Tom na Clach Wind Farm Extension

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Scoping Report

March 2021

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Scoping Report

Applicant

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1 Introduction

Background & Context

1.1. The original application for Tom na Clach Wind Farm was submitted under The Town and Country Planning (Scotland) Act 1997 by Nan Clach Limited, a joint venture between Infinergy Limited and the Rt Hon. Earl Cawdor, on 24th June 2009 and refused by the Highland Council (hereafter referred to as 'THC') on 30th August 2010. The applicant appealed the decision and the Scottish Ministers granted planning permission for the 17-turbine (110m tip height) scheme on 14th June 2013.

1.2. Nan Clach Limited considered the findings of the Reporters and, taking into account the period of time which had elapsed since the original application had been submitted, the following considerations influenced thinking at the time:

- a less generous subsidy support mechanism which the operational wind farm could be supported by;
- changes in turbine technology which revolve around increase in turbine blade rotor diameter, an increase in nameplate MW capacity and operational efficiency;
- advances in understanding of on-site wind resource at the site influencing turbine design layout to maximise wind energy capture/yield;
- these considerations led to a redesign which was based on larger turbines, with increased turbine blade rotor diameter, but with greater separation distances between turbines to improve energy capture and use of wind resource.

1.3. Thereby, Nan Clach Limited submitted a second application, named Tom nan Clach, on 27th August 2015, proposing a smaller 13-turbine (125m tip height) scheme. This was subsequently refused by THC on 26th January 2016, and Nan Clach Limited again appealed the decision. Planning permission was granted by the Scottish Ministers on 28th October 2016, following another public inquiry.

1.4. Tom nan Clach Wind Farm (hereafter known as 'the Operational Scheme') officially began to export power to the National Grid in March 2019, the scheme built was that granted planning permission in October 2016.

1.5. Noting the findings by the Reporter from the first public inquiry, the joint-venture partners began exploring the potential for an Extension to Tom nan Clach Wind Farm in 2018, when bird surveys recommenced on site. With an existing purpose-built 9km track access, access to onsite

borrow pits with proven winnable material, grid capacity available and what the Applicant considers the ability of the landscape to absorb an Extension to the operational Tom nan Clach Wind Farm, the decision was taken to progress a planning application.

The Proposal

1.6. Nan Clach Extension Limited (hereafter referred to as the 'Applicant') proposes to submit an application to construct and operate a wind farm to THC. The application will be for the erection of 8 wind turbines and associated infrastructure at Cawdor Estate and Lethen Estate, approximately 8km north-east of Tomatin. The proposal will be known as Tom na Clach Wind Farm Extension (hereafter referred to as the 'Proposed Development'). The general site location is centred on OS Grid reference E286971 N834347, and is illustrated in **Figure 1.0**.

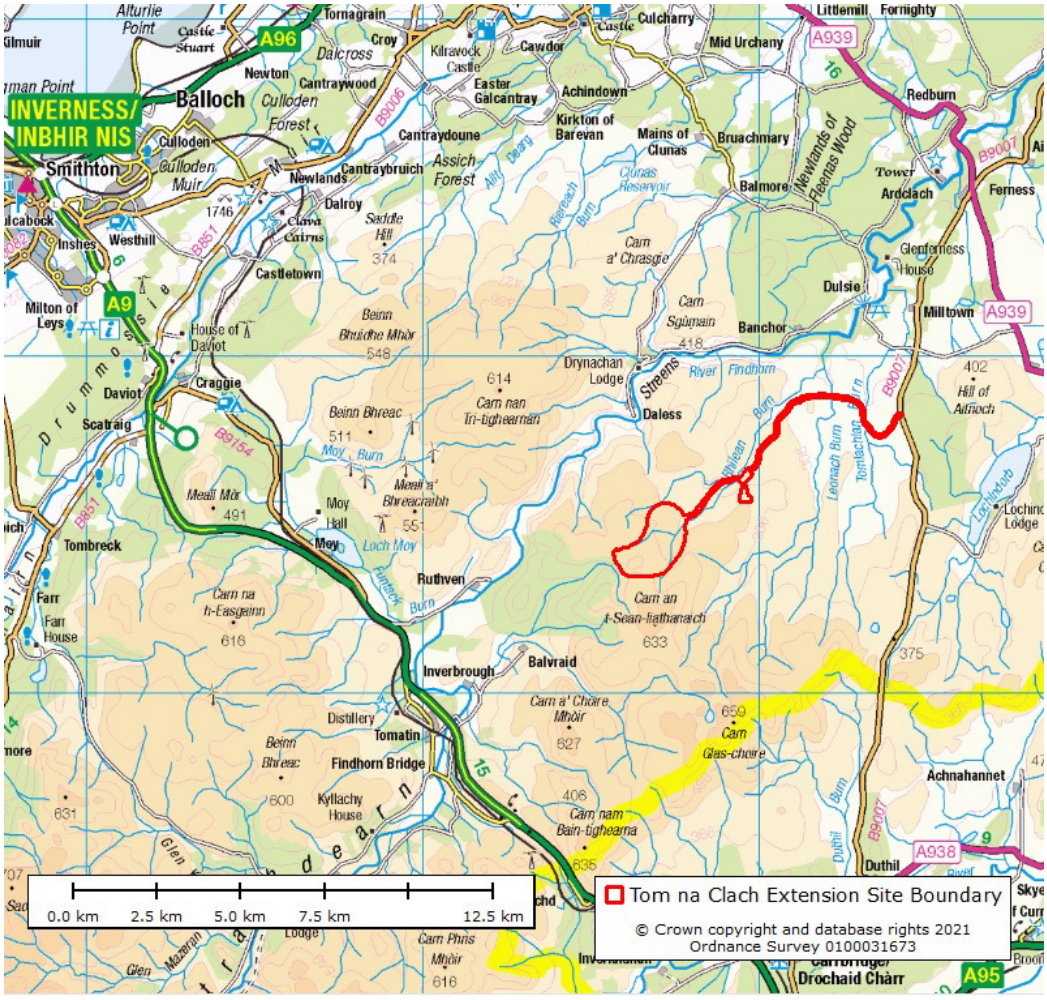

Figure 1.0 Proposed Development Site Location

1.7. The Proposed Development will be an Extension to the Operational Scheme. The combined installed capacity of the two developments (the Operational Scheme *and* Proposed Development) will be more than 50 MW, and so the application for consent and deemed planning permission for the construction, operation and decommissioning of the Proposed Development will be made to the Scottish Government. This report forms the Applicant's written request to the Scottish Government, under Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, for its opinion as to the information to be provided in the Environmental Impact Assessment Report (EIA Report) (a 'Scoping Opinion') for the Proposed Development.

1.8. This document invites statutory consultees and other stakeholders to provide relevant input or environmental information relating to the Proposed Development, the site and the surrounding area. It also seeks comment and confirmation on the adequacy of environmental data required to support the Environmental Impact Assessment (EIA) and assessment methods being proposed to inform the final Environmental Impact Assessment (EIA Report).

1.9. THC Pre-Application Advice Service for Major Development process was utilised, involving THC, NatureScot, SEPA and other consultees; the advice was issued by THC 25th May 2020.

1.10. This report sets out the scope of the EIA for the Proposed Development. The purpose of this Scoping Report is therefore to:

- Outline the consenting and EIA requirements in relation to the Proposed Development;
- Outline the development being considered;
- Outline the aspects of the project that could potentially have significant environmental effects;
- Outline the suggested scope of work/methodologies that will be used to assess the significance of any potential impacts during the EIA;
- Outline the proposed statutory and non-statutory organisations to be consulted during the EIA process; and
- Prepare a proposed contents list for the EIA Report.

The Applicant

1.11. The Applicant is a joint venture between Infinergy Limited and Rt Hon. Earl Cawdor, with Infinergy Ltd acting as the developer. Infinergy is an independent renewable energy company, developing large, medium and small-scale onshore wind and solar PV projects in the UK, The Netherlands and Australia. Infinergy has offices in Wimborne (England),

and in Edinburgh (Scotland). For more information visit www.infinergy.co.uk.

Environmental Impact Assessment

1.12. The EIA Regulations require that before consent is granted for particular types of development, an EIA must be undertaken. The EIA Regulations set out the types of development which must be subject to an EIA ('*Schedule 1*' development) and other developments which may require an EIA if they are above certain thresholds or are likely to give rise to significant environmental impacts ('*Schedule 2*' development), the threshold means therefore the Proposed Development should be screened for EIA.

1.13. The proposed development falls within Schedule 2 (j) Installations for the harnessing of wind power for energy production (wind farms), and requires to be screened for EIA as it exceeds the threshold of (i)the development involves the installation of more than 2 turbines; or (ii)the hub height of any turbine or height of any other structure exceeds 15 metres.

1.15. An EIA is a systematic process which identifies the potential environmental effects which in turn inform the design of a proposal. The process seeks to avoid, reduce, offset or minimise any adverse effects through mitigation. Effects are evaluated over the whole lifecycle of a development including construction, operation and decommissioning.

1.16. Establishing which aspects of the environment are likely to be significantly affected by a particular development is captured through the EIA scoping process. Scoping identifies those aspects of the environment that need to be considered when determining the potential effects of a development. This recognises that there may be some environmental elements on which a development is unlikely to have significant effect and hence where there is no need for further investigation to be undertaken as part of an EIA. The proposed scope of the EIA for the Proposed Development is set out in **Section 4** of this report.

1.15. The EIA methodologies proposed in this scoping report are based on recognised good practice and guidelines specific to each topic area.

1.16 In addition, the EIA Regulations state that cumulative effects should be considered as part of the EIA process. Therefore, it is important to consider the cumulative effects of the Proposed Development alongside other wind energy developments in the area, including those that are currently operational, consented and in planning.

2. Description of the Proposed Development

The Site

2.1 The proposed site (E286971 N834347) is approximately 8km north-east of Tomatin. **Figure 1.0** highlights the Proposed Development Site Location; **Figure 2.0** show the relationship between the consented Tom nan Clach Wind Farm (hereafter referred to as the 'Operational Scheme', see **Appendix B**) and the Proposed Development.

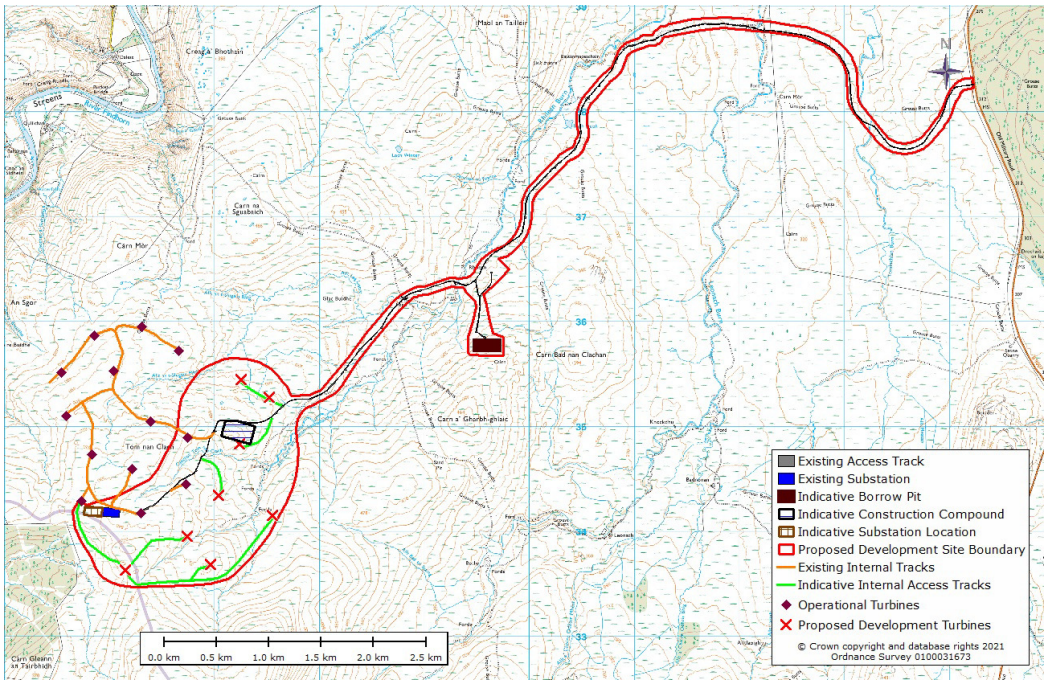

Figure 2.0: The Operational Scheme and Proposed Development

2.2 **Figure 2.0** illustrates the indicative turbine layout, and includes wind farm infrastructure proposed such as the indicative locations of borrow pit, construction compound and sub-station. It is intended that the Proposed Development will share the access track from the B9007 that the Operational scheme provides, and reopening the borrow pit which was used successfully for the Operational Scheme (see **Figure 2.0**, 'Indicative Borrow Pit'). The substation is proposed adjacent to the existing substation for the Operational Scheme, and a construction compound proposed in a location which was the site for another borrow pit for the Operational Scheme.

2.3 Cawdor Estate is managed on a long-term basis primarily for forestry, agriculture, conservation and sustainability. Glenkirk is a commercial forestry plantation. Lethen Estate is managed primarily as a sporting, forestry and agricultural estate (see **Figure 2.1** showing the boundaries of Cawdor Estate and Lethen Estate).

2.4 The proposed site, which incorporates part of Cawdor, Lethen & Glenkirk Estates, extends over approximately 875 hectares of open moorland, comprising regular peat hags (exposed peat erosion), patchy sphagnum bog and intermittent ancient woodland remains, intersected by estate tracks and the location for an operational wind farm.

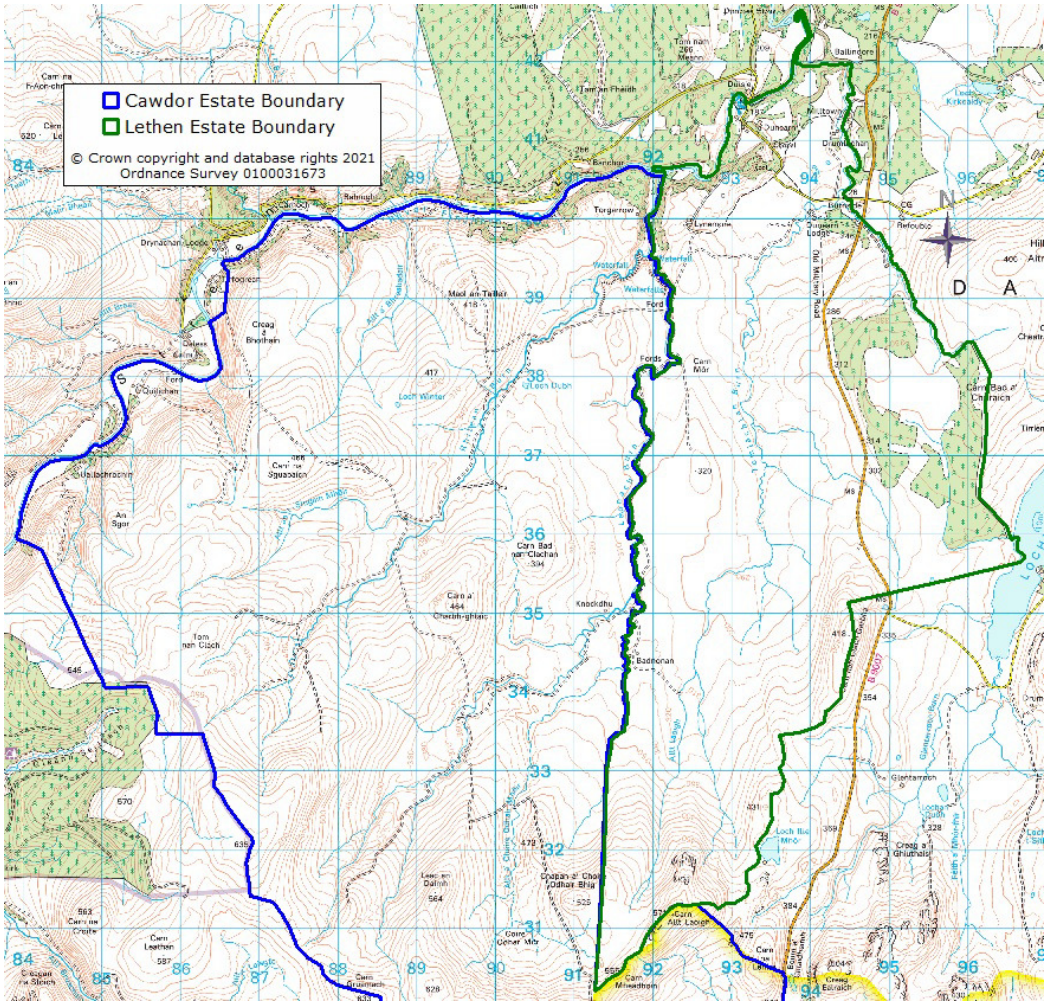

Figure 2.1: Boundaries of Cawdor Estate and Lethen Estate

2.5. The Operational Scheme, on Cawdor and Lethen Estates, lies adjacent to the Proposed Development in the north. The nearest residential property is Ballochrochin, approximately 2.2km to the nearest proposed turbine.

Description of the Development

2.6. The Applicant is proposing to construct and operate a wind farm of approximately 8 wind turbines at Cawdor Estate and Glenkirk. The Proposed Development will utilise the existing access track for the

Operational Scheme. For the purposes of this Scoping Report, it is assumed that the turbines will have a minimum generation capacity of 4.8MW, giving a total installed capacity of at least 38.4MW.

2.7. The main components of the Proposed Development are:

- Up to 8 wind turbines (with a maximum blade tip height of up to 149.9m) with associated infrastructure turbine foundations and hardstandings;
- An onsite network of underground cables linking the turbines to a grid connection;
- A series of onsite access tracks connecting each of the turbine locations to the existing access track;
- An onsite substation and control/maintenance building;
- Temporary works including a construction compound;
- A permanent anemometer mast to measure wind speed and wind direction;
- On-site borrow pit/s; and
- A battery storage array.

2.8. The wind farm will make as much use of the existing infrastructure, which includes the purpose-built access track for the Operational Scheme and reopening a borrow pit that was used which has proven winnable material.

2.9. **Figure 2.0** illustrates the proposed turbine layout; while **Appendix A** provides a grid reference for each turbine location.

2.10. The EIA Report will include a detailed description of all the wind farm components. It is recognised that throughout the EIA process, the number, tip height and/or layout of the turbines may change due to emerging technical, financial and environmental constraints.

Access

2.11. Site access will be required for the delivery of turbine components, construction materials and plant, and for general construction and maintenance traffic. Access to the Proposed Development will be via the Operational Scheme, where a purpose-built access track has been built directly connecting the B9007.

2.12. The abnormal load route for the delivery of turbine components to the Proposed Development is anticipated to run from Port of Inverness, which will follow the delivery route for the Operational Scheme. It is expected that the Proposed Development will be based on a turbine with a larger blade compared to the Operational Scheme, and swept

path analysis will be completed determining where any upgrades will be required to accommodate the delivery of the turbine components.

Grid Connection

2.13. The Proposed Development will be connected into the local transmission network at 33kV. The Applicant is in discussion with the local Network Operator (SHETL). As the grid connection will likely be developed by SHETL, the connection to the electricity transmission network falls under a separate application process and will be subject to a separate consent.

Construction

2.14. The construction of the Proposed Development would be expected to take approximately 18 months, but this would, to a certain extent, depend on weather conditions and ecological considerations.

2.15. The construction process will consist of the following principal activities:

- Construction of temporary construction compound;
- Import of construction materials;
- Construction/upgrade of on-site access tracks interlinking the turbine locations and the control building, incorporating relevant works to maintain site hydrology and manage surface water run-off;
- Construction of turbine foundations;
- Construction of control building;
- Excavation of trenches and cable laying adjacent to on-site access tracks;
- Connection of electrical distribution and signal cables;
- Movement onto site and erection of wind turbines;
- Commissioning of site equipment; and
- Site Restoration.

2.16. Many of these operations will be carried out concurrently, although predominately in the order identified, which will minimise the overall length of the construction programme.

Site Restoration

2.17. Site restoration will be programmed and carried out to allow the restoration of disturbed areas as early as possible and in a progressive manner. Vegetation and soils will be stored and reinstated in accordance with best practice.

2.18. The main site restoration activity will occur alongside access tracks, hardstandings and turbine foundations. Most excavated material will be stored adjacent to excavations, before being used to dress back

working areas to facilitate re-vegetation. Where vegetation exists, this will be scraped off and stored separately prior to re-use as the top layer of any restored areas. This approach will maximise the potential for natural re- vegetation from the existing onsite seed bank.

Maintenance and Servicing

2.19. Routine maintenance and servicing of turbines would be carried out twice a year, with a main service at 12-month intervals and a minor service at 6-month intervals. Teams of two people with a 4x4 vehicle would carry out the servicing, which takes on average one day for each turbine.

Decommissioning

2.20. The Proposed Development will be designed to have an operational life of 40 years. At the end of this time, it is envisaged that the Proposed Development will be decommissioned and the turbines dismantled and removed. Any alternative to this action would require a new planning approval.

