atmos CONSULTING

Environmental Impact Assessment Report

Swarclett Wind Farm

Volume 1: Non-Technical Summary

Swarclett Wind Energy Limited

wind2

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Document Prepared For

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Glossary of Terms

Term	Definition
The Applicant	Swarclett Wind Energy Limited
Battery Energy Storage System	Devices that enable energy from renewables, like solar and wind, to be stored and then released when the power is needed most
Environmental Advisors and Planning Consultants	Atmos Consulting Limited
Environmental Clerk of Works	An independent environmental professional with direct responsibility for monitoring and reporting on compliance with planning consents, environmental permits, legislation and mitigation as well as the provision of specific on site ecology support.
Environmental Impact Assessment	Environmental Impact Assessment (EIA) is a means of carrying out, in a systematic way, an assessment of the likely significant environmental effects from a development.
Environmental Impact Assessment Regulations	The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations)
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the EIA Regulations
Gross Value Added	The value generated by any unit engaged in the production of goods and services
Groundwater Dependent Terrestrial Ecosystem	A category of wetlands whose vegetation is critically dependent on groundwater
The Proposed Development	The Swarclett Wind Farm
The Proposed Development Footprint	The area within which the Proposed Development will be located
The Proposed Development Site	The full application boundary, i.e. the red line boundary (Figure 1-1 Site Location Plan).
The Planning Act	The Town and Country Planning (Scotland) Act 1997 (as amended)

List of Abbreviations

Abbreviation	Description
BESS	Battery Energy Storage System
CAA	Civil Aviation Authority
CCIA	Climate Change Impact Assessment
CEMP	Construction Environmental Management Plan
CO_2	Carbon dioxide
CTMP	Construction Traffic Management Plan
DECC	Department for Energy and Climate Change
EnvCoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMI	Electromagnetic Interference
GVA	Gross Value Added
GW	Gigawatts
GWDTE	Groundwater dependent Terrestrial Ecosystems
HIAL	Highlands and Islands Airports Limited

Abbreviation	Description
IFP	Instrument Flight Procedures
LFA	Low Flying Area
LVIA	Landscape and Visual Impact Assessment
MOD	Ministry of Defence
MW	Megawatts
MWh	Megawatt hours
NPF4	National Planning Framework 4
NTS	Non-Technical Summary
NVC	National Vegetation Classification
OHMP	Outline Habitat Management Plan
OWPS	Onshore Wind Policy Statement
SES	Scottish Energy Strategy
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
THC	The Highland Council
UKCP	UK Climate Projections

Preface

This Non-Technical Summary (NTS) is an overview of the Environmental Impact Assessment Report (EIA Report), undertaken to support a major planning application under the Town and Country Planning (Scotland) Act 1997 (as amended), 'the Planning Act') for consent for Swarclett Wind Farm (hereafter referred to as the 'Proposed Development').

The Proposed Development is a two-turbine (up to 149.9m tip height) windfarm proposed to be located 1km southeast of Mains of Durran, Castletown, Thurso, Highlands (the 'Proposed Development Site').

The Proposed Development also includes a battery energy storage system (BESS), the construction of a substation, new access tracks, a temporary construction compound and associated infrastructure.

The wind turbine generators will have a total indicative installed generating capacity of approximately 9.6MW. The battery storage will have a storage capacity of up to 12MW, resulting in a total capacity of up to 21.6MW.

This application has been prepared by Atmos Consulting Ltd on behalf of Swarclett Wind Energy Limited (the 'Applicant').

The EIA Report has been produced to provide information on the likely significant environmental effects of the Proposed Development.

The EIA Report includes the following documents:

- Volume 1: NTS;
- Volume 2: EIA Main Text;
- Volume 3: Technical Appendices;
- Volume 4a: Figures;
- Volume 4b: Visualisations (NatureScot Format);
- Volume 4c: Visualisations (The Highland Council Format) ; and
- Volume 5: Confidential Technical Appendix

Electronic copies of the EIA Report are available to view at the following locations:

- On the Highland Council's Planning Applications portal (https://wam.highland.gov.uk/wam/); and
- The Applicant's website (https://swarclettwindturbines.co.uk/).

Alternatively, the EIA Report can also be purchased from the Applicant by contacting Swarclett Wind Energy Limited at info@wind2.co.uk.

