	Prehistoric
Listing No./NRHE Number	NC40SW 20.00
HER Number	
Status	Non-Designated Asset
Easting	241300
Northing	901040
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/305348/

Excavation (29 August 2009 - 31 August 2009)
NC 4130 0104 The site of a previously excavated cist was investigated by archaeologists from GUARD and NOSAS on 29–31 August 2009. An auger survey revealed that the cist had been set into a curving, naturally raised area of sands and gravels. Profiling of nearby peat deposits, using Kubiena monolith tins, suggests that the course of the river Oykel had at one time run directly alongside this raised area. The underside of the cist top-slab was examined for the first time, but no markings were evident.
No further cists were revealed by the auger survey although it was noted that a substantial concentration of river cobbles may represent the remains of a robbed cairn. Though there was no compelling evidence to suggest other cists were ever present in the vicinity, the possibility does remain that the very stony character of the area may have prevented the identification of any underlying cists. Two environmental bulk samples were taken from deposits that were frozen at the time of the February 2009 excavation and will be included in any future post-excavation work.
Archive: RCAHMS (intended). Report: Highland Council SMR and RCAHMS
Funder: Historic Scotland
Alastair Becket and Jennifer Miller – GUARD

Excavation (6 February 2009 - 12 February 2009)
NC 4130 0104 Parts of an inhumation burial were recovered, 6–12 February 2009, under the provisions of the human remains call-off contract. The tightly flexed burial lay in a substantial stone cist and was discovered by the landowner while clearing peat. Relatively well preserved organic materials, including wood and fur, accompanied the skeleton. The integrity of the burial had been compromised before archaeological intervention by the local police, who had partially cleared the cist of its contents. However, part of the skeleton and some of the accompanying material remained in situ and were recovered. The site of a second possible cist 5m to the S, where large slabs had been removed by the mechanical excavator, was also investigated. This revealed not a cist but an arcing, stone-built feature which sat on an old ground surface sealed by the peat.
Archive: RCAHMS (intended). Report: Highland Council SMR and RCAHMS

Funder: Historic Scotland
Olivia Lelong – GUARD

Asset/Event Number	32
Asset/Event Name	CLADH A CHNOCAIN
Type of Asset/Event	FARMSTEAD(S) (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 24.00
HER Number	
Status	Non-Designated Asset
Easting	243930
Northing	901500
Parish	HIGHLAND
Council	CREICH (SUTHERLAND)
Description	https://canmore.org.uk/site/370514/

Field Visit (1 March 2011 - 3 March 2011)
Duchally and Rosehall Balnagown Estate, Creich, Sutherland Proposed New Native Woodland Planting Archaeological Survey
A pre-afforestation survey recorded a farmstead comprising three possible buildings, an enclosure and turf dykes around Cladh A Chnocain burial ground. At NC 43945 01525, a possible building measuring measuring 10m by 5m and comprsing a levelled platform dug into the slope on the N, is defined by defined by heather-covered banking A bank extends east from the building to NC 43984 01524 and west to meet the stream at NC 43953 01532. To the S a level platform, aligned from N to S, may be a second building. A third buildingd lies to the E at NC 44040 01504. Low footings of a building, measuring 20m in length and 5m in width, occupy a level spur. The building is attached to the NE corner of an enclosure, defined by low turf and rubble dykes, which runs down to the road. A worn path, can be traced running E from the building roughly parallel to the present road, until it drops to join or cross the road at its east end at NC 45390 01450.
Centred on NC 43926 01515 there is an approximately square enclosure, measuring 20m across and defined by low turf banks. The south part of the enclosure appears to be levelled up A modern fence cuts across the north part of the enclosure.
Turf dykes were noted between NC 43900 01518 and NC 43925 01456. A turf and rubble dyke runs south from the modern fence line, curving SE to the road. From a junction at NC 43913 01468 a second, well-defined dyke runs west to the road.
Information from Catherine Dagg (Highland Archaeological Services) 1 April 2011. OASIS ID: highland4-101460, nos.5.3 to 5.7.

Asset/Event Number	33
Asset/Event Name	ROSEHALL, LANGWELL
Type of Asset/Event	NO CLASS (EVENT) (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NH49NW 3.00
HER Number	
Status	Event

Easting	242500
Northing	899700
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/373673/ Field Visit (1 March 2021) NH 425 997–NH 412 989 A desktop and walkover survey was conducted in March 2021 for two areas of proposed woodland of c82 hectares. Work revealed no archaeological features, area being mostly on NE facing slopes. Archive: NRHE Funder: Fountains Forestry Survey Stuart Farrell (Source: DES Vol 22)

Asset/Event Number	34
Asset/Event Name	DOUNE
Type of Asset/Event	MOUND (PERIOD UNASSIGNED)
Date and/or Period	Unknown
Listing No./NRHE Number	NC40SW 21.00
HER Number	
Status	Non-Designated Asset
Easting	244510
Northing	900900
Parish	HIGHLAND
Council	KINCARDINE (SUTHERLAND)
Description	https://canmore.org.uk/site/333225/ Trial Trench (April 2011) NC 4451 0090 A desk-based assessment and trial trenching evaluation were undertaken in April 2011 at Doune. The work aimed to establish the nature of a flat topped mound that could be affected by the construction of a house. An excavation was undertaken of a single trench, measuring c20 x 3m, which had been positioned to cover both edges of the mound. The top of a quarry face created in the 1990s was also investigated. The partial remains of a stone cup were recovered from an unsecure context. It has been recommended that the feature should be fully excavated prior to the start of development and that a search should also be undertaken for further pieces of the stone bowl. Archive: RCAHMS Funder: W Ross Funder: Argyll Developments Scotland Ltd

Highland Archaeology Services, 2011