3 Policy Considerations

3.1. Project Need and the Renewable Energy Policy Framework

3.1.1. The EIA Report will describe, in summary, the renewable energy policy framework and associated need case for renewables, identified as a matter of both law and policy, at international, European and domestic levels.

3.1.2. 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.

3.1.3. The proposed development would clearly make a contribution to the attainment of renewable energy, electricity and net zero greenhouse gas emissions reduction targets at both the Scottish and UK levels and the quantification of this contribution would be described. The description of the renewable energy policy framework will also make reference to the Scottish Government's Climate recent Change Plan Update, Energy Strategy and Onshore Wind Policy Statement.

3.2. National Planning Policy and Guidance

3.2.1. Reference will be made to various national planning policy and guidance documents including:

- The National Planning Policy Framework 3 (NPF3);
- Scottish Planning Policy (SPP) as amended;
- Scottish Government web-based Renewables Guidance;
- Scottish Government policy and good practise guidance on community

3.3. Local Development Plan

3.3.1. The planning policy context applicable to the site will be taken into account in the iterative EIA design process. The relevant planning policy framework will also be described in the EIA Report.

3.3.2. The statutory development plan for the site comprises:

- the Highland-wide Local Development Plan (the HwLDP) (adopted April 2012);
- The Inner Moray Firth Local Development Plan (IMFLDP) (2015); and
- Onshore Wind statutory Supplementary Guidance (SG) (November 2016).

3.3.3. It is anticipated that the proposed development will be guided primarily by the HwLDP policies. Key HwLDP policies will include Policies 57, 61 and 67. Other HwLDP policies that will be considered include policies 28, 30, 31, 36, 51, 52, 55, 56, 58, 59, 60, 62, 63, 66, 69 and 77.

3.3.4. In terms of landscape and visual matters, the THC's Onshore Wind Energy Supplementary Guidance including the Caithness Sensitivity Study will be considered.

3.3.5. The IMFLDP focuses largely on settlements and communities, rather than presenting planning policies of relevance to onshore wind. It is only relevant from a broad policy perspective and does not present any specific planning policies of relevance to onshore wind.

3.3.6. It should be noted that a Planning Statement will be provided with the application (but separate from the EIA Report) which will contain an assessment of the accordance of the proposed development with relevant policy framework as referred to above.

4 Key Environmental Issues

4.1 This chapter describes the baseline conditions, potential impacts of the wind farm and proposed assessment methodologies for completion of the EIA in respect of the following environmental parameters:

- Ecology
- Ornithology
- Landscape and Visual Impact
- Hydrology & Hydrogeology
- Geology and Peat
- Cultural Heritage
- Traffic and Access
- Noise and Vibration
- Carbon Balance
- Infrastructure
- Shadow Flicker & Safety
- Socio-Economic

5 Ecology

5.1. This section has been prepared by BSG Ecology.

Introduction

5.2. Desk study and ecological survey for Tom na Clach Wind Farm Extension ('the Proposed Development') have been ongoing since July 2020, with further desk study and survey to be completed in Spring 2021.

5.3. This current survey is complemented by work conducted in 2014, when a comprehensive assessment of terrestrial ecology was completed to inform the Environmental Statement ('ES') for the Operational Tom nan Clach Scheme ('the Operational Scheme'). Work in 2014 covered both habitats and protected species within the Proposed Development area, in addition to a larger study area that included habitats to the north, east and west of the Operational Scheme.

Methodology

Legislation, Guidance and Assessment Methods

5.4. The approach to the collection of baseline ecological data has been based on industry standard guidance wherever this is available and applicable. For example, the Phase 1 habitat survey has been undertaken in accordance with Joint Nature Conservation Committee (JNCC) (2010) guidelines.

5.5. Particular consideration has been given to habitats and species listed under Annexes 1 and 2 of the Habitats Directive (92/43/EEC), and Schedules 5, 8 and 9 of the Wildlife and Countryside Act 1981 (as amended) the Nature Conservation (Scotland) Act 2004 and Wildlife and Natural Environment (Scotland) Act 2011, in deriving the proposed approach to further work.

5.6. The ecological impact assessment will be based on Chartered Institute for Ecology and Environmental Management (CIEEM) guidance (CIEEM, 2019. In accordance with CIEEM guidance, conclusions with regard to significance of effects will be placed in a geographical context (i.e. an effect could be significant on a scale between local and international), and will be precautionary in nature. This approach is based on the use of professional judgement as opposed to a matrix-based method of Important Ecological Features (IEFs).

5.7. The ongoing approach to consultation, desk study and field survey that will inform the assessment is set out in the following sections.

Desk Study

5.8. Baseline data on the nature conservation interest of the Proposed Development and its surroundings, including information on designated nature conservation sites and protected species records, have been sought from the following sources (all data accessed January 2021 unless specifically noted):

- Joint Nature Conservation Committee (JNCC) website (www.jncc,defra.gov.uk/);
- NatureScot SiteLink website (https://sitelink.nature.scot/home) to identify statutory designated sites located within 5 km of the Proposed Development;
- Scotland Environment website (https://map.environment.gov.scot/sewebmap/)
- NatureScot 'Natural Spaces' website (https://gateway.snh.gov.uk/natural-spaces/;
- The National Biodiversity Network website (www.data.nbn.org.uk/);
- The Highland Biological Recording Group (HBRG) (www.hbrg.org.uk);
- Ordnance Survey (OS) 1:10,000 scale maps and 1:25,000 scale maps; and
- Aerial photographs accessed via Google Earth Pro.

5.9. In addition; consultation is being undertaken with the following organisations: NatureScot, SEPA, the Scottish Wildlife Trust and local county recorders, where applicable.

5.10. The results of surveys that were completed in 2014 to inform the Operational Scheme, have also been reviewed and used to inform this scoping report.

Habitat surveys

5.11. A Phase 1 habitat survey was undertaken at the Proposed Development on 13th and 14th August 2020, in accordance with industry guidance (JNCC, 2010). This survey aimed to describe the habitats present within the Proposed Development survey area and assess their nature conservation value.

5.12. Habitats were assigned to types based on the classification system and descriptions given in the Phase 1 habitat manual (Nature Conservancy Council 1990). A Garmin GPS map 62s receiver was used to help demarcate habitat boundaries and to accurately target note features. During the survey, searches were made for signs of protected species such as feeding signs, droppings or tracks. Figure 5.2 shows the results of the survey.

5.13. Homogeneous stands of vegetation within a 300 m radius of proposed turbine locations, and any areas between existing wind farm tracks and proposed turbine locations (in order to account for any areas where excavations over 1 m may be required, with reference to industry guidance (SEPA, 2017) to identify potential impact zones for GWDTEs) were also categorised in accordance with the National Vegetation Classification (NVC) system (Rodwell 2006; Rodwell et al. 1991a, 1991b and 1992). Classification of habitats was based on the dominance of key plant species and the consistency of occurrence of others and was completed by an experienced upland botanist.

5.14. Wetland habitats have been identified with reference to published guidance (SNIFFER, 2009) and potential Ground Water Dependent Terrestrial Ecosystems (GWDTEs) were identified from the NVC plant communities present, the topography of the area surveyed, its geological setting and the types of drainage apparent (natural and artificial). Information on potential GWDTEs has been made available to the project hydrologist in order to confirm ground water dependency and in order to inform the design process and minimise potential impacts.

Protected species survey

5.15. The following survey work for protected species is in the process of being completed to inform the application:

Bats

5.16. Bat surveys were carried out at the Proposed Development in July and September 2020 in accordance with industry guidance (SNH et al, 2019). Further survey is proposed in late April/May 2010 to provide a comprehensive data set that includes the Spring, Summer and Autumn periods.

5.17. Current industry guidance (SNH, 2019) recommends that at sites where the proposed turbine locations are known, static detectors should be placed to provide a representative sample of bat activity at or close to these points. Guidance further indicates that detectors should be placed at all known turbine locations at wind farms containing less than ten proposed turbines.

5.18. Within the Proposed Development, the following has been completed in July and September 2020 (and will be completed in late April/May 2021):

- Seasonal deployment of static detectors at the approximate positions of the proposed eight turbines.
- At least ten consecutive nights of data collection at each location in each of the Spring, Summer and Autumn periods.

- Deployment of a weather station to collect site-specific data on wind speed and other weather parameters for the periods in which bat activity will be sampled.

5.19. The area is relatively homogenous, No buildings are present within the Proposed Development or within 250m of any of the proposed turbine locations and consequently building assessments are not considered to be necessary.

Water vole and otter

5.20. Water vole (Arvicola amphibius) and otter (Lutra lutra) survey at the Proposed Development is in progress. NatureScot guidance states that otter survey should be completed of all suitable habitats within 200 m of development proposals. There is no equivalent guidance concerning search areas for water vole. In the absence of this, water vole will also be searched for within 200 m of the proposed development.

5.21. Burns, pools and wet flushes within 200 m of proposed turbine locations and infrastructure will be searched for evidence of otter and water vole presence (such as latrines / spraints, burrows / holts, and feeding remains of the respective species). The first of two visits have been completed (in late July 2020, within the relevant guidance window), with the second to be undertaken in Spring 2021 as recommended in guidance for water vole survey (Dean et al, 2016). Otter survey will be completed in conjunction with this on both occasions in accordance with standard otter survey guidance (Chanin 2003).

Pine marten

5.22. Pine marten (Martes martes) surveys were carried out during July 2020. Pine martens are mainly found in woodlands, including conifer plantations although they may also venture into more open country to hunt, including rocky hillsides (Cresswell et al 2012). The survey area for pine marten was therefore focused on areas within the western part of the Proposed Development and close to plantation woodland habitat provided by Glenkirk Forest, which will provide the most suitable potential pine marten habitat. Any potential evidence of pine marten was recorded.

5.23. A search for potential den locations was carried out focusing on those features which provide the greatest potential for dens such as bolder outcrops, rock piles and uneven ground. These surveys were complemented by camera trapping with wildlife cameras left out for two weeks in July/August 2020.

Wildcat

5.24. Areas of the Proposed Development with the potential to be used by Scottish wildcat (Felis sylvestris) have been searched. SNH advocates a risk-based habitat survey approach and a walkover survey looking for potential den sites and other signs of wildcat presence (SNH, 2014). Survey effort comprised a walkover survey looking for potential den

sites and other signs of wildcat presence. Survey was focused on habitats in the western part of the Proposed Development and close to Glenkirk Forest; habitat more suited for supporting the species than the open moor habitat that dominates elsewhere within the Proposed Development.

Reptiles

5.25. It is not proposed that targeted surveys for retiles be conducted to support the Proposed Development. Common lizard (Zootoca vivipara) is present (observations of the species have been made within the Proposed Development both in 2014 and in 2020), and measures to ensure legislative compliance will be outlined in a CEMP.

Other species

5.26. A walkover survey for badger (Meles meles) and red squirrel (Sciurus vulgaris) was completed in July 2014 and searched for any field signs indicating presence of either species. Habitats were also assessed for their suitability for supporting either species. Further specialist surveys for both species have been scoped out of the current assessment on the basis of the absence of records (from both desk study an walkover survey) and due to the suboptimal nature of habitats present to support these species.

5.27. Pre-application consultation with NatureScot in June 2016 identified the requirement to assess impacts of the proposal on deer and potential impacts of the dispersal of deer onto the surrounding area. Red deer (Cervus elaphus) is a native species which has no natural predators and can cause considerable damage if populations are uncontrolled. In certain circumstances large numbers of animals can harm sensitive habitats such as blanket bog by trampling and grazing. Consultation with regards to red deer movement will be made with the Cawdor Estate to ascertain current population numbers and management. Survey has also made note of any evidence of trampling impacts on habitats within the Proposed Development (none recorded to date).

Fisheries Surveys

5.28. Electrofishing surveys were carried out in August 2020. These covered those watercourses that drain the Proposed Development and are potentially suitable for fish production (specifically salmon (Salmo salar), brown trout (Salmo trutta) and lampreys) and were completed by an experienced fish biologist with Scottish Fisheries Co-ordination Centre (SFCC) survey qualifications.

5.29. Survey methods were based on protocols described by Hendry and Cragg-Hine (1997) and Summers et al. (1996). In stream habitats were characterised along contiguous 250m sections of river habitat according to depth, substrate, flow and suitability for different age classes of salmonid. The following variables were recorded in addition to location: the presence of suitable cover for salmonids; barriers to migration and

permeability of obstacles for adult fish; wet width; substrate stability and compaction; and availability of cover for fish alongside banks.

5.30. Surveys for larval lamprey habitat comprised a walkover survey with the area of suitable habitat estimated and the habitat classified as optimal or sub-optimal based on standard classifications (Harvey and Cowx, 2003). The likely longevity of larval habitats was also assessed and habitats were classified as permanent, semi-permanent or ephemeral.

5.31. Fish populations at suitable locations representative of the available habitats were surveyed by electrofishing (according to SFCC 2007 protocols). These surveys included either quantitative surveys of fish abundance or semi-quantitative surveys as appropriate.

Results

Desk study

Statutory designated sites

5.32. The desktop study has identified four sites that have been statutorily designated for their biological or geological interest, including one site of international importance (a Special Area of Conservation (SAC)), and three sites of National importance (Sites of Special Scientific Interest (SSSIs)). These sites are listed in Table 1 together with details of their interest features (species and habitats) and proximity to the Proposed Development. Their positions in relation to the Proposed Development are shown on Figure 5.1.

Table 1: Statutorily designated sites within 5 km of the Proposed Development

Site name	Reasons for designation	Location of nearest section of site	Contextual comments
Carn nan Tri-tighearnan SAC	Blanket bog habitats	c.2.4 km north-west	Separated from the Development Area by the River Findhorn and therefore not hydrologically connected to it.
Carn nan Tri-	Blanket bog and	c.2.4 km	As above.

Site name	Reasons for designation	Location of nearest section of site	Contextual comments
tighearnan SSSI	subalpine dry heath habitats	north-west	
Findhorn Terraces SSSI	Fluvial geomorphology interest	c.2.2 km north-west	No cited ecological interest.
Allt a' Choire SSSI	Geological interest	c.1.3 km north	No cited ecological interest.

Previous Baseline Survey Results Summary

5.34. The results of the habitat and protected species surveys completed in 2014 have been incorporated into the summaries of ecological work completed in 2020 (provided below) for historical context.

Field survey results

Habitats and Vegetation

5.35. The 2020 survey work found the vast majority of the habitat within the Proposed Development surveyed is characterised by blanket bog. All of this habitat has been modified through drainage, burning and grazing by sheep. Most of it is relatively dry due to the combination of gully erosion and the effects of drainage ditches. It has a type of the heather – hare's-tail cotton-grass blanket mire community (M19) on it that is for the most part relatively dry with a significant cover of reindeer lichens (Cladonia arbuscula). There are no areas of relatively intact blanket bog vegetation present within the Proposed Development.

5.36. A number of small stream valleys run through the blanket bog. These have dry heath communities on their slopes, acid flush habitat in their bases and acid grassland communities where the soils are more freely drained.

5.37. A total of 15 different plant communities were found that matched the descriptions in the NVC; within these a total of 12 sub-communities were recognized. None of the plant communities or sub-communities are particularly rare at the national or regional level. The acid flushes within the stream valleys at the base of depressions within the blanket bog habitat are ground-water dependent ecosystems. These flushes are mostly dominated by soft rush, but in some areas are dominated by carpets of the common bog-moss (Sphagnum fallax).

5.38. Small areas of lichen heath were found on the top of small hillocks and the tops of slopes within the western part of the Proposed

Development. These had either the heather – reindeer lichen (H13) or heather – bearberry (H16) heath communities on them. Other heath communities present in small quantities are the heather - blaeberry - bog-moss heath (H21) and blaeberry – cloudberry heath (H22). These are generally located on slopes with northerly aspects where they are shaded and/or accumulate significant quantities of snow in winter.

5.39. A small area of juniper scrub (W19) is present in the valley which has the headwaters of the Allt Seileach in the far south-western part of the survey area.

5.40. It should be noted that since the completion of the Phase 1 and NVC survey, the proposed turbine layout has altered. As a result, habitats around turbine 7b (see Figure 5.2) have not been surveyed. Survey of this area is proposed for Spring 2021.

5.41. The results of the 2020 work did not identify any clear changes in habitat type or condition from when survey was completed in 2014.

Protected Species

Bat Surveys

5.42. Survey in 2020 recorded bat passes from three species/ species groups: common and soprano pipistrelle, and Myotis sp. Recorded bat activity has been low throughout the Proposed Development with a maximum total of 50 bat passes recorded at any single monitoring location (total number of bat passes recorded from combined summer and autumn sampling data). On average bat activity over within the Proposed Development was 0.02 bat passes per hour (B/h).

5.43. Static detector surveys in 2014 also recorded low levels of bat activity; the highest activity rate was recorded from common pipistrelle, at an average of 0.5 Bat passes per hour (B/h) (total bat passes recorded: B = 544) followed by soprano pipistrelle (0.1 B/h: B = 150), with 90.4% of all the recorded passes identified as bats from the Pipistrellus genus. Myotis sp. occurred more rarely, with 0.1 B/h (B = 70) recorded. Five passes were recorded for brown long-eared bat.

5.44. Both open moorland and forest edge habitat features were sampled in 2014, reflecting industry standard guidance at the time. Activity levels were lowest at the detectors on open moorland and highest around the plantation woodland as might have been anticipated.

Otter and Water Vole

5.45. Survey completed in 2020 recorded no evidence of either water vole or otter within the Proposed Development.

5.46. Several otter footprints, a spraint and a potential couch were recorded during the walkover survey in 2014; however with the exception of a single footprint, all of these were located outside the Proposed Development survey area to the west and south and located within better quality habitat. Whilst the larger watercourses within the

Proposed Development will provide some foraging resources to otter, the dominant open moorland habitat will provide opportunities for shelter. Suitable sites for potential otter lying-up cover exist to the west of the Proposed Development in Glenkirk forest and in the juniper scrub associated with the Allt Seileach burn, which is approximately 300 m to the south-west of the nearest proposed turbine location.

5.47. The 2014 survey work recorded water vole signs wherever suitable habitats occurred, including field signs recorded along the upper section of the Allt Carn an t-Sean Liathanalch, an area of the watercourse which falls within the Proposed Development. It is possible that the species has become more restricted in its distribution or suffered a reduction in population numbers since survey in 2014 resulting in the negative survey result from July 2020. A further water vole survey is proposed for Spring 2021 however and will include a second detailed search of the upper sections of the Allt Carn an t-Sean Liathanalch.

Red squirrel

5.48. No suitable habitats (particularly mature coniferous plantation) are located within 200 m of the proposed turbine locations and no field signs were recorded during the walkover survey.

5.49. These results are consistent with the survey results from 2014.

Pine marten

5.50. No evidence of pine marten was recorded during the 2020 survey. Habitats within the Proposed Development are dominated by open moorland with small, isolated areas of scrub. Consequently, habitats are poorly suited for supporting pine marten.

5.51. During the surveys carried out in 2014 fresh prints that were considered to have been made by a pine marten, were found in wet peat approximately 500 m to the south-west of the Proposed Development, in close proximity to Glenkirk Forest. No other field signs were recorded.

Badger

5.52. No evidence of badger was recorded during the walkover survey in 2020.

5.53. Survey work in 2014 revealed no badger setts. One field sign was detected: a badger footprint was found in a location which is closely connected to the woodlands and fields of the Findhorn Valley. This location does not fall within the footprint of the Proposed Development.

Scottish wildcat

5.54. No evidence of wildcat was recorded during the 2020 survey. Wildcats will range into open moorland to hunt for prey, but generally will stay within 200m of woodland cover (Silver, 2013). Woodland habitat is located approximately 450 m from the nearest turbine location. As

such, it is not proposed that further targeted surveys for these species be conducted to inform the impact assessment for the proposed development.

5.55. No evidence of Scottish wildcat was recorded during survey work in 2014.

Reptiles

5.56. As discussed in the methods section above, detailed surveys for reptiles have not been completed. However common lizard was recorded within the Proposed Development survey area in July 2020 and was also noted during the course of other survey work in 2014. No other reptile species have been recorded to date.

Fisheries Surveys

5.57. Surveys in 2020 suggest that brown trout are currently the only fish species present within the Proposed Development. The largest areas of suitable trout habitat are in Allt Carn an t-Sean-liathanaich, which also provides the best quality rearing habitats for this species. However, trout were widespread in most other watercourses. Densities of trout fry were generally low, but parr densities were mainly fair to excellent by regional standards Godfrey (2006). This may suggest that there is substantial, natural year-to-year variation in trout recruitment.