Charges for copies are:

- £950 for a paper hard copy (Full EIA and Supporting Documents, including Non-Technical Summary);
- £25 a paper hard copy of the Non-Technical Summary; or
- £30 for a CD/USB with access to all digital documents.

1 Introduction

The Applicant is seeking planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended) ('the Planning Act') for the construction and operation of an electricity generating station known as Swarclett Wind Farm (the 'Proposed Development')

The Proposed Development consisting of up to two wind turbines with a maximum blade tip height of 149.9m and associated infrastructure including battery storage, hardstandings, cabling and access tracks (the 'Proposed Development').

The Scottish Government has set a target of achieving net zero carbon emission by 2045. This target relies on a large increase in renewable energy generation across Scotland and on the Scottish Government's ambitions to secure an additional 12 Gigawatts (GW) of installed onshore wind capacity by 2030, which the Proposed Development would help to achieve.

1.1 The Applicant

The Applicant is an associated company of Wind2 Limited. Founded in 2016, Wind2 Limited has staff based throughout the United Kingdom with offices in Cromarty, Perth, Edinburgh, Wells and in North Wales. Wind2 have significant expertise in renewable energy projects and is committed to investing in the Highlands and Islands.

The Applicant is committed to ensuring the Proposed Development brings with it opportunities to make a positive contribution to national and international renewable energy and carbon emission reduction targets and the potential to support communities with various local community benefit and local jobs.

1.2 Land Use

The Proposed Development is located predominantly on grassland including improved, semi-improved neutral and marshy grasslands, mainly used for rough grazing.

The Proposed Development Site features one main watercourse, the Burn of Durran in the western portion of the Proposed Development Site.

There are no operational wind farm developments within 5km of the Proposed Development.

The closest residential properties to the Proposed Development Site are approximately 500m to the west, north and east whilst the nearest major settlement, Castletown, is located approximately 4km to the north.

1.3 Purpose of the EIA Report

The EIA Report presents the findings of the Environmental Impact Assessment (EIA) process by describing the Proposed Development, the current conditions within the Proposed Development Footprint and the likely environmental effects which may result from the Proposed Development.

Where appropriate, measures designed to avoid, reduce or offset potentially significant effects are proposed (mitigation measures) and residual effects (those effects that are expected to remain after mitigation) are described.

The findings and conclusions of the EIA are summarised in this Non-Technical Summary (NTS) which is intended to allow anyone with an interest in the Proposed Development to understand and access information on its potential environmental effects.

1.4 EIA Approach

EIA is the systematic process used to inform consenting authorities of the environmental implications of a development by collecting background information about the existing environment and then determining the potential effects of the development on the environment. Where significant negative (adverse) effects are identified, reduction of these effects is then sought by changing the design or applying mitigation measures.

Schedule 1 of the EIA Regulations[1] lists those developments for which an EIA is mandatory, whilst Schedule 2 describes projects for which the need for EIA is considered against criteria set out in Schedule 3 on a case-by-case basis.

The Proposed Development is not a Schedule 1 development, but it does fall within Schedule 2 of the EIA Regulations under part 3 (i) (ii) and (iii), as an installation for harnessing wind power for energy production with more than two wind turbines with a height exceeding 15 metres.

A Schedule 2 development is an EIA development if it is likely to have significant effects on the environment by virtue of factors such as its nature, size or location. It has been recognised by the Applicant that the Proposed Development would have the potential to have significant environmental effects.

The Applicant has therefore voluntarily undertaken an EIA and is submitting an EIA Report. The EIA Report sets out to assess whether or not significant effects result from the Proposed Development.

1.5 Development Description

The Proposed Development consists of two turbines up to a maximum 149.9m tip height, battery storage and associated infrastructure. The associated infrastructure includes:

- Upgrade of approximately 0.6km of existing access tracks;
- Construction of approximately 1.8km of new access tracks;
- Construction of turbine foundations and temporary crane hardstandings;
- Underground cabling;
- Construction of a substation and construction compound and
- Two watercourse crossings.

The wind turbine generators will be connected to the National Grid and will have a maximum indicative export capacity of approximately 9.6MW. The proposed battery storage will have a capacity of 12MW.

[1] The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017

The Proposed Development has been designed with an operational life of 30 years, at the end of which it will be decommissioned unless further consents are granted.