5.58. In 2014 fisheries surveys recorded brown trout within most of the watercourses within the Operational Scheme and Proposed Development but were not recorded in the Findhorn River. Juvenile Atlantic salmon were also noted in three small watercourses that form tributaries of the Findhorn River, where a population is known to be present. These tributaries are located outside of the Proposed Development survey area to the west and south-west. 2014 survey data indicate that none of the reaches within the Proposed Development are accessible to migratory salmonids and this is supported by the 2020 survey findings. However as previous surveys have shown the presence of Atlantic salmon in the lower reaches of Allt Seileach, and as salmon is known to be present in the River Findhorn, potential negative impacts on this Annex II species will also be assessed.

5.59. Red deer are known to be present within Glenkirk Forest, located approximately 500 m to the west of the study area. Trail cameras deployed for other species in July 2020, within the vicinity of Glenkirk Forest, recorded red deer on a small number of occasions.

Conclusions

5.60. Impacts on statutory designated sites are not anticipated as a result of proposals. The SAC and SSSIs detailed in Table 1 are designated for geological, fluvial geomorphology and upland habitat interests and will not be subject to land take from the scheme. The SAC is separated from the Proposed Development by the River Findhorn and is therefore not hydrologically linked. It is proposed that they can be scoped out of

the assessment. This reflects the conclusions of the SNH Pre-application response dated June 2020.

5.61. The main ecological issues at this stage are likely to be impacts to habitats such as blanket bog, and on GWDTEs during construction. In particular:

- Potential disturbance/degradation/loss of sensitive habitats through:
- Access track construction.
- Infrastructure development (for example cable trenches, construction processes, borrow pits).
- Erosion caused by excavation and/or drainage activities.
- Potential pollution to watercourses within or adjacent to the Proposed Development from run-off associated with construction activities or leakage from vehicles/storage areas (potential for direct impacts on habitats, water vole and otter).
- Potential alteration to local hydrological conditions, which may in turn impact on sensitive habitats present within and adjacent to the Proposed Development (e.g. GWDTEs).

5.62. There is also the potential for watercourses, and the fish populations they support, and for protected mammals to be impacted, particularly during the construction of the Proposed Development. It is considered unlikely, given the geographical location, altitude of the Proposed Development, and survey results to date that impacts on bat populations will be a key concern.

5.63. Potential construction related impacts to protected, rare and sensitive fauna can be summarised as follows:

- Potential direct disturbance as a result of:
- Development or operational activities (e.g. human presence, noise, light, vibration).
- Disturbance to important foraging resources through pollution/contamination from sedimentation, run-off or accidental chemical spillage.
- Disturbance or degradation of breeding/resting sites and fragmentation of wider territories/supporting habitats (e.g. loss/degradation of features/habitats used for navigation/foraging) potentially resulting in displacement of animals or interruption of their normal movement.
- Disturbance to important feeding/spawning habitat through pollution/contamination from sedimentation, run-off or accidental chemical spillage.
- Damage, injury or mortality of fish or their supporting prey populations.

- During operation there are the following potential impacts on bats:
- Mortality from collision with wind turbines or barotrauma caused by flying in close proximity to moving turbine blades.
- Loss of foraging habitat due to avoidance of the wind farm, once operational.

5.64. Mitigation is likely to be principally achieved through: the design of the wind farm; through the incorporation of stand-offs around watercourses; and the minimisation of impacts on habitats of nature conservation importance. A Construction Environmental Management Plan (CEMP) will be prepared that will set out all measures that are proposed to mitigate impacts arising during the construction phase of the development.

Key Questions for Consultees

- Is the list of potential effects and key ecological features comprehensive?

6 Ornithology

Introduction

6.1. This chapter sets out the proposed approach to the evaluation of the ornithological interest of the Proposed Development, and to the assessment of potential effects on birds.

6.2. The ornithological assessment will be carried out in line with relevant legislation and standards, as well as having due regard to the following guidance:

- SNH Survey methods for use in assessing the impacts of onshore wind farms on bird communities (2005; revised 2010);
- SNH Assessing connectivity with Special Protection Areas (SPAs) (2016);
- SNH Recommended bird survey methods to inform impact assessment of onshore wind farms (2017);
- SNH Assessing the cumulative impact of onshore wind farms on birds (2018a);
- SNH Assessing Significance of Impacts from Onshore Wind Farms Outwith Designated Areas (2018b); and
- European Commission, Wind Energy Developments and Natura 2000 (2010).

6.3. For the purposes of this chapter it is important to clearly define the various terminology used. The follow key terms have been used throughout this chapter:

- 'the Proposed Development' is the construction, operation and decommissioning of the Tom na Clach Wind Farm Extension;
- 'the Site' is the area within which the Proposed Development lies;
- 'the Site boundary' is the application site (i.e. red line) boundary;
- 'the Study area' is the area over which desk based and field studies have been undertaken within prescribed buffers (SNH, 2005) around the Site. Accordingly, the Site plus buffers of 500 m, 1.5 km and 2 km was surveyed to gather a spatially representative sample of bird distribution and abundance.
- 'flight activity survey area' or 'FASA' refers to a polygon around the outermost turbines plus an additional 500 m strip around the polygon.

Existing conditions

Designated sites

6.4. Table 6.1 lists the sites designated for their ornithological features within 20 km of the Site and these are also shown in **Figure 6.1**.

Table 6.1: Designated sites within 20 km of the Proposed Development

Designation	Name	Designated for	Distance from Site boundary
SPA/SSSI	Kinveachy Forest	Capercaillie Scottish Crossbill	11.2 km south
SPA	Darnaway and Lethen Forest	Capercaillie	15.7 km north-east
SPA/SSSI	Loch Vaa	Slavonian grebe	16.2 km south
SPA/SSSI	Abernethy	Capercaillie Osprey Scottish crossbill	16.5 km south
SPA	Anagach Woods	Capercaillie	17.1 km south-east
SPA/SSSI	Loch Flemington	Slavonian grebe	17.3 km north
SPA	Craigmore Wood	Capercaillie	17.4 km south-east
SPA/SSSI	Inner Moray Firth	Bar-tailed godwit Common tern Greylag goose Osprey Red-breasted merganser Redshank Scaup Waterfowl assemblage	18.7 km north-west

6.5. The Site is not located within or adjacent to any statutory sites designated for ornithological interest. The nearest statutory designated site for ornithological interest is the Kinveachy Forest Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) which is situated c.11.2 km to the south.

6.6. Following current SNH guidance (SNH, 2016) on the connectivity of SPA populations with supporting habitats in the wider environment, the distances to all the SPAs shown in Table 6.1 are greater than the reported range/connectivity distance for the qualifying species listed for the SPAs. As such, these SPAs warrant no further consideration within the EIA.

6.7. It follows, therefore, that there will be no detrimental effects on the respective SSSI designations which spatially overlap those of the SPA. As such, these SSSIs warrant no further consideration within the EIA.

Question 1

Do you agree with the approach taken for designated sites?

Field Survey Methodologies

6.8. Scottish Natural Heritage guidance (SNH, 2005; revised in 2010) was used for initial survey design; however changes were made, where relevant, in light of changes to SNH guidance (i.e. SNH, 2017). A range of baseline ornithological surveys commenced within the Site and surrounding area in April 2014 and continued until end of August 2015 (providing 18 months of data), then recommencing in April 2018 and continued until March 2019 (providing 12 months of data), exceeding the minimum requirement of up to two years of baseline survey.

6.9. The Study area has been defined with reference to the Site boundary and encompasses a series of buffers of up to 2 km radius from the Site, with buffer size dependent on the sensitivity of key species to potential effects associated with the Proposed Development.

6.10. During the design process the Site boundary changed between survey periods, as such the boundaries of the Study area also changed. Accordingly, between April 2014 and August 2015 the original boundary of the Proposed Development, plus buffers of 500m, 1.5km and 2.0km around this, was surveyed (**Figure 6.2**). Between April 2018 and March 2019, the revised boundary of the Proposed Development, plus buffers of 500m, 1.5km and 2.0km around this, was surveyed (**Figure 6.3**). In January 2020, following finalisation of the turbine layout and application boundary, new buffers were defined to allow the assessment of the finalised Proposed Development (**Figure 6.4**).

6.11. The assessment will be informed by the following surveys:

- Moorland Bird Surveys (four visits, April to July 2014 and 2018; three visits, May to July 2015; within Site and 500 m buffer) amounting to 268.25 hours of survey effort;
- Scarce Breeding Bird surveys (April to October 2014; January to August 2015; and April to July 2018; within Site and buffer extending up to 2 km) amounting to 147.5 hours of survey effort;
- Black grouse surveys (April and May 2015 and 2018; within Site and 1.5 km buffer) amounting to 8.75 hours of survey effort;
- Flight activity (vantage point) surveys (April 2014 to August 2015 and April 2018 to March 2019 within Flight Activity Survey Area) amounting to 493 hours of survey effort;
- Migration watches (September to November 2014 and March to May 2015) amounting to 65 hours of survey effort; and

- Winter walkovers (October 2014 to March 2015; September 2018 to March 2019; within Site and 500 m buffer) amounting to 30.25 hours of survey effort.

6.12. Survey methods follow contemporary best practice guidance; further details of the survey methods are provided below.

Breeding Bird Surveys

6.13. Moorland Bird Surveys (MBS) were carried out on the Site between April and July to gain a preliminary insight into the bird assemblage and possible sensitivities. The survey area for these included the Site and a 500 m buffer zone (**Figures 6.2** and **6.3**).

6.14. The Brown and Shepherd (1993) method for surveying upland waders was modified to provide reliable estimates for some breeding moorland passerines by undertaking some surveys during the first few hours of daylight.

6.15. Survey visits were conducted four times in 2014 and 2018; and three times in 2015. Survey visits were spread across each month to allow for differences in detection rates between early and late breeding species.

Scarce Breeding Bird Surveys

6.16. Priority was given to detecting the species considered most likely to occur: golden eagle (Aquila chrysaetos), goshawk (Accipiter gentilis), hen harrier (Circus cyaneus), peregrine (Falco peregrinus), merlin (Falco columbarius) and short-eared owl (Asio flammeus). Surveys focussed on areas or sites suitable for nesting and foraging within a buffer 2 km of the Site **(Figures 6.2** and **6.3**). The survey methods used for each species are described below.

Golden eagle

6.17. Survey methods given in Hardey et al. (2013) were followed. Visits were coordinated with the Highland Raptor Study Group to avoid unnecessary disturbance. As well as observations from a distance, specific visits to a known historical nest location were completed out with the breeding season to check for signs of occupancy and breeding.

Goshawk

6.18. Survey methods devised by Dr M. Marquiss (NRP, unpublished) were followed. These methods consisted of observing potential nesting habitat (woods > 3 ha with numerous large and well-spaced mature trees, providing good canopy cover). Observers listened for calling birds and watched for display flights. Areas were also searched for evidence of goshawk occupation (such as faeces, prey remains, moulted feathers and nests). Particular emphasis was given to stream sides, where tree growth is faster and whorls of branches are further apart.

Peregrine

6.19. Potential nest sites were visited and checked for evidence of occupation in March and April. Sites to be checked included any nest sites found in previous years by raptor study group workers and crags and steep banks identified from OS maps and searches of the survey area. Surveyors looked for birds or signs of occupation (e.g. faecal splash, fresh plucked prey). Occupied sites would be re-visited between 20 March and 10 May to verify incubation. Where this is not possible sites would be watched from a suitable vantage point for circa 3 hours or until a nest is located.

Hen harrier

6.20. Survey methods given in Hardey et al. (2013) were followed. Emphasis was given to searching habitats considered potentially suitable for nesting; in this case including areas of heath/bog with stands of heather >0.4m tall, and suitable habitats within plantation forest.

Merlin

6.21. Survey methods given in Hardey et al. (2013) were followed. Within suitable habitats, old crow nests (which could be re-used by merlin), fence-posts, hummocks, bushes and trees were checked for signs of occupation (e.g. plucked prey, moulted feathers, pellets and faeces). Emphasis was given to heath/bog habitats with stands of heather >0.4m tall.

Short-eared owl

6.22. Survey methods given in Hardey et al. (2013) were followed. Suitable habitat was checked during April and May for evidence of hunting males, territorial activity and other signs of occupation.

Black grouse lek surveys

6.23. Suitable habitat within the 1.5 km survey buffer was surveyed for displaying (lekking) male black grouse during April and May (**Figures 6.2** and **6.3**). Survey methods were based on those in Gilbert et al. (1998) and care was taken to avoid disturbing birds.

6.24. In areas which were identified as being potentially suitable for display by black grouse, two visits were undertaken within two hours of dawn to locate leks. Visits were conducted in calm, dry weather with good visibility. Observers watched and listened for lekking birds from a number of suitable vantage points.

Flight Activity Surveys

6.25. Information on bird flight activity was collected during timed watches from strategic Vantage Points (VPs) using the methods described by Band et al. (2007). The Flight Activity Survey Area is defined by the area considered suitable for development plus a 500 m buffer (**Figures 6.4, 6.5** and **6.6**).

6.26. Vantage Points were selected through a mix of GIS analysis and field trials, with the aim of maximising ground visibility within the site using the minimum number of points. Viewsheds are derived using a 20 m vertical cut-off and are truncated horizontally to 2 km (**Figures 6.5** and **6.6**).

6.27. During the period April 2014 to August 2015 three VPs were selected. However, due to changes in the turbine layout, during the period April 2018 to March 2019 two VPs were selected.

6.28. Watches from these VPs did not exceed three hours in length and were timed to ensure each vantage point has observations spread throughout daylight hours each month. A minimum of 36 hours of observation has been completed from each VP for each season (between April and August (breeding season) (Table 6.2) and September to March (non-breeding season (Table 6.3).

6.29. The height above ground level of flights by target and secondary species were judged to be within one of several bands so that an estimate can be made of flight activity within the zone where turbine blades would be operating. The height bands used in the flight activity surveys are <10m, 10-30m, 30-50m, 50-100m, 100m-150m and >150m.

Table 6.2: Survey effort from vantage points during the breeding season. Data are shown in hours.

Year	VP No.	Apr	May	Jun	Jul	Aug	Total (hrs)
2014	1	7.5	8.0	8.5	8.0	7.5	**39.5**
	2	7.5	8.0	8.0	8.0	7.5	**39.0**
	3	6.0	8.0	8.0	8.0	7.5	**37.5**
2015	1	7.5	8.0	8.0	8.0	7.5	**39.0**
	2	7.5	8.0	8.0	8.0	7.5	**39.0**
	3	5.5	10.0	8.0	8.0	5.5	**37.0**
2018	1	8.0	8.0	5.3	6.0	8.7	**36.0**
	4	8.0	8.0	8.0	6.0	6	**36.0**

Table 6.3: Survey effort from vantage points during the breeding season. Data are shown in hours.

Year	VP No.	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total (hrs)
2014/15	1	7.5	5.5	5.0	4.5	3.0	7.5	7.0	**40.0**
	2	6.5	6.5	5.0	4.5	3.0	-	12.5	**38.0**
	3	7.5	5.5	5.0	4.5	5.0	5.5	7.0	**40.0**
2018/19	1	6.0	6.0	7.0	2.0	4.0	5.0	6.0	**36.0**
	4	6.0	6.0	7.0	2.0	4.0	5.0	6.0	**36.0**

Migration Watches

6.30. Watches were undertaken from a single Migration Watch Point (MWP) with the aim of recording movements by Target B Species, i.e. geese, swans and waders, over the Site and in the wider landscape. The MWP was situated to give good broad spatial coverage in respect of birds moving on a predominantly north-south axis over the Proposed Development plus the wider countryside.

Winter Walk-over Surveys

6.31. Walk-over surveys were undertaken between September and March. These surveys are designed to complement surveys of breeding birds undertaken during the spring and summer, and occur within the 500 m survey buffer (**Figures 6.2** and **6.3**).

6.32. Walk routes meandered to closely examine as much ground as practical, in particular features of potential ornithological importance such as cliffs/crags, lochs /bog pools, bogs/mires, isolated trees/scrub and streams. Where practicable observers used a different route on each visit to maximise the eventual spatial coverage of the survey area. Observers frequently paused to scan for birds.

Proposed Assessment Methodologies

6.33. The following types of potential effects resulting from the Proposed Development on birds will be considered in depth:

- Construction: habitat modification, land-take, disturbance and displacement;
- Operation: disturbance and displacement, collision mortality;
- Decommissioning: similar effects as for construction but of lower intensity temporally and spatially; and
- Cumulative: combined effects across projects within the region, largely or entirely relating to overlap on operation effects.

6.34. Effects will be assessed against the existing baseline conditions, i.e. without the Proposed Development present. This assessment will be carried out assuming that there are no existing significant adverse effects on the population, range or distribution of a species (i.e. no significant effect on the species' conservation status); and no significant interference with the flight paths of migratory birds.

6.35. The assessment will therefore first identify the possible effects of the Proposed Development and will then consider the likelihood of their occurrence. A judgement will then be made as to whether or not these effects are significant with respect to the EIA Regulations. In judging whether a possible effect is significant or not, three principal factors will be taken into account; the nature conservation importance of the bird populations present, the magnitude of the likely effect and the conservation status of the species involved.

6.36. In assessing the effects, emphasis will be given to the national and regional populations of the species. Trivial or inconsequential effects will be excluded.

6.37. Impacts will be assessed in relation to species' population, range and distribution. Key considerations will include territory occupancy, breeding success, foraging success and ranging behaviour. The assessment will:

- Evaluate the nature conservation importance of the bird interest in a systematic manner; and
- Estimate the magnitude of likely effects on each species as a result of the proposal.

6.38. The significance of each potential effect will be judged by integrating scales relating to ecological value, behavioural sensitivity and effects magnitude in a reasoned way, in the context of the status of, and trends within, species' regional populations (as defined by NatureScot Natural Heritage Zones [NHZ](SNH, 2001)). If required, measures will be presented to mitigate any effects deemed to be significant in terms of the EIA Regulations.

Potential Ornithological Effects

6.39. Particular consideration will be given in the assessment to potential effects on bird species whose populations are of moderate to high Nature Conservation Importance and that belong to taxonomic groups that are considered to be particularly susceptible to impacts from the Proposed Development. These include:

- Species listed on Annex 1 of European Council Directive 2009/147/EC on the conservation of wild birds (i.e. 'Annex 1'

species), in particular those that may be associated with populations of species that are qualifying interests of SPAs in the wider area;

- Species listed in Schedule 1 to the Wildlife and Countryside Act 1981, as amended (i.e. 'Schedule 1' species); and

- Species of national conservation concern, not included within the above categories, but that are present within the study area in nationally or regionally important numbers (e.g. species on the UK Red List of Birds of Conservation Concern).

6.40. Taking account of the findings of the work undertaken to date, whilst still adopting a precautionary approach, potential ornithological effects associated with construction and/or operation of the Proposed Development include:

- Disturbance and/or displacement from supporting habitats during construction works;

- Loss/degradation of habitats through construction works, permanent structures and access tracks;

- Displacement from and disturbance to foraging, nesting, roosting habitat from the Operational Scheme;

- Mortality from collision with wind turbine blades; and

- The potential for cumulative effects arising from the combined effects of other existing and proposed developments within the wider area affecting the same bird populations.

6.41. On the basis of the work undertaken to date, the professional judgement of the assessment team and experience from other similar projects, species of low conservation concern (e.g. green-listed Birds of Conservation Concern), or those not considered sensitive to wind farm developments are proposed to be scoped out of the assessment, as per NatureScot guidance (SNH, 2018b).

Cumulative Assessment

6.42. The effects of the Proposed Development will be assessed in isolation and in combination with predicted effects of other wind farm developments in NHZ 10 Central Highlands. The assessment of cumulative effects will be undertaken following published guidance (SNH, 2018a).

6.43. In considering cumulative effects, it is necessary to identify any effects that are of minor significance (or greater) in isolation but that may be major cumulatively.

Question 2

Is our approach to the ornithological assessment acceptable?

Approach to Mitigation

6.44. A number of mitigation measures will be considered to minimise the effect of the Proposed Development on bird species. Where possible, the findings of the survey work have been used to inform the detailed scheme design.

6.45. The review of construction timing and land management regimes will also be considered as appropriate, in consultation with the appropriate statutory consultees.

6.46. The need for, and scope of, further monitoring of bird activity in relation to the Proposed Development will also be defined as part of the assessment process.

6.47. Baseline results will be taken into consideration in the process of finalising the Proposed Development layout.

Question 3

Is our approach to mitigation acceptable?

n
Consultation Proposals

6.48. It is proposed to consult the following stakeholders in relation to the assessment:

- NatureScot (previously SNH);
- Highland Raptor Study Group (HRSG); and
- The Royal Society for the Protection of Birds (RSPB).

Question 4
Are there any other relevant consultees who should be consulted with respect to the assessment?

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7 Landscape and Visual Impact Assessment

Introduction

7.1. The Landscape and Visual Impact Assessment (LVIA) evaluates the effects of the Tom na Clach Wind Farm Extension (the 'Proposed Development') on the landscape and visual resource. The requirement to assess the environmental impacts of the Proposed Development is provided for in 'The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017'. The assessment will accord with the 'Guidelines for Landscape and Visual Assessment Third Edition' (GLVIA3) (2013). The LVIA will be undertaken by Optimised Environments Limited ('OPEN'), a practice registered with 'The Landscape Institute' and with extensive experience in the preparation of LVIA for onshore wind farms. OPEN also prepared the LVIA for the operational Tom nan Clach Wind Farm (hereafter referred to 'the Operational Scheme').

7.2. The scoping report relates to the Proposed Development which lies approximately 20 km south-east of Inverness. It is located in an upland area approximately 23 km to the north of the Cairngorm Mountains and approximately 4 km north-west of the northern boundary of the Cairngorms National Park. The landscape is relatively remote and uninhabited, with most nearby settlement associated with the A9(T) corridor and the Inverness to London rail line, both of which pass to the west and south of the Proposed Development site.

7.3. The Proposed Development forms an Extension to the Operational Scheme which was granted planning permission by Scottish Ministers in October 2016 and became operational in March 2019. The Operational Scheme comprises 13 wind turbines, each 125 m high to blade tip. The Proposed Development would be located to the immediate east and south of these operational turbines, such that it would form an apparent extension. It would comprise eight wind turbines, each 149.9m high to blade tip. In the assessment, the Operational Scheme will form part of the baseline situation.

7.4. The study area for the LVIA of the Proposed Development will cover a radius of 40 km from the nearest turbine. This is considered to be the maximum radius within which a significant landscape or visual effect could occur given the height of the turbines that are being considered, and follows guidance given in 'Visual Representation of Wind Farms Guidance: Version 2.2' (February 2017). The 40 km study area and the location of the turbines are shown in **Figure 7.1** of the scoping figures supporting this section of the document.

7.5. Known baseline wind farms within a 40 km study area, are shown for scoping purposes in **Figure 7.2**. This includes all operational, under construction, consented, application stage and scoping stage wind farms, and where the turbines are greater than 50 m to blade tip. It is

proposed that a detailed review of the cumulative sites be carried out during the preparation of the LVIA, and agreement with THC and NatureScot will be sought at this stage, with regard to the final list of cumulative sites to be considered. Exceptionally, scoping stage sites may be included where they are considered to be of specific relevance to the Proposed Development.

Site context

7.6. Within the study area, major landform features generally align along a south-west to north-east orientation, including the Black Isle, the Cromarty and Beauly Firths, the Moray Coast, the Great Glen, the Monadhliath Mountains, and Strathdearn and Strath Spey. In the far south-eastern part of the study area, this pattern changes as the area becomes dominated by the broader interior mass of the Cairngorm Mountains. The landscape in this part of the Scottish Highlands is largely characterised by the uplands of the high mountain ranges and the contrasting lowlands of the dividing straths, lochs and firths. Towards the north-east coast, lower farmed landscapes tend to dominate the landscape, albeit often backed by higher hills. Across the study area, the elevation varies significantly, rising from sea level on the north-east coast, to over 1,000m across the high peaks of the Cairngorm Mountains.

7.7. Within the lowland and coastal areas, the land is used predominantly for agriculture, forestry and settlement, with industry concentrated within or around the few larger settlements, including Inverness and Nairn. These low-lying areas also tend to accommodate the main lines of communication. In contrast, within the upland interior areas, the study area mainly comprises extensive areas of semi-natural vegetation such as heather moorland and rough grasslands. Within these interior areas, active land-use is often not obvious, as they are generally maintained for grouse and deer grazing; however, in some areas, heavy grazing and muirburn, in addition to upland access tracks, create notable land cover patterns and evidence of human intervention. The upland areas are largely uninhabited, however some areas, particularly the Munros, are popular for active recreation - chiefly hill walking, but also mountain biking and rock climbing, with ice climbing and skiing popular in the winter.

7.8. The site lies in an elevated upland area, where the hills range in height from approximately 460 m to 570 m AOD. The hills are broad and rounded with long horizontal ridges, mostly aligned north-east to south-west, albeit lacking distinct summits. Steep slopes fall away towards the valley of the Findhorn River and a locally known stretch of the river called the Streens, to the north and west, while the upland hills extend to the east and south. Of particular note, is the distinct ridgeline to the south east of the site, which forms the northern boundary of the

Cairngorms National Park (CNP) and which acts to shield the Carrbridge and Grantown-on-Spey areas from visibility of the Proposed Development, as evident in the ZTV in **Figure 7.5**.

7.9. The hills comprise open moorland with small blocks of forestry around their peripheries. Access tracks follow the river valleys and cross the hills over Carn na Sguabaich. There are a small number of isolated properties but no settlements within the close range of the site.

Landscape Character

7.10. Landscape character information, prepared by, or on behalf of NatureScot (formerly SNH), forms the basis of much of the characterisation of the study area. NatureScot has recently reviewed and updated the 30 original Landscape Character Assessments (LCAs), produced to cover the whole of Scotland during the 1990s, by creating a single data set in a digital version. In respect of the study area, the Landscape Character Types (LCTs) presented in the updated dataset, have not changed notably from the original LCAs. The updated dataset will be used in the LVIA for the Proposed Development, to ensure the assessment is based on current sources of information.

7.11. The LCTs identified in the current NatureScot dataset, and located within the 40 km study area, are shown overlaid with the blade tip ZTV in **Figure 7.4**. The LVIA will identify the relevant LCTs within a 20 km radius of the wind farm. This reduced extent reflects the localised extent over which significant effects on landscape character were found to occur in relation to Tom nan Clach Wind Farm. It also takes into account the existing influence on landscape character, arising from the Operational Scheme, which further moderates the potential for significant effects to arise on LCTs beyond 20 km.

7.12. Because the LCTs can be split into different geographical areas across this part of the Highlands, the LVIA will also identify individual parts of each LCT as Landscape Character Units (LCUs), where these have the potential to be significantly affected by the Proposed Development.

7.13. The four southerly proposed turbines are located in the 'Rolling Uplands' LCT, while the four easterly turbines are located in the 'Open Rolling Uplands' LCT, as identified in the current NatureScot dataset. These are the same LCTs in which the Operational Scheme is located. The LVIA will present a full assessment of the effects of the Proposed Development on these LCTs and other surrounding LCTs with the potential to be significantly affected.

Landscape Designations

7.14. The site itself is not subject to any international or national landscape designations intended to protect landscape quality but is subject to the

local designation of Special Landscape Area (SLA) as shown in **Figure 7.5**. A number of landscape designations occur in the surrounding landscape, including the nationally important Cairngorms National Scenic Area (NSA) and Cairngorms National Park (NP) to the south and south-east, as well as Gardens and Designed Landscapes (GDLs) scattered throughout the low-lying landscapes of the study area. Locally important SLAs occur in all sectors of the study area, denoting the predominantly local importance of the surrounding landscapes. The designated areas within the study area are described below, and those with potential to be significantly affected will be considered in the assessment.

National Parks

7.15. There is one National Park (NP) in the study area, namely the Cairngorms NP, which occupies most of the southern and south-eastern sectors of the study area, and which comes within a minimum of approximately 4 km from the closest proposed turbine. The Cairngorms NP is afforded statutory protection through the National Parks (Scotland) Act 2000 and its designation is underpinned by the following four aims:

- To conserve and enhance the natural and cultural heritage of the area;
- To promote sustainable use of natural resources of the area;
- To promote understanding and enjoyment (including enjoyment in the form of recreation) of the special qualities of the area by the public; and
- To promote sustainable economic and social development of the area's communities.

7.16. The Cairngorms National Park Partnership Plan 2017-2022 provides the framework for managing the Park. The Plan asserts that "these aims are to be pursued collectively." In the event of a tension or conflict between the four aims, the National Parks (Scotland) Act 2000 requires that priority is given to the first Aim, to "conserve and enhance the natural and cultural heritage". As a consequence, it is the 'Special Landscape Qualities' (SLQs) of the Park that provide a consistent principle throughout the Plan. The SLQs are detailed in 'The Special Landscape Qualities of the Cairngorms National Park' (SNH, 2010).

7.17. The effect of the Proposed Development on the Cairngorms National Park will be fully assessed in the LVIA making reference to the SLQs and following SNH's draft 'Guidance for Assessing the Effects on Special Landscape Qualities' (2018).

National Scenic Areas

7.18. There is one NSA partly within the study area; namely the Cairngorms NSA, which occupies the southern part of the study area and comes within a minimum of approximately 20 km from the closest proposed turbine. **Figure 7.5** shows the landscape designations in conjunction with the preliminary ZTV. This indicates that visibility will occur in patches across the northern slopes of the NSA, due to its elevation and open aspect towards the Proposed Development. The potential for a significant effect to arise in respect of the special qualities of the NSA will be moderated by the separation distance of more than 20 km. Furthermore, the baseline influence of the Operational Scheme on the adjacent site to that of the Proposed Development, will moderate the potential effect and prevent it from having a significant effect on the landscape character of the NSA. It is, therefore, proposed that the Cairngorms NSA be scoped out of the detailed assessment.

Gardens and Designed Landscapes

7.19. There are 20 Gardens and Designed Landscapes (GDLs) in the 40 km study area. The three closest GDLs are Cawdor Castle, Castle Grant and Dalcross Castle, which lie approximately 12 km, 16 km and 16 km respectively from the closest turbine of the Proposed Development. **Figure 7.5** shows the GDLs in conjunction with the preliminary ZTV. This indicates that there will be no theoretical visibility from these three GDLs.

7.20. The other GDLs in the study area are also unlikely to be significantly affected by the Proposed Development, due to various combinations of no or very limited visibility, their separation distance from the Proposed Development, or the screening effect of tree cover, as set out in Table 7.1 below. These factors will make it unlikely for significant effects to arise and it is, therefore, proposed that the GDLs are scoped out of the LVIA.

Special Landscape Areas

7.21. There are ten Special Landscape Areas (SLAs) in the study area, the closest of which is Drynachan, Lochindorb and Dava Moors SLA, within which the site is located. The preliminary ZTV, in **Figure 7.5**, shows theoretical visibility to be fairly extensive across this SLA and there is the potential for significant effects to arise owing to the proximity of the Proposed Development.

7.22. The other SLAs include Findhorn Valley and the Wooded Estates at 17 km to the north-east, Cromarty Sutors, Rosemarkie and Fort George SLA at 22 km to the north, and Loch Ness and Duntelchaig SLA at 20 km to the west. The other SLAs lie beyond 25 km. These SLAs are unlikely to be significantly affected by the Proposed Development, due to various combinations of their separation distance from the Proposed Development, the screening effect of tree cover, or the limited extent of

visibility, as set out in Table 7.1 below. These factors will make it unlikely for significant effects to arise and it is, therefore, proposed that these SLAs are scoped out of the LVIA.

7.23. The LVIA will, however, assess the effects of the Proposed Development on the Drynachan, Lochindorb and Dava Moors SLA, where there is potential for a significant effect to arise. The assessment will make reference to the citation of the SLA presented in THC's 'Assessment of Highland Special Landscape Areas' and with the assessment carried out in accordance with the guidance set out in Appendix 2 to THC's Highland wide Local Development Plan, which advises the following:

7.24. "The Council will consider the potential impacts of development proposals on the integrity of the SLAs, including impacts on the wider setting. There may be cases where the setting of an SLA could be adversely affected by development in the foreground which would interrupt important views into and out of the SLA. When determining the impact on the landscape character and scenic quality and overall integrity of the SLA, attention will be given to its citation and in particular the Key Landscape and Visual Characteristics, it's Special Qualities, and its Sensitivities to Change."

Wild Land

7.25. While no part of the application site is located within a Wild Land Area (WLA), there are two WLA's within the Study Area, namely the Cairngorms WLA and Monadhliath WLA. The WLAs, shown in conjunction with the preliminary ZTV in **Figure 7.5**, illustrate the notable separation distances of approximately 24 km between the Cairngorms WLA and the closest proposed turbine and approximately 15 km between the Monadhliath WLA and the closest proposed turbine. The figure also illustrates the very limited extent of visibility across the Monadhliath WLA. While visibility is shown to be more continuous along the northern ridgeline of the Cairngorms WLA, the Proposed Development will be seen from distances of beyond 25 km and associated with the existing 13 turbines of the Operational Scheme.

7.26. Significant effects on the wildness qualities of these WLAs are unlikely to occur owing to the notable separation distances and the existing influence from Tom nan Clach Wind Farm on the adjacent site to the Proposed Development. It is, therefore, proposed that the effects on the Cairngorms WLA and Monadhliath WLA be scoped out of the LVIA.

Summary of Landscape Designations and WLAs to be scoped in and out

7.27. Table 7.1 below lists the landscape designations and WLAs and provides information on their distance to the Proposed Development turbines and relationship to the ZTV, as shown in **Figure 7.5**. Thereafter, it is assessed in the final column whether, in OPEN's opinion, these designated areas can be scoped out of the assessment. The boxes that

are shaded grey will be assessed in detail within the LVIA. THC's and NatureScot's agreement to the proposed approach is sought through this scoping report. This approach is to enable the LVIA to be focussed on key considerations.

Table 7.1: Designations

Designation/WLA		Distance to nearest turbine (km)	Subject to ZTV visibility?	Need to assess effects further within LVIA?
NP	Cairngorms	4	Yes	Yes – the proximity of the Proposed Development to the NP gives rise to potentially significant effects despite the existing influence from the Operational Scheme.
NSA	The Cairngorm Mountains	20	Yes	No –the minimum separation distance of 20 km combined with the existing influence from Operational Scheme on the adjacent site, will limit the potential for a significant effect to arise.
GDL	Cawdor Castle	12	No	No – no ZTV shading.
	Dalcross Castle	16	No	No – no ZTV shading.
	Castle Grant	16	No	No – no ZTV shading.
	Relugas	17	Yes	No – despite small patches of theoretical visibility, the extensive tree cover in the GDL will reduce actual visibility and the potential for a significant effect to arise will be limited.
	Aultmore	18	No	No – no ZTV shading.
	Culloden House	18	No	No – no ZTV shading.
	Leys Castle	18	No	No – no ZTV shading.
	Darnaway Castle	21	No	No – no ZTV shading.
	Tomnahurich	23	No	No – no ZTV shading.

Designation/WLA		Distance to nearest turbine (km)	Subject to ZTV visibility?	Need to assess effects further within LVIA?
	Cemetery			
	Doune of Rothiemurchas	23	No	No – no ZTV shading.
	Kinrara	24	No	No – no ZTV shading.
	Brodie Castle	24	Yes	No – despite almost continuous visibility shown on ZTV, extensive tree cover in the GDL will reduce actual visibility and limit potential for a significant effect to arise.
	Dochfour	26	No	No – no ZTV shading.
	Aldourie Castle	26	No	No – no ZTV shading.
	The Fairy Glen	27	No	No – no ZTV shading.
	Grant Park and Cluny Hill	28	Yes	No – despite visibility shown on the ZTV, extensive tree cover in the GDL will reduce actual visibility and limit potential for a significant effect to arise.
	Rosehaugh	28	No	No – no ZTV shading.
	Cromarty House	32	No	No – no ZTV shading.
	Pluscarden Abbey	35	No	No – no ZTV shading.
	Brahan	39	No	No – no ZTV shading.
SLA	Drynachan, Lochindorb and Dava Moors	0	Yes	Yes – the Proposed Development is located in this SLA and ZTV visibility is shown to be extensive across the SLA.
	Findhorn Valley and the Wooded Estates	17	Yes	No – despite small patches of visibility shown on the ZTV, tree cover in the SLA will reduce actual visibility and limit potential for a significant effect to arise.

Designation/WLA		Distance to nearest turbine (km)	Subject to ZTV visibility?	Need to assess effects further within LVIA?
	Loch Ness and Duntelchaig	20	Yes	No – despite visibility shown on the ZTV to occur as a narrow band along the north-western side of the glen, the separation distance combined with the baseline influence from Tom nan Clach Wind Farm will limit the potential for a significant effect to arise.
	Cromarty, Sutors, Rosemarkie and Fort George	22	Yes	No – despite visibility shown on the ZTV to occur across much of this SLA, the separation distance combined with the baseline influence from Tom nan Clach Wind Farm will limit the potential for a significant effect to arise.
	Cubin to Burghead Coast	25	Yes	No – despite visibility shown on the ZTV to occur across much of this SLA, the separation distance combined with the baseline influence from Tom nan Clach Wind Farm will limit the potential for a significant effect to arise.
	Ben Rinnes	27	Yes	No – despite visibility shown on the ZTV to occur in a patch on the higher summits, the separation distance combined with the baseline influence from Tom nan Clach Wind Farm will limit the potential for a significant effect to arise.
	The Spey Valley	28	No	No – ZTV shading
	Cluny Hill	28	Yes	No – despite visibility shown on the ZTV to occur across much of this SLA, the extent of tree cover combined with the separation distance will limit the potential for a significant effect to arise.
	Pluscarden Valley	29	Yes	No – no ZTV shading

Designation/WLA		Distance to nearest turbine (km)	Subject to ZTV visibility?	Need to assess effects further within LVIA?
	Ben Alder, Laggan and Glen Banchor	35	No	No – no ZTV shading.
WLA	Monadhliath	15 km	Yes	No – the minimum separation of approximately 15 km, the limited extent of visibility across the WLA, and the existing influence of Tom nan Clach limits the influence of the Proposed Development on the wildness qualities of this WLA.
	Cairngorms	23 km	Yes	No – the minimum separation of approximately 23 km, the limited extent of visibility across the WLA, and the existing influence of the Operational Scheme and other operational wind farms limits the influence of the Proposed Development on the wildness qualities of this WLA.

Visual Receptors and Visual Amenity

7.28. The LVIA will undertake an assessment of the likely visual effects of the Proposed Development through consideration of the specific visual effects at a selection of representative viewpoints and by considering the wider effects on visual amenity with reference to a range of principal visual receptors.

Visualisations

7.29. Visualisations and figures will be produced to NatureScot's standards as set out in 'Visual Representation of Wind Farms Guidance: Version 2.2' (February 2017). A further set of figures will be prepared in accordance with THC's current visualisation guidance 'Visualisation Standards for Wind Energy Developments' (July 2016).

General Visibility

7.30. The ZTV shows a relatively well contained pattern of theoretical visibility, with the vast majority of the study area shown to gain no visibility of the Proposed Development. The Proposed Development is

located on the northern edge of a group of upland hills. The elevation of the site ranges approximately from 460 m to 550 m AOD.

7.31. The group of hills increases in elevation to the south with a distinct ridge formed between Carn nam Bain-tighearna (634 m AOD) and Carn Glas-choire (659 m AOD). This screens the Proposed Development from a substantial proportion of the southern and south-eastern sectors of the study area, including the Spey valley and the surrounding uplands. It is only where the landform rises across the elevated parts of the Cairngorm Mountains, Braes of Abernethy and Hills of Cromdale, that visibility resumes, albeit at ranges beyond 21 km.

7.32. A similar situation occurs to the north and north-west, whereby the group of hills which lie in this direction and which centre around Carn nan Tri-tighearnan (615 m AOD) effectively screen the Proposed Development from most of the northern and north-western sectors of the study area, including Inverness and the concentration of roads and settlements which lie along the northern coast. There are a few exceptions where localised patches of visibility occur, but these are typically small and distant.

7.33. Visibility to the south-west is screened by the close range and afforested hills of Carn Torr Mheadhoin (545 m AOD) and Carn Gleann an Tairbhidh (570 m AOD) as well as Carn a' Choire Mhoir (627 m AOD) although only across patchy extents and with visibility resuming on the eastern facing slopes of Carn na h-Easgainn (616 m AOD) and Beinn Bhreac (600 m AOD) to the west of the A9(T). The ridge formed by these latter hills creates a more effective screen of the Proposed Development, such that visibility further south-west occurs as a series of small patches on the more elevated slopes and summits in this direction.

7.34. It is to the north-east that visibility is most extensive, and this is explained by the relatively low-lying landform that occurs in this direction. The elevation of the uplands landscape falls away towards lower hills and the valley landscape of the River Findhorn, allowing visibility to extend out, albeit with actual visibility reduced in parts by forestry and other tree cover. A band of land beyond these lower hills is screened from visibility before resuming as patches across uplands in Moray along the coastal edge.

7.35. In summary, a concentration of visibility occurs within the first 5 to 6 km radius to the north-west and south-east sectors but visibility in these directions beyond this radius is typically distant and patchy. Visibility to the south-west is initially patchy across the adjacent valleys and then more continuous across the hill slopes between 7 and 12 km before becoming largely screened. Visibility to the north-east is most extensive albeit occurring as large patches following a fragmented pattern.

7.36. The comparative ZTV in **Figure 7.7** shows the extent of visibility of the Proposed Development in comparison with the extent of visibility of the Operational Scheme. This shows that the extents are broadly comparable, indicating that visibility would mostly occur in areas where an influence from the operational turbines already occurs. The exceptions occur where some additional patches of only the Proposed Development occur, the most notable being on the Black Isle where the A9 is routed, in a band across the Cromarty Firth and on the northern fringes of the Cairngorm Mountains, all at distances beyond 20 km.