The turbines will be built using standard concrete gravity base foundations made of steel reinforced concrete. To allow the turbines to be installed, a crane hardstanding beside the turbine base will be built, approximately 1250m^2 in area.

It is anticipated that approximately 1.8km of new track is likely to be required to service the turbines and associated infrastructure.

Access to the Proposed Development will be via Heights Road off C1069 Poolhoy/Wester Road to the west of the Proposed Development Site. It is currently proposed that turbine components are expected to be delivered to the Proposed Development Site from Wick Harbour, although the final Port of Entry will be confirmed prior to commencement of construction to suit component delivery and logistics.

Once the turbines have been installed, the access tracks and crane hardstand areas around the turbines will remain in place as permanent infrastructure. The boom assembly areas, temporary construction compound and hardstand working areas will be restored.

The turbines will be connected to an on-site substation using underground cabling, anticipated to be sited within the footprint of the existing and proposed access track.

The construction of the Proposed Development is anticipated to take approximately 12 months. Construction will take place in accordance with a Construction Environmental Management Plan (CEMP).

The CEMP will provide the overarching environmental management principles that will be taken forward into all environmental management plans, supporting documents and method statements during the construction phase. It will be based on the outline CEMP included in the EIAR (Technical Appendix 15-1). The details of the CEMP will be agreed with statutory consultees such as The Highland Council and the Scottish Environment Protection Agency (SEPA).

1.6 Benefits of the Proposed Development

Once operational, the Proposed Development will generate approximately 66,225MWh per year based on an estimated capacity factor of 35%.

This will displace an equivalent amount of fossil fuel generated electricity amounting to a reduction in the release of greenhouse gases equal to 6,093 tonnes (CO_2 equivalent) per year.

The Scottish Government's Online Carbon Calculator was used to calculate the carbon payback period for the Proposed Development (online Reference KC8T-U38N-WFSA v1). When taking into consideration the potential renewable energy generation, displacement and savings of carbon and carbon emissions, the Proposed Development is expected, conservatively, to payback the carbon cost in 2.2 years.

The Scottish Government's Climate Change Plan (2018) states that by 2030 Scotland will have a largely decarbonised electricity system with a grid carbon intensity of 50g CO_2/kWh of generation.

The Proposed Development is expected to have a carbon intensity of 15.25g CO2/kWh, which is below the 2030 carbon intensity target. The Proposed Development is

anticipated to further support Scotland's Climate Change Plan by maintaining and succeeding the target already achieved.

The results of the Carbon Calculator are presented in EIA Volume 3 Technical Appendix 13-1.

The Applicant is proposing a community benefit package of up to £48,000 per annum over the 30-year life of the Proposed Development, based on a figure of £5,000 per MW of the installed wind generating capacity of 9.6MW.

The Applicant proposes to utilise a portion of the community benefit package to directly benefit households within close proximity to the Proposed Development with the implementation of a Near Neighbours Electricity Contribution Scheme.

This scheme looks to offer properties within 2km of the Proposed Development up to £600 per annum as a contribution to electricity bills. This benefit can be capitalised as a one off payment of up to £6000 to supplement the cost of decarbonising properties, if that was of more interest than an annual contribution.

This benefit package is a voluntary contribution by the Applicant and is not to be considered a material planning consideration.

The development of a wind farm is a substantial investment that results in the generation of employment. It is estimated that the Proposed Development will generate up to a total of 92 jobs during construction with a likely predicted total Gross Value Added (GVA) of up to £5,469,638.

It is likely that the Proposed Development will also have wider beneficial effects. These would be expected to have positive effects on the local and national economies including:

- **Local supply chain opportunities**: Wider, 'knock-on' effects of expenditure of workers visiting the area, e.g., in the accommodation, food service and retail sectors to the value of around £7,500 per MW constructed DECC/Renewable UK research (2012);
- **Income effects:** The generation of additional wages and salaries from new employment, much of which will be spent regionally or nationally; and
- **Effects on landowners**: There will be a financial transaction to the landowners which is likely to support diversification and/or other spending in the local, regional and national economy. There will also be other significant benefits to landowners, who as local farming families, will have the opportunity to diversify and help cross subsidise their existing farming operations, including creating suitable habitats for wildlife such as installing ponds and planting trees. The grant funding typically available for those types of agri-environmental activities is not available to landowners in the area of Caithness that hosts the Proposed Development. The landowner would also seek to future proof and modernise the farming business for the next generation, practice new, more environmentally friendly technology, improve soil heath and maximise livestock performance; and
- **Exchequer effects:** Additional business rates and tax revenue, regionally and nationally from increased economic activity.