Viewpoint Selection

7.37. The viewpoint list is shown in Table 7.2 below and the locations of the viewpoints are shown in **Figure 7.3**. This list was approved through the scoping process for the Operational Scheme and used as the basis of the visual assessment in the subsequent LVIA. The viewpoints were selected to represent sensitive visual receptors with the potential to undergo significant effects. They were also selected to represent relevant landscape receptors and with consideration given to the potential for cumulative effects to arise. It is proposed that the same viewpoints should be used for the Tom nan Clach Wind Farm Extension LVIA to enable direct comparison with the operational wind farm.

Table 7.1: Proposed Assessment Viewpoints

No	Viewpoint	Grid reference	Distance / Direction	Representative
1	Balvraid Lodge	283097 / 831450	4 km SW	Residents
2	Carn Glas-choire	289155 / 829151	5 km SSE	Walkers
3	Ptarmigan Lodge	300404 / 804871	32 km SSE	Walkers
4	Creagan a Chaise, Hills of Cromdale	310425 / 824167	25 km ESE	Walkers
5	Minor Road north of Drynachan	286914 / 841527	5.61 km N	Road-users
6	B9007 near Lochindorb	294275 / 838065	7 km ENE	Road-users
7	Geal Charn Mor, Monadhliath	272837 / 808124	22 km S	Walkers
8	A9 (T) north of Tomatin Junction	279375 / 830930	7 km SW	Road-users / rail-users / cyclists
9	Meall a Bhuachaille	298909 / 811496	25 km SSE	Walkers
10	A9 (T) River Findhorn Bridge	280798 / 829083	7 km SW	Road-users

11	Blackfold, near Dochgarroch	258833 / 840713	27 km WNW	Walkers / Residents / Road-users
12	Gorton Hill	301124 / 829535	15 km ESE	Walkers
13	A939 at milestone	296710 / 843722	12 km NE	Road-users
14	Shore Road Lochindorb 1	298220 / 837163	11 km E	Road-users
15	Shore Road Lochindorb 2	297880 / 836347	11 km E	Road-users
16	Creag Ealraich	294314 / 830462	8 km SE	Walkers
17	Dava Way	300956 / 838477	14 km ENE	Walkers

Principal Visual Receptors

7.38. A number of potential principal visual receptors occur within the 40 km study area, as shown in **Figure 7.6**. The inclusion of the preliminary ZTV in this figure shows that the majority of travel routes and settlements will gain no visibility owing to their location, typically in the low-lying straths and glens. Where visibility does occur, the potential for significant effects will be moderated by the existing presence and influence of the Operational Scheme. The landscape and visual assessment will include consideration of the principal visual receptors listed below.

Routes

7.39. Routes in the study area include roads, railway lines, cycle routes and walking routes, and some of these require to be considered in the LVIA, as views from them may be significantly affected by the Proposed Development. The key routes to be scoped in and scoped out of the LVIA are described below.

7.40. There are relatively few routes in the core of the study area due to the upland nature of much of the terrain. The routes tend to be concentrated along the river valleys, loch shorelines, and coastal shorelines, which surround and subdivide the upland areas. Their low-lying locations often limits the potential for visibility of the Proposed Development, due to intervening, higher landform or roadside forestry, as shown in **Figure 7.6**.

7.41. The Proposed Development lies within an upland landscape with lower lying valley landscapes wrapping round on all four aspects. The A9(T) is the main road in this area, linking Edinburgh with Inverness. It passes through the south-west of the study area, coming within approximately 8 km of the nearest turbine, in the section between Tomatin and Moy.

There is the potential that the Proposed Development may give rise to significant effects on road-users on the A9(T) and, therefore, this route will be included in the LVIA.

7.42. The other route which will be included in the LVIA is the B9007, which passes through the eastern part of the study area, coming within approximately 8 km of the nearest turbine, in the section between the Lochindorb junction and Burnside. The ZTV shows almost continuous visibility over this section and the openness of the landscape means actual visibility will largely reflect theoretical visibility.

7.43. The ZTV shows that along the remainder of the roads in the study area, there will be either no visibility, limited visibility in terms of levels and extent, or fuller visibility albeit from a distance or with actual visibility reduced by forestry or other tree cover. Where visibility does occur, it will typically coincide with visibility of Operational Scheme. The potential for significant effects to be experienced along these roads is limited and it is, therefore, proposed that they be discounted from the LVIA.

7.44. There are two rail routes through the study area; the Edinburgh to Inverness rail line; and the Aberdeen to Inverness rail line. The ZTV in Figure 7.6 shows theoretical visibility to occur in the section of the Aberdeen-Inverness line between Kinloss and Nairn. The location of this section at a minimum of approximately 20 to 33 km from the nearest turbine, combined with the extent of built development and tree cover in this coastal landscape, will notably reduce the likelihood for the Proposed Development to give rise to a significant effect. It is, therefore, proposed that the Aberdeen-Inverness train line be scoped out of the LVIA.

7.45. The ZTV in Figure 7.6 also shows that there is very limited visibility from the Edinburgh to Inverness rail route, with the exception of the section between Tomatin and Moy, which comes within 8 km of the Proposed Development. There is the potential that a significant effect may arise along this section and, therefore, this rail route will be included in the LVIA.

7.46. While there are a number of National Cycle Routes (NCRs) in the study area, NCR 1 is the only route to come within a 20 km radius of the Proposed Development. This cycle route follows the A9 through the south-east of the study area, with theoretical visibility occurring in the same Tomatin to Moy section. NCR1 will be included in the LVIA, as there is the potential that the Proposed Development may give rise to significant effects. It is proposed that the other NCRs be discounted from the LVIA, owing to a combination of no or very limited visibility, their separation distance from the Proposed Development, and the existing influence from Operational Scheme in those short sections where visibility does arise.

7.47. **Figure 7.6** shows that there are no core paths within the first 10 km radius around the Proposed Development. Beyond this, many of the core paths are typically concentrated around settlements, with some extending southwards into the Cairngorm Mountains. The ZTV shows there to be no, or only very limited theoretical visibility along these paths. The exception occurs along those paths that extend onto the higher upland slopes in the south of the study area, and along the open coasts in the north of the study area. The separation distance between these core paths and the Proposed Development, combined with the baseline influence from the Operational Scheme in a similar location, limits the potential for a significant effect to arise. It is, therefore, proposed that the core paths be scoped out of the LVIA.

7.48. Other long distance walking routes, which are not defined as core paths, occur across the wider study area, and these are also shown in **Figure 7.6**. The Great Glen Way, East Highland Way and Speyside Way are all predominantly located in the lower-lying valley landscapes of the study area, where the ZTV shows no theoretical visibility or small patches of especially limited visibility. The closest long-distance route is the Dava Way, which is situated to the east of the Proposed Development and comes within 14 km of the nearest turbine. Theoretical visibility along this route is limited in extent and further reduced by small patches of forestry. These factors, in combination with the existing influence from the Operational Scheme in a similar location, limit the potential for a significant effect to arise on walkers on this route. It is, therefore, proposed that Dava Way and the other long-distance routes be scoped out of the LVIA.

Settlements and Residents

7.49. Due to the relatively isolated location of the Proposed Development, the settlement in the first 10 km of the study area is limited in terms of its occurrence and extent, with only isolated or small clusters of properties occurring beyond 3 km. This means that a Residential Visual Amenity Assessment will not be required, as guidance sets a maximum 2 km radius as the study area limit for such an assessment.

7.50. Villages and rural clusters occur most frequently within the valleys where there is road access and also shelter from landform and occasionally tree cover. The five small settlements or clusters that occur within a 10km radius of the Proposed Development, include Moy, Tomatin, Balvraid, Ruthven and Dulsie. The ZTV in **Figure 7.6** shows theoretical visibility will affect all of these settlements, apart from Moy, which will be scoped out of the LVIA. Although only low levels of visibility will occur at Balvraid and Ruthven, their close proximity means that they will be included in the LVIA. While the ZTV shows theoretical visibility from Tomatin, the enclosure of built form and tree cover, combined with the intervening structures of the railway and road bridges across the River Findhorn, will notably reduce actual visibility and where visibility does occur, it will be seen in the context of the

Operational Scheme. Effects on Dulsie, which is a small cluster to the north-east of the Proposed Development, will also be notably reduced by the extent of surrounding tree cover. It is, therefore, proposed that Balvraid and Ruthven be included in the LVIA, while the other settlements are scoped out.

7.51. Settlements in the wider study area include Inverness, Nairn, Forres, Fortrose, Cawdor, Grantown-on-Spey, Aviemore, Carrbridge, Boat of Garten, Kingussie and Newtonmore. The majority of these settlements are located in low-lying valley or coastal landscapes, where the ZTV shows no visibility. The exception occurs along the Moray coast where settlements, such as Nairn and Forres, are shown on the ZTV to be subject to theoretical visibility of the Proposed Development. The potential for a significant effect to arise is, however, notably reduced by the separation distance beyond approximately 19 km, the enclosure of built form and tree cover which will reduce actual visibility and, where visibility does occur, the existing influence from the Operational Scheme on the site adjacent to the Proposed Development. It is, therefore, proposed that these settlements be scoped out of the LVIA.

Methodology

7.52. The landscape and visual assessment will assess the potential effects of the Proposed Development on landscape character and visual receptors around the Study Area. This includes the effects of the access tracks, substation, operations and maintenance building, and other associated infrastructure, as well as the turbines.

7.53. The assessment will be carried out using a methodology that has been specifically devised by OPEN for the landscape and visual assessment of wind farms. This methodology broadly accords with 'GLVIA3'. The following summary provides information on the methodology.

7.54. The potential effects of the Proposed Development on the landscape and visual resource are grouped into four categories: physical effects, effects on landscape character, effects on views, and cumulative effects.

7.55. Physical effects are restricted to the area within the site boundary and are the direct effects on the fabric of the site and its access, such as the removal or addition of trees and alteration to ground cover. This category of effects is made up of landscape elements.

7.56. Effects on landscape character arise either through the introduction of new elements that physically alter the pattern of elements that makes up landscape character, or through visibility of the Proposed Development, which may alter the way in which the pattern of elements is perceived. This category of effects is made up of landscape character receptors, which are landscape character types, designated areas and WLAs.

7.57. The assessment of effects on views is an assessment of how the introduction of the wind farm will affect views throughout the study area. The assessment of effects on views is carried out in two parts:

- an assessment of the effects that the wind farm will have on a series of viewpoints that have been selected to represent the views of people, for example, residents, walkers and road-users, throughout the study area; and
- an assessment of the effects that the wind farm will have on views from principal visual receptors, which are people living in the notable settlements, travelling on routes, as well as visiting features and attractions found throughout the study area.

7.58. The visual assessment will describe the impacts that are likely to occur at each of the representative viewpoints and it will also address the effects that people will experience more widely as they travel through and around the study area.

7.59. Cumulative effects arise where the study areas for two or more wind farms overlap so that both wind farms are experienced at proximity where they may have an incremental effect, or where wind farms may combine to have a sequential effect, irrespective of any overlap in visibility. The cumulative assessment will include existing wind farms, those that are under construction and consented, and those for which planning applications have been submitted, where the turbines are greater than 50m to blade tip. Sites that are at scoping stage will only be included exceptionally, if they are of specific relevance to the assessment. The cumulative assessment will focus on the most relevant cumulative sites as recommended in NatureScot's guidance.

Significance of Effects

7.60. The broad objective in assessing the effects of the Proposed Development is to determine, as required by the EIA Regulations, what the predicted significant effects of the Proposed Development on the landscape and visual resource will be. In this LVIA, effects will be assessed to be either significant or not significant.

7.61. The significance of effects is assessed through a combination of two considerations; (i) the sensitivity of the landscape element, landscape character receptor, view or visual receptor, and (ii) the magnitude of change that will result from the introduction of the Proposed Development.

7.62. Sensitivity is an expression of the ability of a landscape element, landscape character receptor, view or visual receptor to accommodate the Proposed Development, and is dependent on baseline characteristics including its susceptibility to change, value, quality, importance, the nature of the viewer, and existing character.

7.63. Magnitude of change is an expression of the scale of the change on landscape elements, landscape character receptors and visual receptors that will result from the Proposed Development.

7.64. The factors that are considered in sensitivity and magnitude of change are assimilated to assess whether the Proposed Development will have an effect that is significant or not significant. OPEN's methodology for assessing wind farm development is not reliant on the use of a matrix to determine the significance of landscape and visual effects, nor does it define levels of significance. It is, however, considered useful to include a matrix in the methodology to illustrate how combinations of sensitivity and magnitude of change can give rise to a significant effect and to provide an understanding as to the threshold at which significant effects may arise. Table 7.3 below provides this illustration.

Table 7.3: Illustrative Matrix of Significance of Effects

Magnitude Sensitivity	High	Medium-High	Medium	Medium-Low	Low	Negligible
High	Significant	Significant	Significant	Significant or not significant	Not Significant	Not Significant
Medium-High	Significant	Significant	Significant or not significant	Significant or not significant	Not Significant	Not Significant
Medium	Significant	Significant or not significant	Significant or not significant	Not Significant	Not Significant	Not Significant
Medium-Low	Significant or not significant	Significant or not significant	Not Significant	Not Significant	Not Significant	Not Significant
Low	Significant or not significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant

7.65. Effects that are assessed within the dark grey boxes in the matrix, are assessed to be significant in terms of the requirements of the EIA Regulations. Those effects that are assessed within the light grey boxes may be significant, or not significant, depending on the specific factors and effect that is assessed in respect of a particular landscape or visual receptor. In accordance with the Landscape Institute's 'GLVIA3' (paragraph 3.23), experienced professional judgement is applied to the assessment of all effects and reasoned argument is presented in respect of the findings in each case.

7.66. A significant effect occurs where the Proposed Development will provide a defining influence on a landscape element, landscape character receptor or view. A significant cumulative effect occurs where the combined effect of the Proposed Development with other existing and Proposed Developments will result in a landscape character or view that

is defined by the presence of more than one wind farm and is characterised primarily by wind farms.

Nature of Effects

7.67. Guidance provided by the Landscape Institute on the Nature of Effect, in its publication GLVIA3, is limited to a single entry which states that "One of the more challenging issues is deciding whether the landscape (or visual) effects should be categorised as positive or negative. It is also possible for effects to be neutral in their consequences for the landscape. An informed professional judgement should be made about this and the criteria used in reaching the judgement should be clearly stated.".

7.68. In relation to many forms of development, the EIA Report will identify beneficial, neutral and adverse effects under the term Nature of Effect. The landscape and visual effects of wind farms are difficult to categorise in these brackets as, unlike other disciplines, there are no definitive criteria by which these effects can be measured as being categorically beneficial or adverse. For example, in disciplines such as noise or ecology it is possible to identify the nature of the effect of a wind farm by objectively quantifying its effect and assessing the nature of that effect in prescriptive terms. However, this is not the case with landscape and visual effects, where the approach combines quantitative and qualitative assessment. The LVIA will determine whether effects are beneficial, neutral or adverse in accordance with defined criteria.

7.69. Judgements on the nature of effect are based on professional experience and reasoned opinion informed by best practice guidance.

Cumulative Assessment

7.70. The operational, consented, application stage and scoping stage cumulative wind farms within a 40 km radius of the Proposed Development are shown in **Figure 7.2**.

7.71. The cumulative assessment will be carried out in accordance with 'Assessing the cumulative impact of onshore wind energy developments', SNH 2012, and advice will be sought from THC and NatureScot as to sites to be included in the assessment, as well as agreement of a cut-off date for updating cumulative data prior to submission.

7.72. The cumulative assessment will focus on the most relevant cumulative sites as recommended in NatureScot's guidance. The cumulative effect of the Proposed Development in conjunction with the Operational Scheme will be given due consideration, along with the additional

interactions relating to operational Moy Wind Farm at approximately 7 km to the north-west and operational Farr and Kyllachy Wind Farms at approximately 12 km to the south-west. In terms of proposed wind farms, the most relevant is Cairn Duhie, approximately 12 km to the north-east, which is consented, but currently undergoing a redesign. The cumulative assessment will consider any other operational, under construction, consented and application stage wind farms, relevant to the assessment.

7.73. The cumulative assessment will also include a statement on the 'in combination' effects which considers the relationship of the Proposed Development in-combination with the cumulative developments and the extent to which this in-combination effect may alter the pattern of wind farm developments in this area and, in so doing, redefine the character of the landscape or visual receptors.

Key Issues

7.74. The following bullet points summarise the key considerations that will be addressed in the LVIA. This is not intended to be a definitive list, but indicates OPEN's assessment of the potential key effects of the Proposed Development at the Scoping stage:

- The potential cumulative effects of the Proposed Development in respect of the cumulative context comprising the Operational Scheme and all other relevant operational, consented and proposed wind farms.
- The potential effects of the Proposed Development on those relevant LCTs and LCUs within a 20 km radius.
- The potential effects of the Proposed Development on the special qualities of the Cairngorms National Park.
- The potential effects of the Proposed Development on the Drynachan, Lochindorb and Dava Moors SLA.
- The potential effects on the views and visual amenity represented by the selected viewpoints; and
- The potential effects on the routes and settlements represented by the selected principal visual receptors.

References

Scottish Government. (2017) 'Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017'

Landscape Institute and Institute of Environmental Management and Assessment (2013) 'Guidelines for Landscape and Visual Assessment: Third Edition'

Scottish Natural Heritage. (February 2017) 'Visual Representation of Wind Farms: Version 2.2'

Scottish Natural Heritage. (May 2014) 'Siting and Designing Windfarms'

Scottish Natural Heritage. (2020) 'Assessing Impacts on Wild Land technical guidance'

Landscape Character Assessment of Scotland held by NatureScot and available at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions

Inventory of Gardens and Designed Landscapes held by Historic Environment Scotland and available at:https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/gardens-and-designed-landscapes/

Scottish Natural Heritage (2010). 'The Special Qualities of the National Scenic Areas: Commissioned Report No. 374'

Scottish Natural Heritage (2010). 'The Special Landscape Qualities of the Cairngorms National Park: Commissioned Report N0.375'

Cairngorms National Park (2017). 'Cairngorms National Park Partnership Plan 2017-2022'

The Highland Council (July 2016). 'Visualisation Standards for Wind Energy Developments'

The Highland Council (2012). 'Highland-wide Local Development Plan'

The Highland Council (2011). 'Assessment of Highland Special Landscape Areas'.

Scottish Natural Heritage (2012). 'Assessing the cumulative impact of onshore wind energy developments'

Scottish Natural Heritage (2018). 'Guidance for Assessing the Effects on Special Landscape Qualities' Working Draft and Annexes.

8 Hydrology and Hydrogeology

8.1. This section outlines the proposed approach to the assessment of the potential effects of the Proposed Development on the water environment during the construction, operation and decommissioning periods.

8.2. The Proposed Development (as shown in **Figures 1.0** and **2.0**) comprises largely of open upland moorland habitat with areas of peatland and the operational 13 turbine Tom nan Clach Wind Farm (hereafter known as 'the Operational Scheme') existing in the central section of the site. To the immediate north and north-west of the site the land slopes steeply down towards the River Findhorn, which carves a prominent incision into the surrounding hills. The elevation of the Proposed Development ranges from approximately 270m to 550m above ordnance datum (AOD).

8.3. Site observations were undertaken during the 2020 peat depth survey and the Environmental Statement ('ES') for the Operational Scheme (Infinergy, 2015) has been reviewed.

8.4. A hydrogeological assessment will be undertaken in order to establish the baseline conditions and assess the potential effects of the Proposed Development, significance and the potential for mitigation.

2014 and 2015 Scoping Opinion of Operational Scheme

8.5. Comments were received from SEPA in relation to the hydrological assessment of the Operational Scheme in 2014 and 2015 as summarised below:

- Include a site survey of existing water features and a map of the location of engineering activities.
- Avoidance of direct impacts to watercourses.
- An NVC survey should be carried out to identify potential groundwater dependent terrestrial ecosystems.
- Watercourse crossings must be detailed with supporting photographs.
- Need to show minimum of 50m buffer between borrow pits and watercourses.

8.6. Consideration of these points has been given in development of the assessment methodology.

Methodology

8.7. Further consultation, desk studies and data requests will be undertaken to inform the updated baseline for the assessment.

8.8. Hydrology and hydrogeology data will be obtained including, (but not limited to), the following aspects:

- Review of published data and maps;
- Consultation with the SEPA and the Local Authority;
- Identification of solid and surface geologies;
- Review of Pollution Prevention Guidelines;
- Identification of surface water features, catchments and GWDTEs;
- Collation of flood plain information, water quality data and groundwater vulnerability information;
- Preparation of a catchment plan;
- Confirmation of data on public and private abstractions and supplies, and risk assessment of these; and,
- Identification of other similar developments within 10 km to identify potential cumulative effects.

8.9. The EIA Report Chapter will present the assessment of potential effects on hydrology and hydrogeology resources, including:

- Details of consultation undertaken;
- Assessment methodologies;
- Hydrological walkover survey details and results;
- Assessment of the different phases of the Proposed Development to establish the effect on the hydrological resource;
- Identify mitigation measures, where necessary;
- Identify any residual effects following mitigation;
- Cumulative assessment with other developments within 10 km of the Proposed Development; and,
- Statement of significance in accordance with the Environmental Impact Assessment Regulations 2017.

8.10. An outline Best Practice and Standard Mitigation Methods will be included as an appendix to the Hydrology, Hydrogeology, Geology and Peat Chapter. This appendix will detail recognised best practice methods to control effects on the hydrology, hydrogeology., geology and Peat

Baseline Conditions

8.11. An initial review of the hydrological and ground conditions of the Proposed Development has been undertaken. This section outlines the

potential hydrological receptors which have been identified within the area within which the Proposed Development lies ('the Site') and its wider area.

Surface Water

8.12. The receptors which have been identified on the Site include several named and unnamed tributaries of the River Findhorn, including sections of Allt an t-Slugain Mhoir, Rhilean Burn, Leonach Burn and Tomlachlan Burn. The River Findhorn (Findhorn to Dorback section) is classified by SEPA as having a 'Moderate' ecological status and the Rhilean Burn, Leonach Burn and Tomlachlan Burn are classified by SEPA as having a 'good' ecological stautus under the Water Framework Directive.

Statutory Designated Sites

8.13. There are no statutory designated sites within the site boundary. There are two designated areas Allt a Choire and Findhorn Terrace SSSIs to the north and northwest of the site for geology and preserved river terraces respectively within the catchment of the site boundary. However, these are not considered to be hydrologically connected to areas where the Proposed Development is located.

Ground Water Dependent Terrestrial Ecosystems

8.14. Should potential GWDTEs be identified through the ecological surveys, further consideration would be given to the hydrological function of these habitats to determine their actual dependency on groundwater.

Private and Public Water Supplies

8.15. A request will be made to the relevant statutory consultees for information pertaining to the location, type and source of public and PWSs to ensure that the information obtained for the Operational Scheme remains accurate, in that there are no known private water supplies with 2km of the site.

Groundwater

8.16. The groundwater unit underlying the Site is identified as the Moine Supergroup, an aquifer of low productivity, with small amounts of groundwater in the near-surface weathered zone and secondary fractures, which is classified as having a 'Good' SEPA River Basin Management Plan (RBMP) quantitative and qualitative status.

Flood Risk

8.17. The Indicative River and Coastal Flood Map (Scotland) produced by SEPA shows the areas of Scotland with a 0.5 % (1:200) or greater chance of flooding along the Allt an t-Slugain Mhoir, Rhilean Burn, Leonach Burn and Tomlachlan Burn. Other than the existing Operational Scheme access track watercourse crossings, the development will avoid flood risk areas.

Key Sensitivities

8.18. At this stage, the main key sensitivities are considered to be named and unnamed tributaries of the River Findhorn including Allt an t-Slugain Mhoir, Rhilean Burn, Leonach Burn and Tomlachlan Burn, groundwater and the hydrological function of potential GWDTEs.

Key Questions for Consultees

8.19. The following questions have been designed to ensure that the proposed methodologies and assessment are carried out in a robust manner and to the satisfaction of the determining authorities:

- Do the consultees agree with the proposed methodology and scope of the hydrology and hydrogeology assessment?
- Do the consultees have any information that would be useful in the preparation of the hydrology and hydrogeology assessment?

References

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. http://www.legislation.gov.uk/ssi/2017/101/contents/made (Accessed 08/02/21)

9 Geology and Peat

9.1. An assessment of the impact of the Proposed Development on geology and peat will be undertaken. This will establish the baseline conditions, inform the assessments and designs whilst determining any suitable mitigation measures required.

9.2. The Proposed Site (as shown in **Figures 1.0** and **2.0**) comprises largely of open upland moorland habitat with areas of peatland and the operational 13 turbine Tom nan Clach Wind Farm (hereafter known as 'the Operational Scheme') existing in the central section of the site. To the immediate north and north-west of the site the land slopes steeply down towards the River Findhorn, which carves a prominent incision into the surrounding hills. The elevation of the site ranges from approximately 270m to 550m above ordnance datum (AOD).

2014 and 2015 Scoping Opinion of the Operational Tom nan Clach Wind Farm

9.2. Minor comments were received in relation to geology and peat in the 2014 and 2015 Operational Tom nan Clach Wind Farm ('the Operational Scheme') Scoping Opinion:

- SEPA requested provision of a Peat Management Plan (PMP) with the Environmental Statement ('ES'), details of borrow pit location and dimensions should be provided, show how deepest areas of peat have been avoided. Once disturbance has been minimised by layout, SEPA would be looking to minimise disturbance via construction practices such as floating roads, provide a plan showing where floating roads will be situated, provide a plan showing probe locations.
- THC requested that the ES should identify significant effects from aspects such as borrow pits, earthworks, site restoration on peatlands, hydrology and hydrogeology.
- SNH requested that the need to undertake peat depth surveys and where possible, design infrastructure to avoid sensitive areas such as blanket bog and deep peat.

9.3. These points have been considered in the methodology below.

Baseline Conditions

9.4. The Proposed Development occupies an area of largely of open upland moorland habitat with patchy areas of sphagnum bog and intermittent ancient woodland remains. To the immediate north and north-west of within the area within which the Proposed Development lies ('the Site'),

the land slopes steeply down towards the River Findhorn, which carves a prominent incision into the surrounding hills.

9.5. Available British Geological Survey (BGS) mapping indicates that much of the superficial geology comprises peat overlying dense glacial till across much of the Site, with bedrock noted to be outcropping through the peat in some areas (mainly towards the south-west, west, and central site areas). Moraine deposits (rock debris deposited by glaciers) are noted in the south-east, around the course of the Rhilean Burn, with smaller areas of moraine in the eastern part.

9.6. SNH Carbon and peatland Map 2016 shows the majority of the Proposed Development area to be covered by Class 1 Peat, nationally important carbon-rich soils, deep peat and priority peatland habitat with some areas of Class 5 soil, where soil information takes precedence over vegetation data and no peatland habitat is present.

9.7. Consistent with the BGS, SNH and soil mapping, peat investigations comprising 509No. 200m centre spaced probing was undertaken in 2014 and in 2015 a further 603 probes was undertaken on a grid system around infrastructure as part of the planning application for the Operational Scheme (Infinergy, 2015). A total of 1,112 peat probe locations were undertaken as part of the ES for the Operational Scheme.

9.8. Further peat depth surveying, a total of 202 No. peat probes, were undertaken in 2020 on a 100m grid system to cover the area proposed for the wind farm extension infrastructure (Figure 9.1) and these records have been modelled to develop a peat depth contour plan (Figure 9.2).

9.9. Peat deposits varied across the Site however, typically shallower peat was recorded within the area of the Proposed Development infrastructure than the Operational Scheme area. Less peat was recorded within steep topography or watercourse valleys. Peat deposits were recorded up to 4.0 m thick within flatter areas, mainly in the southern and south eastern parts. Following an initial design freeze these areas will be revisited as part of the survey works and probing will be undertaken on a higher frequency within and around the proposed infrastructure for the EIA.

9.10. BGS mapping information on solid geology indicates that the Site is underlain by Bedrock comprises meta-sedimentary rocks, namely psammite and semi-pelite. In the northeast and southwest of the Site this comprises the Creag Buidhe Semipelite of the Badenoch Group and in between in the remaining areas the bedrock comprises the Beinn Bhreac Psammite Formation, also of the Badenoch Group.

9.11. There are no statutory designated sites of geological interest within the site boundary. However, the Allt a' Choire Site of Special Scientific Interest (SSSI), which is designated for its fluvial geomorphology and is

also designated as Geological Conservation Review (GCR) site 2225, is located over 1.4km to the north of the Proposed Development site boundary. No infrastructure for the proposed extension is proposed within this catchment. The Findhorn Terraces SSSI and GCR are located 2.2km to the north of the Proposed Development site boundary. This is designated for its good assemblage of glacial outwash and river terraces formed respectively during and following the melting of the Late Devensian ice-sheet. There is no direct or indirect connectivity between the Proposed Development and these SSSIs and therefore it will not be considered in the assessment.

Potential Effects

9.12. It is unlikely that the Proposed Development will have significant adverse effects on the geology of the Site, with the exception of effects on peat; therefore, it is proposed that this Chapter will solely focus on effects on peat as a result of the Proposed Development.

9.13. Development of wind farms on peatlands can lead to potential peat slide risk. An assessment of the likely effects on peatlands and the potential for peat landslide risk will be undertaken as part of the EIA.

9.14. Excavation of peat during construction of site infrastructure, including access tracks, crane hardstandings, turbine foundations, construction compound, substation and cable trenches may lead to potential effects on peatland habitat. In addition, natural surface drainage systems may change which could lead to drying and oxidation of in-situ peat.

9.15. Disturbance of organic rich peat soils could result in carbon loss and is further considered within Chapter 13.

Potential Mitigation

9.16. Measures will be taken during the design phase of the Proposed Development to ensure that infrastructure is located appropriately to reduce the potential risk of peat slide. This includes siting turbines and other infrastructure within areas of shallow topography which contain limited or no peat. Peat greater than 1m is classified as 'deep peat' and should be avoided where possible during the design phase.

9.17. The excavation of peat will be minimised or avoided where possible. Where peat excavation cannot be avoided, an approach will be developed for peat restoration and reinstatement in accordance with best practice. Monitoring of peat re-instatement or restoration will be carried out throughout the lifetime of the Proposed Development.

9.18. A draft Peat Management Plan (PMP) will be prepared as part of the EIA. The PMP would include details of expected peat excavation and re-use volumes based on recorded peat thickness, the infrastructure dimensions and anticipated re-use schemes.

Assessment Methodology

9.19. The purpose of this assessment will be to:

- Define the peat extent, depth and properties across the Site;
- Identify any areas susceptible to peat slide, using peat thickness and digital terrain model (DTM) data to analyse slopes;
- Advise on the micro-siting of turbines and tracks to areas of shallow or no peat;
- Assess potential effects on soils, peat and geology, and groundwater dependent terrestrial ecosystems (GWDTEs) and,
- Develop an acceptable code for construction that will adopt best practice procedures, effective management and control of onsite activities to reduce or offset any detrimental effects on the geology and soils including peat.

Stage 1 Peat Probing

9.20. Initial phase 1 peat probing from 2020 has been undertaken to supplement the existing information from the 2014 and 2015 peat depth surveys for the Operational Scheme (Figure 9.1 and 9.2).

Stage 2 Peat Probing

9.21. Following initial design freeze, the Stage 2 peat probing survey will be undertaken at 10 m centres for the site infrastructure including turbine foundations, crane pad footprints, borrow pit, construction compound and substation. Peat probing will also be undertaken at 50m intervals and 10m either side along the new proposed access track route. This will be carried out in accordance with Peat Survey Guidance, Guidance on carrying out peatland site surveys (Scottish Government, Scottish Natural Heritage, SEPA 2017) . The information gathered will be utilised in preparation of Peat Landslide Hazard and Risk Assessment.

Peat Condition Assessment

9.22. During Stage 2 peat probing, a selection of core sample locations will be selected to provide a full peat depth profile. This will be achieved by taking cores from the surface layer through to the basal layer. A record of each core will be kept and will include, but not be limited to the following information:

- Photograph of each core;
- Depth of acrotelm layer;
- Degree of humification;
- Course and fine fibre content;
- Water content; and,
- Information on the water table and basal strata where possible.

9.23. This approach is consistent with the document Good Practice During Windfarm Construction produced by Scottish Renewables, SNH, SEPA, FCS and HES and Peat Survey Guidance, Guidance on carrying out peatland site surveys (2017).

Peat Landslide Risk Assessment

9.24. A Peat Landslide Risk Assessment will be undertaken in accordance with Scottish Government guidance 'Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments along with full consultation with the relevant consultees.

9.25. The Peat Landslide Risk Assessment will comprise detailed qualitative and quantitative assessments of natural landslide likelihood and will consider potential construction effects on stability. Local and off-site receptors will be identified and a consequence assessment undertaken to enable calculation of risk. Management and mitigation measures appropriate to the calculated levels of risk will be provided.

Borrow Pit Assessment

9.26. Given the limitations on traffic movements to and from the Site, an onsite borrow pit to support the construction works is essential. The presence of a previous borrow pit utilised for the operational Tom nan Clack wind farm on site indicates that this is a viable and suitable option. The previous borrow pit used for the Operational Scheme will be reopened and used for the Proposed Development.

References

British Geological Survey (BGS) Geoindex Onshore. Available at: http://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed on 08/02/2021]

Government, Scottish Natural Heritage, SEPA (2017) Peat Survey Guidance, Guidance on carrying out peatland site surveys. https://www.gov.scot/publications/peatland-survey-guidance/ http://www.gov.scot/Topics/Business-Industry/Energy/Energy-sources/19185/17852-1/CSavings/PSG2011 [Accessed on 08/02/2021].

Scottish Renewables, SNH, SEPA, FCS and HES (2015), Good Practice During Windfarm Construction. Available at: http://www.snh.gov.uk/planning-and-development/renewable-energy/onshore-wind/good-practice-during-windfarm-const/ [Accessed on 08/02/2021]Scottish Government (2017) Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments. Available at: http://www.gov.scot/Publications/2017/04/8868/0) [Accessed 08/02/2021]

10 Cultural Heritage

Introduction

10.1. The 'cultural heritage' of an area comprises archaeological sites, historic buildings, gardens and designed landscapes, historic battlefields and other sites, features or places in the landscape that have the capacity to provide information about past human activity, or which have cultural relevance due to associations with folklore or historic events. Sites of cultural heritage interest may also derive some, or all, of that interest from their 'setting' within the wider landscape.

10.2. Historic landscape is not treated as a heritage asset for the purposes of this assessment except where a defined area of landscape has been designated for its heritage interest (including Conservation Areas and areas included in the Inventory of Gardens and Designed Landscapes). It is recognised that all landscapes have an historic dimension, and this will be considered as part of the assessment of Landscape Character (covered in Section 7: Landscape and Visual).

10.3. It is important to note that, although any effects on the significance of heritage assets due to change in their setting are likely to be visual in nature, the assessment of these visual effects is distinct from the assessment of visual change in the Landscape and Visual Assessment (LVA). The assessment of effects on setting may be informed by visualisations prepared as part of the LVA but the conclusions reached regarding visual change in the setting of a heritage asset are distinct.

10.4. The Cultural Heritage scoping report is intended to identify potential effects of Tom nan Clach Wind Farm Extension (the 'Proposed Development') upon the physical fabric and settings of heritage assets within the site, and potential effects on the settings of assets within the wider landscape.

10.5. The Cultural Heritage section of the Environmental Impact Assessment Report ('EIA Report') will characterise the historic environment within the site and in the wider study area. It will use the results of consultation, desk-based research, walkover surveys and setting visits to define a study area and to assemble a baseline of heritage assets within it, and then to assess the potential effects of the Proposed Development on that baseline. Where potential effects are identified, mitigation measures will be suggested.

Assessment Methodology & Consultation

10.6. The assessment will be carried out with reference to the following policy and guidance:

- Scottish Planning Policy (SPP) 2014;

- Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA 2020);
- Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (CIfA 2020)
- Planning Advice Note (PAN) 2/2011: Planning and Archaeology;
- Historic Environment Policy for Scotland (HEPS, 2019);
- Historic Environment Scotland Circular (2019);
- Managing Change in the Historic Environment: Setting (Historic Environment Scotland (HES) 2016);
- Highland Council Standards for Archaeological Work (post-consultation draft, February 2012)

10.7. The consultees below will be approached for information during the EIA process. These consultees may also be contacted by the Scottish Government regarding the scope of the EIA:

- The Highland Council Historic Environment Team;
- Historic Environment Scotland; and
- Local archaeological interest groups (as appropriate).

Baseline

10.8. The Baseline information used for this scoping section has been compiled using existing data on the historic environment; Historic Environment Scotland (HES) designations data available as GIS datasets from the HES website and a digital download of the Historic Environment Record of the area which was received from the Highland Council's ('THC') Historic Environment Team on the 13.01.21.

10.9. Two study areas have been used for the identification of heritage assets that may be affected by the Proposed Development:

10.10. The Inner Study Area (ISA) corresponds to the extent of the Site Boundary (Figure 10.1).

10.11. The Outer Study Area (OSA) extends to at least 20km from the proposed turbines, which is taken as the maximum extent of potentially significant effects on the settings of heritage assets. Within the OSA, assets will be included in the assessment based on the level of importance assigned to the asset (defined in the EIA Report Methodology), so as to ensure that all significant effects are recognised:

- Up to 2km from proposed turbines: Category C Listed Buildings, and any undesignated asset of local importance which has a wider landscape setting that contributes substantially to its cultural significance.
- Up to 5km from proposed turbines: all assets of national or regional importance, including Scheduled Monuments, Category A and B Listed Buildings, Conservation Areas, Inventory Gardens and

Designed Landscapes, Inventory Historic Battlefields and undesignated assets of more than local importance.

- Up to 20km from proposed turbines: any asset which is considered exceptionally important, and where long-distance views from or towards the asset are thought to be particularly sensitive, in the opinion of the assessor or consultees.

The Inner Study Area

10.12. There are no designated heritage assets recorded within the ISA. There is one undesignated asset: the site of a farmstead; Rhilean Burn (MHG26505) on the route of the proposed access track. This access track has been built and is in use as part of the Operational Scheme. In advance of construction this asset was subject to a topographical survey and fenced off with an appropriate buffer.

10.13. The baseline of the assessment will be informed by reference to designations data maintained by Historic Environment Scotland (HES) and to THC's Historic Environment Record (HER).

10.14. Considering the attitude and remoteness of the site and given that it has been subject to a number of walkover surveys during EIA in advance of the Operational Scheme it is considered that the potential for previously undiscovered remains to survive upstanding on the site is likely to be very limited. It is therefore proposed that a further walkover survey of the Site Boundary would not be necessary or add to the knowledge of the archaeological resource.

10.15. The distribution of known archaeology in the surrounding area indicates that previously unidentified archaeological remains are more likely to be found on level, low-lying ground and/or close to the principal watercourses and lochs.

The Outer Study Area

10.16. There are no designated assets within 2km of the Scoping layout. Undesignated assets of local importance which have a wider landscape setting that contributes substantially to their cultural significance within this area will be identified, if present, during the course of the EIA Report.

10.17. There are three designated heritage assets within 5 km of the Scoping layout (Figure 10.2). These are all Scheduled Monuments and comprise a prehistoric burial cairn, a post medieval township and a post medieval farmstead. There are no Listed Buildings within 5km of the turbines.

10.18. Between 5km and 20km of the turbines, there are 110 Scheduled Monuments (including one Property in Care of Scottish Ministers (PiC)); 41 Category A Listed Buildings (including one PiC), seven Inventory Garden and Designed Landscapes, four Conservation Areas and two Inventory Battlefields (Figure 10.2).

10.19. There are no World Heritage Sites in the OSA.

10.20. The 110 Scheduled Monuments between 5km and 20km comprise; 46 prehistoric ritual and funerary monuments including barrows, cairns and cup and ring marked stones, 41 prehistoric settlements, enclosures and forts; two pictish symbol stones, five medieval to post medieval ecclesiastical sites, and 16 medieval to modern secular structures including mottes, castles, settlements bridges and the Culloden memorial cairn and grave markers. The Scheduled Monument also identified as a PiC is the Clava Cairns (SM90074, PiC 328) which is located approximately 13.5km to the north-west of the turbines.

10.21. The Category A Listed Buildings comprise a mixture of castles, mansions, outbuildings, viaducts, bridges and churches. One Category A listed building is a PiC; the Ardclach Bell Tower (LB551, PiC 326) which is located approximately 12.8km o the north-east of the turbines. Three of the Category A are located within 5km of the Proposed Development.

10.22. The seven Inventory Gardens and Designed Landscapes reflect the number of castles and mansions in the surrounding area. There are no Inventory Gardens and Designed Landscapes within 10km of the proposed development.

10.23. Two of the Conservation Areas are at Culloden to the north-west, one at Cawdor to the north and the fourth at Grantown on Spey to the south-east. There are no Conservation Areas within 10km of the Proposed Development.

10.24. The two Inventory Battlefields within 20km of the Proposed Development site are the site of the Battle of Culloden to the north-west and the site of the Battle of Auldearn to the north. There are no Inventory Battlefields within 10km of the Proposed Development.

Potential Impacts

10.25. Effects on the historic environment can arise through direct physical impacts, impacts on setting or indirect impacts:

10.26. Direct physical impacts describe those development activities that directly cause damage to the fabric of a heritage asset. Typically, these activities are related to construction works and will only occur within the application site.

10.27. An impact on the setting of a heritage asset occurs when the presence of a development changes the surroundings of a heritage asset in such a way that it affects (positively or negatively) the cultural significance of that asset. Visual impacts are most commonly encountered but other environmental factors such as noise, light or air quality can be relevant in some cases. Impacts may be encountered at all stages in the life cycle of a development from construction to decommissioning, but they are only likely to lead to significant effects during the prolonged operational life of the development.