2 Planning and Energy Policy

2.1 National Planning Policy

The Fourth National Planning Framework (NPF4) Revised Draft

NPF4 was approved and published by the Scottish Government (2023a) on 13th February 2023. NPF4 is the national spatial strategy for Scotland and also incorporates Scottish Planning Policy. It sets out the principles for spatial development, defines national developments and regional priorities and sets out national planning policy.

NPF4 sets out significant and increased emphasis on the climate change and net zero agenda to bring together cross-cutting priorities and achieve sustainable development through three key themes: sustainable places, liveable places and productive places.

In terms of renewable energy generation, NPF4 acknowledges that:

> *"A large and rapid increase in electricity generation from renewable sources will be essential for Scotland to meet its net zero emissions targets"*: noting that:
>
> *"Additional electricity generation from renewables and electricity transmission capacity of scale is fundamental to achieving a net zero economy and supports improved network resilience in rural and island areas"*.

2.2 Local Planning Policy

The Local Development Plan for the Proposed Development comprises NPF4 and the following:

- The Highland-wide Local Development Plan (HwLDP) (as continued in force, April 2012);
- The Caithness and Sutherland Local Development Plan (CaSPlan) (August 2018); and
- Relevant supplementary guidance, including the Onshore Wind Energy Supplementary Guidance (2016).

2.3 Climate Change and Energy Policy

The UK Government, the Scottish Government and the Highland Council (THC) have all declared a Climate Emergency and climate change has been described as the greatest environmental challenge facing the world today.

Scottish Energy Strategy

The Scottish Energy Strategy (SES): The Future of Energy in Scotland was published in December 2017. The SES sets two new targets for the Scottish energy system by 2030:

- The equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources; and
- An increase by 30% in the productivity of energy use across the Scottish economy.

For the longer term the SES states that;

> *"Scotland's long term climate change targets will require the near complete decarbonisation of our energy system by 2050, with renewable energy meeting a significant share of our needs"*

This commitment has been brought forward to 2045 following the Climate Change (Emission Reduction Targets) (Scotland) Act 2019 and noted in Scotland's Energy Position Statement (2021).

Onshore Wind Policy Statement 2022

The Onshore Wind Policy Statement (OnWPS) 2022 was published on 21 December 2022 and outlines the Scottish Government's ambitions for the Onshore Wind Sector, highlighting how these can be delivered. The urgency and relevance of the need to meet Net Zero targets is stressed through the statement that; *"We must now go further and faster than before"*.

The Statement notes Scotland's current installed onshore wind capacity was 8.7GW as of June 2022 and Scotland's aim to maintain a supportive policy and regulatory framework. It is stated that this will enable an increase in renewable energy deployment and meet the overall ambition of 20GW of installed onshore wind capacity in Scotland by 2030.

Reversing degradation through peatland restoration is central to mitigating and adapting to the linked climate and nature crises and the OnWPS identifies the opportunity for wind energy development to contribute significantly to improving biodiversity.

The criteria through which proposals for onshore wind farms will be evaluated has been updated to focus a stronger emphasis on the role which wind energy developments can play both in the response to the joint climate and nature crises as well as the resulting socioeconomic and community benefits.

3 Landscape and Visual Impact Assessment

Chapter 5 of the EIA Report presents the findings and assessment of potential effects of the Proposed Development on landscape character and visual receptors during construction and operation, including cumulatively with other developments.

The Landscape and Visual Impact Assessment (LVIA) is based on recognised guidance and assessed the potential effects of the Proposed Development on landscape and visual receptors within a 40km radius study area of the Proposed Development Site, increasing to 60km for the assessment of cumulative effects.

Baseline conditions within the study area were identified and defined following extensive desk and field studies. The baseline identified landscape receptors including landscape character types, local and national landscape designations and visual receptors including settlements, route corridors and 18 representative viewpoints. The locations of the viewpoints were agreed in consultation with The Highland Council.

The LVIA has established that the Proposed Development would result in differing degrees of change to the landscape and visual baseline conditions, arising predominantly during the 30-year operational phase.

There will be a Moderate to Substantial magnitude of local change to the fabric of a small area of the landscape (the forestry/moorland vegetation and peatland in the location of the proposed tracks, turbines and other infrastructure) on the Proposed Development Site at the operational stage.

The Proposed Development Site is of Medium sensitivity to change. Therefore, there will be a local Major/Moderate level of direct effect on a small area of the existing fabric of the landscape, which is considered to be Significant.

The Proposed Development will give rise to a Major and Significant visual effect locally (within approximately 1km) during construction albeit this will be of limited duration.

The Proposed Development is expected to have Major and Significant local effects during operation on various aspects of several dispersed settlements, including Bowertower, Durran, outer edges of Halcro/Brabsterdorran, and Bower.

These effects are anticipated to be Major/Moderate and Significant, impacting road users, residents, and walkers with varying degrees of sensitivity.

Specifically, road users (Medium sensitivity), residents of (High sensitivity), and walkers of high sensitivity are likely to experience Major and Significant effects. The Proposed Development is also expected to have Major and Significant effects on visitors/walkers with high sensitivity from viewpoints 1, 3, 4, 5 and 7 all within 5km of the Proposed Development Site.

4 Ecology

Chapter 6 Ecology considered the current nature conservation interest of the Proposed Development Site and study areas. It evaluated the potential effects on both habitats and non-avian animal species and assessed the potential effects of the Proposed Development on habitats and species.

To develop an understanding of the Proposed Development Site, the following surveys, which were agreed with NatureScot, were undertaken:

- Extended Phase 1 Habitat Survey (September 2020 and July 2023);
- National Vegetation Classification (NVC) Survey (September 2020 and July 2023);
- Bat Survey (April / May – September 2023); and
- Protected Species Survey (September 2020 and July 2023).

Mitigation has been built into the design of the Proposed Development to avoid sensitive ecological receptors wherever possible, including siting turbines at least 50m from watercourses and standing water, and avoiding potential Groundwater Dependent Terrestrial Ecosystems (GWDTE).

A CEMP will be produced (based on an outline CEMP included within the EIA (Technical Appendix 15-1)) to further reduce the potential for effects during the construction phase, and the requirement for a provision of an Environmental Clerk of Works (EnvCoW) to oversee construction and decommissioning is included.

An Outline Habitat Management Plan (OHMP) has been prepared setting out measures to protect and enhance the habitats on the Proposed Development Site. The final Habitat Management Plan will be produced and agreed with NatureScot and The Highland Council prior to commencement of construction of the wind farm.

Overall, the survey area is characterised by a patchwork of agricultural fields used for crop production and / or grazing of livestock. The vegetation community M23 has been identified as being highly groundwater dependent, and the habitat has been evaluated as being of local value.

Potential effects on sensitive habitats during construction, operation and decommissioning phases of the Proposed Development were assessed, taking the above mitigation (OHMP and CEMP) into account.

It was concluded that for all relevant habitats, loss was proportionately small and not considered to be significant. Potential effects on fauna, specifically bats and common pipistrelle *Pipistrellus pipistrellus* during construction, operation and decommissioning of the Proposed Development were also assessed and not considered to be significant.

Overall, the effects of the Proposed Development on non-avian ecology features of local or higher value, or which are legally protected, are not considered to be significant in terms of the EIA.

5 Ornithology

Chapter 7 Ornithology describes the ornithological baseline of the Proposed Development and the surrounding area and assesses the potential impacts during construction and operational phases of the Proposed Development on ornithological receptors.

Surveys carried out in the area recorded breeding Curlew, Lapwing, Barn owl and Osprey in the vicinity of the Proposed Development. Flights of Greylag goose, Pink-footed goose and Whooper swan were also seen regularly during the winter months.

Foraging surveys for geese and swans carried out in the winter months mapped the occurrence of these species in the wider area but recorded no use of the Proposed Development Site and occasional and variable use of the surrounding area.

Following conclusion of initial surveys, these important ornithological receptors were assessed in detail: Caithness Lochs Special Protection Area (SPA), Barn Owl, Whooper swan, Greylag goose, Pink-footed goose, Lapwing and Curlew.

Potential impacts assessed were habitat loss and disturbance/displacement during construction and during operation, additional mortality as a result of collision risk and displacement and barrier effects on commuting geese and swans.