10.28. Indirect impacts describe secondary processes, triggered by the development, that lead to the degradation or preservation of heritage assets. For example, changes to hydrology may affect archaeological preservation; or changes to the setting of a building may affect the viability of its current use and thus lead to dereliction.

10.29. Cultural heritage constraint areas will, where necessary, be defined to include an appropriate buffer around known heritage assets. Constraint areas can be treated as a 'trigger' for the identification of potential direct impacts: they represent areas within which works may lead to direct impacts of more than negligible significance on known heritage assets.

10.30. Potential impacts on unknown heritage assets will be discussed in terms of the risk that a significant effect could occur. The level of risk depends on the level of archaeological potential combined with the nature and scale of disturbance associated with construction activities and may vary between high and negligible for different elements or activities associated with a development, or for the development as a whole.

10.31. Potential impacts on the settings of heritage assets will be identified from an initial desk-based appraisal of data from HES and the HER and consideration of current maps and aerial images available on the internet. Where this initial appraisal identifies the potential for a significant effect, the asset will be visited to define baseline conditions and identify key viewpoints. Visualisations will be prepared to illustrate changes to key views where potentially significant effects are identified.

Potential Mitigation

10.32. Where potentially significant effects are identified, mitigation measures will be proposed. The preferred mitigation option is always to avoid or reduce impacts through design, or through precautionary measures such as fencing off heritage assets during construction works. Impacts which cannot be eliminated in these ways will lead to residual effects.

10.33. Adverse effects may be mitigated by an appropriate level of survey, excavation, recording, analysis and publication of the results, in accordance with a written scheme of investigation (SPP paragraph 150 and PAN2/2011, sections 25-27). Archaeological investigation can have a beneficial effect of increasing knowledge and understanding of an asset, thereby enhancing its archaeological and historical interest and offsetting adverse effects.

References

Dingwall K, 2015, Archaeological Works - Tom Nan Clach Windfarm, Cawdor, Headland Archaeology.

AOC, 2014 Tom nan Clach Wind Farm Repowering, Environmental Statement.

Wood J, 2007, Tom nan Clach Wind Farm Environmental Statement: Archaeology and Cultural Heritage, Baseline Survey and Recommendations, Highland Archaeological Services Ltd.

Wood J, 2009, Highland Archaeological Services Ltd, Tom nan Clach Wind Farm: Environmental Statement, Highland Archaeological Services Ltd.

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11 Traffic and Transport

11.1 Initial Access Considerations

11.10 An initial access review has been undertaken which indicates that the turbine components could be delivered to site from the Port of Inverness, then via the A9, A95, A938 and B9007. Access to Tom na Clach Wind Farm Extension (the 'Proposed Development') would then be taken from the existing wind farm access junction on the B9007. Loads would then proceed to the Proposed Development site via new and existing private access tracks.

11.11 The access route will be used for the delivery of construction materials, abnormal loads and staff engaged with the constriction phase of the Proposed Development.

11.12 A detailed abnormal load route survey report will be prepared to review the feasibility of access option to identify the optimum access solution. The existing access junction may need to be upgraded to accommodate larger turbine components. A revised design will be prepared and will feature appropriate visibility arrangements.

11.2 Survey and Assessment Methodology

11.20 The following policy and guidance documents will be used to inform the Transport & Access Chapter:

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

11.21 The Guidelines for the Environmental Assessment of Road Traffic (IEMA 1993) sets out a methodology for assessing potentially significant environmental effects. In accordance with this guidance, the scope of assessment will focus on:

- Potential impacts (of changes in traffic flows) on local roads and the users of those roads; and
- Potential impacts (of changes in traffic flows) on land uses and environmental resources fronting these roads, including the relevant occupiers and users.

11.22 The main transport impacts will be associated with the movement of general HGV traffic travelling to and from the site during the construction phase of the development.

11.23 A Transport Assessment (TA) will be prepared to review the impact of transport related matters on the study area network. This, along with a detailed AIL Route Survey Report, will be appended to the wider Environmental Impact Assessment Report (EIA Report).

11.24 The TA will be summarised in the Transport and Access Chapter of the EIA Report.

11.25 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.

11.26 Detailed swept path analysis will be undertaken for the main constraint points on the route from the port of entry (Port of Inverness) 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.

11.27 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 wind farm for maintenance checks. The vehicles used for these visits are likely to be 4x4 vehicles and there may also be the occasional need for an HGV to access the wind farm for specific maintenance and/or repairs. It is considered that the effects of operational traffic would be negligible and therefore no detailed assessment of the operational phase of the Proposed Development is proposed.

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

11.29 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.

11.30 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.

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

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

11.33 Due to the current Covid-19 situation, traffic flows will have been significantly affected. The traditional approach of obtaining traffic survey data for use in the assessment from new Automatic Traffic Count (ATC) surveys would not be appropriate.

11.34 As an alternative, traffic flow data from the UK Department for Transport (DfT) database website (https://roadtraffic.dft.gov.uk/#8/57.613/-4.908/basemap-localauthorities-countpoints) would be used along with other publicly available traffic flow data for the A9, A95, A938 and B9001. The proposed DfT count sites are:

- A9: Site 20726;
- A95: Sites 1056 & 77101;
- A938: Sites 20867 & 30986; and
- B9001: Site 811532.

11.35 Traffic accident data would be obtained from Crashmap UK for the study network to inform the accident review for the road study area from the A9 to site for the preceding 3-year period.

11.4 Potential Significant Effects

11.41 The assessment will consider the potential effects associated with construction and operation of the Proposed Development as detailed below.

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

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

11.43 The potential effects of these will be examined in detail. The decommissioning phase of the Proposed Development is proposed to be screened out from the assessment.

11.5 Approach to Mitigation

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

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

11.51 Consultation Proposals

Consultation with the following stakeholders will be undertaken:

- THC 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. These consultations will be undertaken using Highways England ESDAL consultation system.

11.52 Key Questions

The following are what are thought to be the key issues which require consideration by the consultees:

- That the proposed methodology is acceptable?
- That the methods proposed for obtaining traffic flow data are acceptable?
- That the use of Low National Road Traffic Forecasts (NRTF) is acceptable for the whole of the study area to allow the derivation of future baseline conditions?
- What developments should be included as committed developments within the baseline traffic flows in the assessment, noting that these should have planning consent at the time of scoping?
- Details of any upgrades or network changes that may be undertaken to the study area network within the next five years?
- Contact details for roads officers dealing with the application during potential lockdown restrictions.

12. Noise

Overview

12.1. Noise and Vibration will occur during the construction, operation and de commissioning phases of the Proposed Development. The extent to which the effects of noise and vibration is significant depends on:

- The type of noise source;
- The location of noise sources;
- The number of noise sources;
- The distance and topography separating the potential receptors from the noise sources;
- Meteorological conditions; and
- The nature of the potential receptors.

12.2. The Proposed Development is an Extension to the Operational Tom Nan Clach Wind Farm ('the Operational Scheme') which began exporting power to the National Grid in March 2019. The planning consent contained noise limits within Condition 22, which restricts operational noise rating levels (including the application of any tonal penalty) in accordance with ETSU-R-97 (see below), except for the additional criterion on 38 dB LA90,10min during the night-time (23:00 – 07:00) as a lower minimum threshold.

Baseline

12.3. The site is located in a rural and relatively remote location in the Scottish Highlands. Potential receptors are considered to be residential properties around the site. On the basis of the rural surrounds the baseline noise environment in windy conditions would be dominated by wind over the landscape, particularly through vegetation.

12.4. Baseline noise measurements were carried out in 2007 for the Environmental Statement ('ES', Infinergy 2007) for the Operational Scheme at a location representative of closest residential receptor of Ballachrochin,1.5km to the north of the site. The grid reference for this position is NH 84726 36821. The noise environment was noted during the survey as being dominated by birdsong, wind in the trees, and nearby watercourses. It is unlikely that noise environment at this receptor would have significantly changed since the ES.

12.5. The baseline noise measurements carried out in 2007 are consistent with current best practice. The effects of wind shear on wind speed measurements were derived from wind speed the measurements at 65 m and 30 m height. This anticipated hub height is 91.4 m. The baseline analysis will be reconfigured to take into account this change in hub height from the original of 69 m. Based on these factors and also the advantage that the existing data is not influenced by the Operational

Scheme, the existing survey data will be used to form the baseline criterion.

Planning Policy and Guidance on Noise Issues

12.6. The principal planning guidance on noise is contained in Planning Advice Note (PAN) 1/2011, Planning and Noise, which contains advice on assessment of noise from new sources as well as the effects of noise on new residential development. For construction noise it refers to the Control of Pollution Act and the Pollution and Prevention Control Act 1999 for relevant installations. The accompanying Technical Advice Note, Assessment of Noise, lists BS 5228-1:2009+A1:2014, Noise and Vibration Control on Construction and Open Sites ('BS 5228') as being applicable for Environmental Impact Assessment (EIA) and planning purposes.

12.7. In respect of operational noise from wind farms, PAN 1/2011 refers to 'web-based planning advice' on renewables technologies which in turn refers to ETSU-R-97, The Assessment and Rating of Noise from Wind Farms, as the appropriate method for assessment of operational noise. Additional guidance on assessment of operational noise is contained in the UK Institute of Acoustics (IOA) document A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (GPG) which has been endorsed by the Cabinet Secretary for Finance, Employment and Sustainable Growth of the Scottish Government.

12.8. Due to the stand-off distances between the site and the nearest receptor, it is expected that vibration from on-site activities will not be perceptible at residential properties. Noise may be perceptible at the nearest residential location, but would not be significant in relation to criteria suggested within BS-5228. Noise and vibration from construction vehicles accessing the site may be perceptible at roadside properties but will be no greater than from other heavy good vehicles and will, therefore, not be significant. For this reason, noise and vibration effects from the construction and decommissioning of the expansion would be scoped out of the assessment.

Assessment Methodology

12.9. Operational noise from the site alone will be predicted using computer noise modelling according to the requirements of ETSU-R-97 as clarified and refined by the UK IOA GPG. The resulting noise will be assessed against the Operational Scheme noise limits.

12.10. In addition, the expansion will be assessed in conjunction with the existing consented site and other wind farms which may have a significant cumulative impact. For the purposes of a cumulative assessment, the higher minimum threshold of 40 dB prescribed in ETSU-R-97 will be used for both daytime and night-time, notwithstanding higher limits as a result of baseline LA90, T levels higher than 5 dB below this level.

12.11. An initial study area of 10 km from the site boundary will be considered for incorporating other wind farms into the cumulative assessment. However, if the predicted noise level from another site is below 25 dB LA90,T at the receptors assessed for the extension, the noise impact can be considered to be negligible, as this is 10 dB below the lowest already consented noise limit. A cumulative assessment will, therefore, only be provided for residential properties where the predicted noise levels from the Proposed Development is likely to exceed this level.

12.12. The results of the assessments will be presented graphically, and in a tabular form, showing the predicted noise levels in relation to the relevant noise limit(s).

Mitigation

12.13. Modern pitch regulated turbines, of the type proposed here, have the ability to reduce noise under critical wind speed and direction conditions by reducing rotor speed under critical conditions.

13. Carbon Balance

Introduction

13.1. Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 state that the impact of a wind farm project on climate change and the impact of climate change on a project should be included in Environmental Impact Assessment. Schedule 4 states in paragraph 4:

'..A description of the factors specified in regulation 4(3) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.'

13.2. The rationale for developing onshore windfarms is the beneficial effect of reducing net greenhouse gas emissions by displacing electricity produced from conventional fossil fuel sources. However, no method of electricity generation is completely carbon free; there will be emissions resulting from the manufacture of wind turbines and construction materials, as well as emissions from construction activities and transport.

13.3. In addition to these embodied emissions from the windfarm infrastructure, where a proposed development is located on carbon rich soils such as peat, there are potential impacts resulting from direct action of removing peat for construction and also the indirect changes to hydrology that can result in losses of stored carbon.

13.4. Land take for infrastructure will also have an impact on future carbon sequestration by vegetation. Therefore, the Climate Change section of the EIA Report will look at the emission reduction from displacement of conventionally generated electricity compared to the predicted direct and indirect losses of carbon from construction, operation and decommissioning, and will provide an estimate of the carbon payback time for the proposed development.

13.5. The impact of climate change on the Proposed Development (adaptation) has been scoped out of this assessment because it is not considered that the Proposed Development, by reason of its inland location, altitude and other characteristics (it is designed to accommodate a wide variety of windspeeds) is particularly vulnerable to expected effects of a warming climate in the UK which include increased temperatures, increased and more variable rainfall and sea level rises (UK Climate Projections Headline Findings, September 2019).

Methodology

13.6. The Scottish Government have funded the development of a tool for calculating the potential carbon losses and savings from windfarms on Scottish peat lands and this calculator is currently seen as best practice for gauging the payback time for carbon emissions from windfarm projects. Since the application will be made under Section 36 of the Electricity Act 1989 to the Scottish Government, the web-based version of the carbon calculator should be used or may be subject to rejection. Applications could be subject to audit by the Scottish Environment Protection Agency. The web-based version of the carbon calculator has been available since 29 June 2016, and the most recent version available is v1.6.1.

13.7. The carbon calculator requires a number of site-based input parameters and estimation of a minimum and maximum range. Construction parameters, including infrastructure dimensions and expected construction techniques will refer to the project description. Existing peatland habitat will use data collected during the ecological and hydrology and peat slide risk surveys. Where parameters need to be calculated from other measurements, the calculation methodologies will be clearly documented.

Baseline and Potential Effects

13.8. The baseline for the environmental parameter is two-fold: firstly, the current percentage of renewable electricity generation in Scotland will be used as the baseline to determine the significance of the proposed development to reaching Scotland's renewable generation targets (50% of Scotland's overall energy consumption from renewable sources by 2030). Secondly, an estimate of the current quantity of stored carbon in the organic soil at this site will be used to help determine the significance of the estimated carbon losses from the site.

Potential Effects

13.9. There will be carbon losses during construction and operation of the windfarm, including the long-term effect on stored carbon in peat soils; these will be balanced by the contribution of renewable energy to the grid and carbon gains from site restoration. The inclusion of battery storage at the site will also have an impact on efficiency of the electricity network, by providing both storage and balancing capacity and this effect will be incorporated into the assessment.

13.10. It is anticipated that the overall effect of the proposed development on climate change will be positive and one of the key focuses of the climate change assessment within the EIA Report will be to identify ways to enhance the positive impact and minimise any carbon losses through construction methodologies and site restoration.

14. Infrastructure

Introduction

14.1. Wind turbines reflect radio waves and can therefore interfere with radar. The reflections from the turbines show up on radar as 'clutter' and radar operators are often concerned that wind farm clutter might affect aviation safety. Due to their height, wind turbines could also potentially present a collision risk to low flying aircraft, interfering with military low-level training flights.

Baseline Conditions

14.2. The Defence Infrastructure Organisation (DIO) is responsible for safeguarding Ministry of Defence (MoD) radar, airfields, communications and low flying zones.

14.3. The Civil Aviation Authority (CAA) will be consulted. The CAA will also inform National Air Traffic Services (NATS) of the proposal.

Potential Impacts

14.4. It is not expected the Proposed Development will have any negative impact on military or civil aviation, or radar operations based on the consultee responses to the Operational Scheme.

Potential Mitigation

14.5. If an objection is raised by consultees, Infinergy will consult with the operator directly to work towards a mitigation solution agreeable to both parties.

Assessment Methodology

14.6. In order to assess any potential impacts on aviation or radar, Infinergy will consult the MoD, CAA and NATS to advise them on the layout of the Proposed Development.

14.7. If any significant impacts are expected, further studies such as radar impact assessments will be carried out, if required.

Key Issues for Consideration

14.8. The EIA will take into consideration any potential impacts on military, civil aviation, or radar operations.

Telecommunications

Introduction

14.9. This section considers potential issues associated with telecommunication and television reception as a result of the Proposed Development during the construction, operation and decommissioning phases.

Policy Context

14.10. There are no planning policies or guidance directly relevant to potential telecommunication or television reception impacts associated with wind farm developments.

Baseline Conditions

Links

14.11. In order to establish a detailed baseline of relevant telecommunication issues at the site, a formal consultation process with Spectrum Licensing (previously known as Ofcom) and all relevant link operators will be conducted to identify any communication links onsite. Where possible, the wind farm will be designed to avoid links identified onsite and take into account any minimum separation distances required.

Television Reception

14.12. The closest television transmitter for nearby properties is the Rosemarkie transmitter. This transmitter has switched to digital transmission only. Currently there is no widely accepted method of determining the potential effects of wind turbines on digital television, however digital television signals are better at coping with signal reflections, and do not suffer from ghosting that may occur with analogue signals.

Potential Impacts

14.13. The rotating blades of wind turbines have the potential to cause interference and reflectance impacts to microwave links (i.e. mobile telephones) and UHF scanning telemetry communications and television broadcasting.

Links

14.14. In consultation with relevant link operators the significance of potential operational effects will be established and where appropriate, suitable mitigation measures will be determined.

Television Reception

14.15. Digital transmitter powers increase to around ten times previous levels at digital switchover. At the same time, digital signals will have been added to the relay transmitter network. These improvements greatly increase the availability and robustness of digital terrestrial reception. To date,

there are no known cases of wind turbine interference with digital television reception post digital switchover.

14.16. Digital UK is the independent, not-for-profit organisation leading the process of digital TV switchover in the UK, and provides coverage predictions for digital television. A general rule of thumb indicates that the better the predicted reception, the better the protection against interference. This is currently the most reliable information on signal strength, and hence vulnerability to interference.

14.17. Given the strength of the digital signal in the area and the inherently resilient nature of digital television reception, we consider there is a low risk of any interference from a wind energy development at this location on domestic television reception.

14.18. Due to the low risk of interference with television reception, and as the requirement to address any reception issues once the Proposed Development were operational could be conditioned in planning consent it is not proposed to carry out a detailed assessment of potential effects on television reception.

Key Issues for Consideration

14.19. The EIA will take into consideration any construction or operational effects on telecommunication systems. It is proposed to scope out any further assessment of effects on television reception.

15. Shadow Flicker & Safety

Introduction

15.1. This section considers shadow flicker which can occur in sunny weather when the blade of a moving wind turbine cuts through the sunlight passing into a small opening (window) of a property. This effect briefly reduces/blocks the intensity of light within a room, and causes a flickering or strobe like effect. It can be distracting and disturbing for people who are affected.

15.2. Shadow flicker is generally not a disturbance in the open, as light outdoors is reflected in all directions. In order for shadow flicker to occur, the receptor must be directly in line with a wind turbine when the sun is low in the sky.

Policy Context

15.3. There are at present no formal guidelines available on what exposure would be acceptable in relation to shadow flicker. There are no standards for the assessment of shadow flicker. The specific advice sheet from Scottish Government, Onshore Wind Turbines a web-based guidance (Scottish Government, 2013) sets out the potential geographic area which may fall under assessment: "Where this (Shadow Flicker) could be a problem, developers should provide calculations to quantify effect. In most cases however, where separation is provided between wind turbines and nearby dwellings (as a general rule ten rotor diameters), 'shadow flicker' should not be a problem."

15.4. Published research by the Department of Energy and Climate Change (DECC) Update of UK Shadow Flicker Evidence BASE (DECC, un-dated), evaluates the current international understanding of shadow flicker and confirms an acceptable study area for assessment is ten rotor diameters from each turbine and within 130 degrees either side of north.

Baseline Conditions

15.5. No properties with the potential to be affected by shadow flicker have been identified within 10 rotor diameters of the current turbine layout.

Potential Impacts

15.6. Shadow flicker only occurs during the operational phase of a wind farm and as no properties are within 10 rotor diameters of a wind turbine, no potential impacts are anticipated as a consequence of the operation of the proposed development.

15.7. However, to ensure no potential impacts are overlooked, following design freeze, a detailed assessment of shadow flicker will be undertaken which will identify if shadow flicker may be an issue. Initially the assessment will ascertain any sensitive receptors within ten rotor diameters and 130 degrees either side of north of the final turbine locations. If any sensitive

receptors are identified, a formal shadow flicker assessment will be conducted using a recognised computer software package to quantify the potential effects. If required, the results of the assessment will be reported in the EIA Report which will also consider potential mitigation options if necessary.

Key Issues for Considerations

15.8. If properties are identified within ten rotor diameters and 130 degrees either side of north of the final turbine locations a full shadow flicker assessment will be undertaken.

Safety

Introduction

15.9. The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 require that consideration must be given to the vulnerability of a Proposed Development to the risk of major accidents and disasters.

Baseline

15.10. The Proposed Development occupies a remote hillside, to the west of the B9007 near Carrbridge. Notwithstanding the right to roam, the existing access track for the Operational Scheme is approximately 9km long, and although this has improved access for the general public it is more likely via cycle than walking due to the length of this track. The landowners and staff associated with the wind farm are already fully appraised of safe working practises due to the Operational Scheme. It is anticipated that very few members of the public will be in close enough proximity to the turbines to experience any level of risk, based on the experience to date for the Operational Scheme.