Mitigation was identified which would protect ornithological receptors during the construction and operational phases. These included monitoring of Breeding Birds with buffer zones to protect sensitive bird species from disturbance if encountered during construction. Habitat management to improve habitat for Lapwing and Curlew was also identified.

As a result of this assessment, it was determined there would be no significant adverse effects on ornithological receptors on or in the vicinity of the Proposed Development.

6 Hydrology and Hydrogeology

Chapter 8 Hydrology and Hydrogeology indicates that the Proposed Development Site lies entirely within the Burn of Garth waterbody catchment. The main watercourse running immediately west of the Proposed Development Site is the Burn of Durran which rises 400m to the south of the Proposed Development Site and flows north for 5km into Burn of Garth before discharging into Dunnet Bay.

The watercourse is heavily modified due to drainage with multiple ditches and drains crossing the Proposed Development Site. The SEPA surface water overall status is Poor to Moderate with an objective of attaining Good Status by 2027.

There are two new proposed watercourse crossings, one of Burn of Durran and one of a drainage ditch. Surface water sensitivity is High. There is a moderate predicted effect of pollution of surface water by chemicals, hydrocarbons and turbid sediment laden run-off during construction only. This will require mitigation that can be agreed within the CEMP.

There is no mapped risk of river flooding, surface water flooding, or coastal flooding.

The Mains of Durran Site of Special Scientific Interest (SSSI) is 1km downstream of the Proposed Development Site and connected by the Burn of Durran.

The Burn of Durran downstream from the Proposed Development Site is choked with vegetation. Any sediment entering Burn of Durran would quickly be dispersed, diluted and/or deposited long before reaching the SSSI. The magnitude of the effect was found to be Low to No Change with a predicted effect of Minor to Negligible. No mitigation for effects on the SSSI is therefore required.

Bedrock geology comprises Silurian greywackes and siltstones with superficial deposits of unsorted and unstratified glacial Till of Devensian age.

There is at least one small disused quarry on the Proposed Development Site, possibly an old gravel pit. There are no springs, issues or wells within 1km. There is evidence of shallow groundwater on the lower slopes above and east of the Burn of Durran.

The SEPA overall status of groundwater is Good. The Site is not in a Drinking Water Protected Area and there are no Scottish Water assets on or near the Proposed Development Site. There are no registered Private Water Supplies (PWS) within 2km of the Proposed Development and therefore no predicted effect on public or private water supplies.

Peat depth surveys indicates two very small areas of peat soil adjacent to and west of Turbine 2 but no areas of deep peat. There is a Negligible predicted effect on peat.

A combined ecological and hydrogeological risk assessment found that M23 and one of the MG9 occurrences are moderately groundwater dependent GWDTE. There will be a small direct loss of M23 GWDTE due to the construction of the new southern access track and a smaller area of direct loss of moderately dependent MG9a due to turbine construction.

The magnitude of effect on GWDTE during construction was found to be Low. The predicted effect is Minor. No GWDTE mitigation other than best practice is necessary.

The design of the Proposed Development embedded mitigation by avoiding sensitive hydrological, hydrogeological and geological receptors where possible. The below actions were implemented:

- Reducing the number of turbines from four to two. The associated reduction in track length avoided large areas of deep peat and any development in the Quoynee and the Bower Burn and Burn of Lyth waterbody catchments;
- The installation area of turbine 2 was relocated to minimise the impacts on the area of peat soils;
- A 50m buffer is in place between all infrastructure and watercourses, except where approaching crossings or on pre-existing tracks;
- The battery storage, construction compound and substation were moved from adjacent to the Burn of Durran to out with the 50m watercourse buffer; and
- The number of watercourse crossings were minimised.

There is only one wind farm development within 5km, the two turbine Red Moss Wind Farm 2km north east of the Proposed Development, currently at scoping stage. The two sites are on similar elevations but on either side of a ridge. Red Moss turbines are in the Bower Burn / Burn of Lyth surface water catchment.

The Proposed Development is not located in this surface waterbody catchment. The Red Moss turbines are not therefore hydrologically connected to the Mains of Durran SSSI. There is no groundwater connectivity between the two developments. Therefore, there is no cumulative hydrological effect.