15.11. The Proposed Development occupies a remote hillside, to the west of the B9007 near Carrbridge. Notwithstanding the right to roam, the existing access track for the Operational Scheme is approximately 9km long, and although this has improved access for the general public it is more likely via cycle than walking due to the length of this track. The landowners and staff associated with the wind farm are already fully appraised of safe working practises due to the Operational Scheme. It is anticipated that very few members of the public will be in close enough proximity to the turbines to experience any level of risk, based on the experience to date for the Operational Scheme.

Assessment

15.12. The Applicant will take all necessary measures to limit the risk to health and safety during the construction, operation and eventual decommissioning of the wind turbines. A Construction Environmental Management Plan will be prepared which will outline the actions to be taken to reduce the risks to those working on the site during the construction phase. These measures will include ensuring all workers

have the correct Personal Protective Equipment and risk assessments being carried out. Only suitably qualified workers will be allowed to work at height or in high voltage areas. Activity will be carried out in line with all appropriate guidance from HSE, industry bodies and the government.

15.13. It is likely that at some point during construction there will be inclement weather conditions which could include heavy rain, gale-force winds and even snowfall. Suitable precautions will be taken to ensure that activities undertaken in any extreme weather conditions are safe and will not jeopardise the safety of personnel or property, or the general public. The site's location makes the risk of other natural disasters, such as tornados, volcanic eruptions and earthquakes, remote. The risk of the site flooding will be covered within the hydrology and hydrogeology chapter of the EIA Report and adequate precautions will be taken during construction.

15.14. Once operational, the wind turbines will be programmed to shut down if wind speeds reach too high a high level (typically 25m/s). This reduces the risk of the turbines being damaged, but also reduces risks to any people who are in the vicinity in such conditions. This risk may become more prevalent as extreme wind conditions increase due to climate change.

15.15. One risk to those working within the wind farm and the surroundings could potentially be ice throw. As ice forms round the blades and can then dislodge as temperatures increase and the blades start to rotate. There are several options to mitigate the risk of ice throw from turbines. Modern wind turbines can be fitted with winter-kits which include heating elements for the turbine blades, preventing the formation of ice. Even without these features, sensors can be fitted to detect the imbalance on blades arising from the formation of ice. This enables the turbines to be shut down before significant volumes have formed eliminating the danger to anyone or anything on the ground.

Key Questions

15.16. The following are thought to be the key issues which require consideration by the consultees:

- Does the Council agree that health and safety should be scoped into the EIA?
- Does the Council agree that the approaches identified above should be expanded upon in the EIA so that the risks to people and property are suitably managed and controlled?

16 Socio-Economic

Introduction

16.1. This section details the approach to the assessment of Socio-Economics, Health, Tourism and Recreation and Land Use.

Site Context

16.2. The Proposed Development is located within a rural location and it is approximately 8km north-east of Tomatin, and within the Cawdor, Glenkirk and Lethan Estates in Nairnshire, in the Highlands.

Baseline Conditions

16.3. The Proposed Development encompasses land within the Highlands. A brief overview of the socio-economic baseline for the area surrounding the Proposed Development is set out below.

Population

16.4. At the time of the 2011 census, the population of the Highlands was 232,132. By mid-2013 the population had increased to 232,950. On 30th June 2018, the population of the Highlands was 235,540 (7th largest of 32 Council areas in Scotland). This is an increase of 0.2% from 235,180 in 2017. Over the same period, the population of Scotland increased by 0.2%. Since 1998 the population has increased by 12.8% (Scotland-wide increase of 7.1%). The population of People aged 75+ increased by 57.4% in the 20 years to 2018 in the Highlands.

Employment and Economy

16.5. The economic activity rate in the Highlands is higher than the equivalent rates for Scotland and the UK as a whole (81.7% compared with 77.9% for Scotland and 78.9% for the UK). In turn the economic activity rate for both males and females is higher in the Highlands. As a consequence of the high levels of economic activity, the unemployment rates are lower, for both males and females.

16.6. The biggest sector of employment in the Highlands is in human health and social work, then wholesale and retail trades, followed by the accommodation and food services industry. Employment in human health and social work is higher than the equivalent figures for Scotland and Great Britain as a whole (18.2% compared with 15.7% for Scotland and 13.2% for Great Britain respectively) and the figures are also higher for the food services industry sector.

16.7. Employment in the construction sector is also higher in the Highlands than in Scotland and this is also the case for the arts sector. There are several other sectors where employment is lower in the Highlands than it is for Scotland and Great Britain as a whole, e.g. for manufacturing and professional, scientific and technical sectors.

16.8. The percentage of full-time employees in the Highlands is lower than for Scotland and Great Britain as a whole, with the number of part time employees higher.

Health

16.9. Scotland's Public Health Observatory Health and Wellbeing profile for the Highlands provides an overview of the health of the population of the Highlands. This includes a range of health indicators on life expectancy, behaviours, ill health and injury, social care and housing, education, economy, crime, environment, women's and children's health and immunisations. The overall picture is mixed but none of the indicators are categorised in the worst category (compared to the rest of Scotland); and in many instances they are better than the national average, for example early deaths from cancer and children living in poverty. However, there are some indicators where the measure is higher than the Scotland average, for example the number of people aged 65 and over with high levels of care needs.

16.10. NOMIS statistics show that for the period July 2018-July 2019 there were 6,900 people of working age on long term sick in the Highlands, which equates to 26.9% of those of working age, which is lower than the figure for Scotland as a whole of 28.7%, but higher than the figure for Great Britain of 23%.

16.11. With regards to hospitals, Raigmore is NHS Highland's only District General Hospital and is located in Inverness. There are also three Rural General Hospitals: Caithness General in Wick; Belford in Fort William, and Lorn & Islands in Oban. In addition, there are several community hospitals in various locations throughout the Highlands.

16.12. There are 88 GP surgeries dotted across the Highlands. There are 91 dentist surgeries in the Highlands. The closest facilities are in Inverness to the west and Nairn to the north.

Tourism and Recreation

16.13. Urquhart Castle is by some distance the most popular free tourist attraction in the Highlands, followed by Glenfinnan Monument and Loch Ness. Glenmore Forest Park was by some distance the most popular paid attraction, followed by the Caledonian Canal Visitor Centre and Glen Affric.

16.14. Whist as noted in the paragraph above, the Highlands has a number of major tourist attractions which attract many visitors each year there are no major tourist attractions within the 35km landscape and visual zone of theoretical visibility (ZTV) for the Proposed Development.

16.15. In terms of formal recreation facilities, there are golf courses at Forres, Grantown on Spey and Nairn. The wider area supports numerous informal activities, such as walking, riding, fishing and cycling. The Proposed Development is intersected with forestry paths.

16.16. The current land-use onsite is a mix of commercial forestry and agriculture and the estates on which the Proposed Development is located are also managed as active shooting estates. The majority of the Proposed Development is subject to the 'right to roam' under the Land Reform (Scotland) Act 2003 such that access for recreation (including walking and horse riding) is permitted over most of the Proposed Development.

Land Use

16.17. Cawdor Estate is managed primarily as a sporting, forestry and agricultural estate. Glenkirk Estate is a commercial forestry plantation. Lethen Estate is managed primarily as a sporting, forestry and agricultural estate (see **Figure 2.1** showing the boundaries of these estates).

Potential Impacts

16.18. Wind farms have the potential to have both beneficial and negative effects on socio-economics, health, tourism and recreation, and land use. Potential beneficial effects include:

- Generation of local jobs through use of local contractors for construction and maintenance;
- Increased spend in the local community during the construction stage and to a lesser degree during the operational stage with workers staying in the area and using local facilities; and
- Community benefits, for example a community benefit fund, or improvements to recreational access for turbine tracks.

16.19. Negative effects of wind farms are often linked to perceptions and attitudes towards wind energy development, which could potentially result in reduced use of tourism and recreation facilities and the associated impacts this could have on the local economy. There could also be negative impacts on health facilities through an influx of construction workers to the local area and on land use if existing land uses on the Proposed Development were displaced by the Proposed Development.

Potential Mitigation

16.20. Typical mitigation measures are likely to include rerouting of public rights of way or provision of alternative rights of way, done in conjunction with the Highland Council's (THC) rights of way department; timing of public rights of way and/or other recreation closures to avoid holiday periods; public information boards displayed around the Proposed Development outlining the development and access restrictions; micro-siting discussions with landowners, occupiers and local communities. Mitigation can also be linked to that proposed for other disciplines, for example landscape and visual, noise or historic environment to minimise effects during the iterative design phase.

Scope of Assessment

16.21. In order to assess the potential socio-economic, health, tourism and recreation and land use effects of the Proposed Development, it is necessary to gain an understanding of the socio-economic background of the area in which the Proposed Development is located, as well as consideration of relevant regional, national and UK level statistics. The demographic makeup of the population and the character of the local economy will therefore be examined as part of the EIA to provide an overview of potential linkages with the Proposed Development. Tourist and recreational attractions along with any core paths or public rights of way (PRoW) within or surrounding the Proposed Development identified within the Landscape and Visual Impact Assessment (LVIA) will form part of the assessment (while direct effects on existing public access will be considered within the socio-economic assessment, amenity effects for those using access routes will be considered within the LVIA), as well as any tourism or recreation receptors identified within the historic environment assessment. Ways in which benefits such as improved public and recreational access to the Proposed Development could be delivered will be examined.

16.22. The assessment will also examine the level of construction activity and job creation and the potential linkages with the wider local economy. This will include an assessment of potential multiplier effects within the local economy and the degree to which local businesses could benefit from the construction, operation and decommissioning of the Proposed Development. Potential community effects will also be examined and, whilst it is considered unlikely to be significant, the assessment will also qualitatively consider the potential for the Proposed Development to have an effect on other existing business activity.

Assessment Methodology

16.23. The socio-economic, health, tourism and recreation and land use chapter would focus on the effects (during construction, operation and decommissioning) on visitor attractions, recreational facilities and public access as well as direct and indirect effects on local employment, health (effects on health facilities) and land use. The conclusions in other technical chapters, particularly landscape and visual and the historic environment, would be used to assess the direct effects on tourism, supplemented by reference to various attitude surveys.

The Economy

16.24. A review would be conducted of local and national socio-economic planning policies and strategies including the National Policy Framework (NPF3), Scottish Planning Policy (SPP) and the Highland-wide Local Development Plan. Economic characteristics would be described using sources such as the Office for National Statistics, Scottish Neighbourhood Statistics and the Scottish Index of Multiple Deprivation. The economic effect in the area would be considered in terms of employment and direct support to the local economy. This would include an assessment against

the phases of the Proposed Development including job creation during the construction phase. Indirect effects (the economic activity generated as a result of purchases in the supply chain) and the induced effects (the effects of spending by households in the local economy as a result of direct and indirect effects from the wind farm activity) would also be assessed.

16.25. Other potential effects to be considered would include the effects of the community benefit fund.

Health

16.26. The chapter would include an assessment of the impacts of a temporary influx of construction workers on local health facilities.

Tourism and Recreation

16.27. The chapter would include an assessment of the effect of the Proposed Development on visitor attractions and tourism. A review would be conducted of national and local tourism strategies, together with visitor statistics. The key visitor attractions and facilities within 15km of the Proposed Development would be identified using publicly available sources such as Visit Scotland's website. The assessment would take into account the relative scale of the effect on tourism and any potential positive effects associated with the Proposed Development.

16.28. The tourism assessment would contain a review of public attitudes and perception literature to provide an up to date summary of any reported links between wind development and tourism. Consideration would be given to the following documents:

- Wind Farms and Tourism Trends in Scotland (BiGGAR Economics, 2016);
- Tourism Impact of Wind Farms (Aitchison, 2012);
- Wind Farm Consumer Research Topic Paper (VisitScotland, 2011);
- The Economic Impacts of Wind Farms on Scottish Tourism (Glasgow Caledonian University, 2008); and
- Various more recent tourism surveys on wind farms.

16.29. The assessment of effects on recreational activities will have regard to the guidance within Appendix 5 of "A Handbook on Environmental Impact Assessment" (SNH 2018).

Public Access

16.30. The chapter would include assessment of the effect of the Proposed Development on any designated routes including core paths, long distance routes, known right of ways and multi-use trails. This would focus on the potential direct impacts on physical access during

construction, operation and decommissioning. Indirect effects would be informed by other technical chapters, in particular Landscape and Visual. The assessment of effects on public access will have regard to the guidance within Appendix 5 of "A Handbook on Environmental Impact Assessment" (SNH 2014).

16.31. The Socio-economic, Tourism and Recreation chapter would focus on the impacts of construction, operation and decommissioning on visitor attractions, recreational facilities and public access, as well as direct and indirect effects on local employment. The conclusions of other technical chapters, particularly landscape and visual and the historic environment, would be used to assess the direct and indirect impacts on tourism, supplemented by reference to various attitude surveys.

Land Use

16.32. The chapter would include an assessment of the effects of the Proposed Development on any land uses undertaken on the Proposed Development.

17 Consultation

17.1. The Applicant has been working in the local area for a number of years, developing the Operational Scheme and has a well-established relationship with the surrounding communities, communicating regularly during the development and construction phases.

17.2. While the Proposed Development will be seeking a consent from the Scottish Ministers (see section 1.7), as a planning application under Section 36 of the Electricity Act 1989 (as amended) which does not require formal pre-application consultation, the Applicant will nonetheless undertake consultation activity which will comply with the requirements of meaningful community engagement as outlined in SG PAN 3/2010. The Highland Council's advice, 'Pre-Application Consultation: A Guide for Communities' will also be used to design the consultation process.

17.3. The purpose of community engagement and consultation is to explain to local people and businesses, elected and community representatives:

- the Wind Farm proposal – number of turbines, size, scale, location;
- the potential benefits of the proposed development; and
- to gather and consider views and comments of all stakeholders in finalising the design and layout of the proposed wind farm ahead of the Proposed Development planning application being submitted.

17.4. Adhering to Scottish Government Guidance: Coronavirus (COVID-19): development planning consultation and engagement advice - May 2020 consultation activity will include:

- Offering to meeting with and present to representatives of the surrounding community councils or other appropriate community groups, the proposed changes to the wind farm, whether virtually or in person;
- Email updates and/or virtual meetings with local elected representatives for the local council wards and Scottish Parliament constituency;
- Newsletter distribution in the surrounding area, providing project information, advertising consultation events and providing direction to feedback mechanisms;
- Up to two rounds of public exhibitions (whether virtual or in person), advertised in local papers (commercial and community run) as well as via the newsletters, the project website and via appropriate social media channels;
- Freepost comment cards at all live public events;

- A project website www.tomnaclachwindfarm.co.uk and email service for enquiries about the proposal and exhibitions, with downloadable PDFs of the exhibition panels and all project documents; and
- Press releases (which will also be posted on the project website) sent to local media at key milestones, such as introducing the project and exhibitions.

17.5. All of the feedback received will be considered during the development process and a Statement of Community Consultation Report will be included as part of the full application documentation.

18 Proposed content of the EIA Report

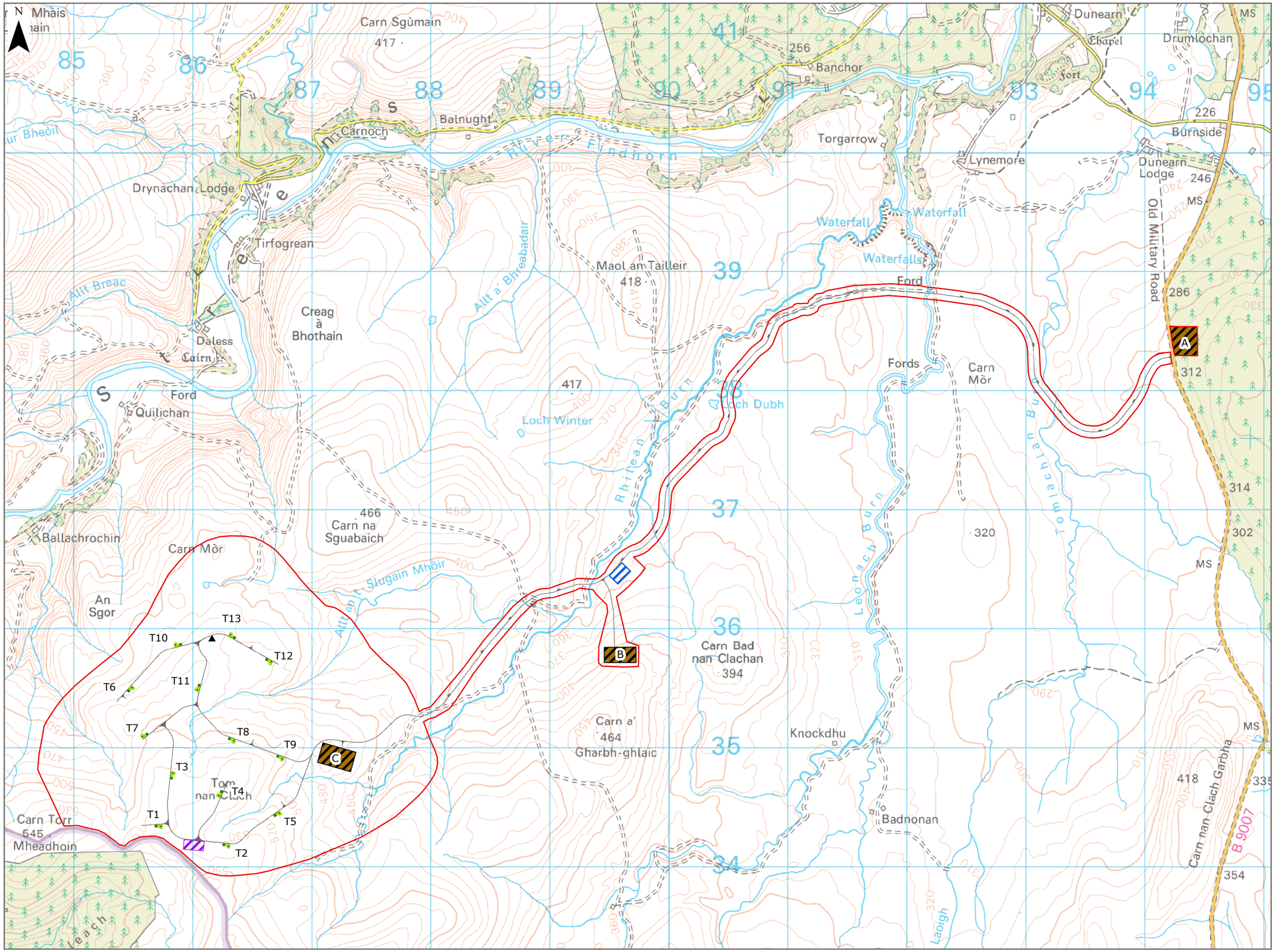
18.1 A contents list (subject to change) for the EIA Report is set out below:

- Non-Technical Summary
- **Chapter 1** outlines the proposed development and the structure of the EIA Report
- **Chapter 2** describes the EIA process undertaken for the proposed development, including this Scoping exercise and its outcomes
- **Chapter 3** provides a detailed Description of the Proposed Development and includes an overview of the construction methodology
- **Chapters 4 - 15** provide the EIA, i.e. the assessment of impacts on the various environmental parameters
- **Chapter 4: Planning Policy**
- **Chapter 5: Carbon Balance**
- **Chapter 6: Socio Economic**
- **Chapter 7: Traffic and Transport**
- **Chapter 8: Noise**
- **Chapter 9: Landscape and Visual Impact Assessment**
- **Chapter 10: Cultural Heritage**
- **Chapter 11: Ecology**
- **Chapter 12: Ornithology**
- **Chapter 13: Hydrology and Hydrogeology**
- **Chapter 14: Geology and Peat**
- **Chapter 15: Shadow Flicker and Safety**
- **Chapter 16: Infrastructure**

Appendix A

Tom nan Clach Wind Farm Extension: Turbine Co-ordinates

X	Y	Tip Height
287256	835446	149.9m
287526	835275	149.9m
287241	834831	149.9m
287046	834346	149.9m
286745	833955	149.9m
287559	834148	149.9m
286966	833683	149.9m
286159	833633	149.9m



Legend:

- Proposed Development site boundary
- Proposed Development access track & passing places
- Proposed Development construction hard standing
- Proposed Development extent of hardstanding during operational period (dark green area will be reinstated)
- Proposed Development substation
- Proposed Development borrow pit search area
- Proposed Development construction compound
- Proposed Development met mast
- T1 — Proposed Development turbine identifier
- A — Proposed Development borrrow pit search area identifier

Title: Proposed Development Site Layout

Project: Tom nan Clach Wind Farm Repowering

Source:

Client: Infinergy

Drawn by:	Checked:
RT	AR
Date: 17/08/2015	**Figure:** 1.3
Scale: 0 0.3 0.6 km	**Revision No:** 1

INFINERGY

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