Additional proposed mitigation designed to further reduce predicted effects are:

- Best practice to be followed in all aspects of construction, operation and decommissioning, to avoid and minimise effects;
- Provision of an EnvCoW;
- Develop a series of environmental plans, including: CEMP, Drainage Management, Pollution Prevention;
- Aspects of a Habitat Management and Restoration Plan relating to enhancement of GWDTE on Site;
- Water Quality Monitoring Programme;
- Sensitive design of watercourse crossings, and

The mitigation proposed has resulted in an assessment that all predicted effects on sensitive receptors will be either Minor or Negligible.

7 Noise

Chapter 9 Noise considers the potential noise impacts arising from the construction and operation of the Proposed Development on noise sensitive receptors (inhabited residential properties).

Noise during the construction phase of the development will arise from construction vehicles accessing the Proposed Development Site and from construction activities within it, including track construction, foundation excavation and pouring and turbine erection.

Noise during the operational phase of the development will arise from the installed wind turbines as they rotate to generate energy and from the electrical plant associated with the BESS facility.

Construction noise impacts have been assessed with regard to relevant guidance[2].

The results of the construction noise impact assessment indicates that no significant effects will arise from the construction of the Proposed Development as the relevant noise limits set out in BS 5228 will be met.

Although the predicted noise levels are well below the relevant noise limits, noise during the construction phase will be controlled and minimised through the measures presented in the CEMP.

Operational wind turbine noise impacts have been assessed in line with ETSU-R-97, The Assessment and Rating of Noise from Wind Farms, and the associated guidance[3] .

For the BESS facility, operational electrical plant noise impacts have been assessed in line with BS 4142:2014 + A1 2019, Methods for Rating and Assessing Industrial and Commercial Sound.

Predicted operational noise levels from the Proposed Development meet the relevant noise limits set out in ETSU-R-97 and the criteria derived from methodology set out in BS 4142:2014 +A1 2019, and therefore the noise impact is considered to be not significant.

[2] BS 5228:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites

[3] Institute of Acoustics (IOA) 2013, A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise

8 Cultural Heritage

Chapter 8 Cultural Heritage assesses the potential for direct and settings effects on the cultural heritage resource within the Proposed Development Site and surrounding Study Areas during construction, operation and decommissioning of the Proposed Development.

Several non-designated heritage assets of post-medieval and modern date, generally comprising agricultural remains and considered to be at most of Low importance, have been identified within the Proposed Development Site through desk-based assessment and walkover survey.

Ten of these assets, comprising the remnants of clearance cairns, drainage ditches, a boundary wall, quarry and two building footings, have been identified as having the potential to be directly impacted upon during the construction phase of works.

Mitigation measures to avoid and minimise adverse effects, including demarcation, micro-siting of infrastructure and archaeological monitoring have been proposed in order to minimise and/or offset direct effects.

There is considered to be potential for hitherto unknown archaeological remains to survive on the Proposed Development Site, and mitigation measures to ensure identification, assessment and recording of any such remains has been proposed.

Following implementation of the proposed mitigation measures, including those set out in relation to the known heritage assets present, potential direct effects upon heritage assets within the Proposed Development Site will be offset and will not be significant in EIA terms.

Potential operational effects on the settings of designated heritage assets within 10km of the Proposed Development Site have also been considered. A potentially significant Moderate adverse effect upon the setting of the Scheduled Stone Lud has been predicted, with all other assets considered likely to experience Minor adverse and Neutral effects upon its settings which are not considered significant in EIA terms.

However, the main elements of the asset's setting would still be appreciable and the ability to understand it would not be materially diminished.

Potential cumulative effects have also been considered. It is judged that cumulative effects relating to the addition of the Proposed Development to the existing baseline will not exceed the predicted operational effects upon the setting of heritage assets caused by the Proposed Development alone; no significant cumulative effects have been predicted.

In a potential future cumulative baseline with other developments currently in the planning system, a potentially significant Moderate adverse effect has been identified with regard to cumulative effects on the Scheduled Stone Lud.

In line with NPF4, opportunities to deliver on public benefit items with regard to cultural heritage both within the Proposed Development Site and the local surrounding area have been proposed.

While the exact scope of this will be informed by the results the archaeological fieldwork within the Proposed Development, it is envisioned that it would in part offer

compensatory mitigation for settings impacts upon the Scheduled Stone Lud and enrich public understanding and appreciation of local heritage.

9 Transport and Access

Chapter 9 Transport and Access of the EIA Report assesses the impact of the Proposed Development on transportation and access. This includes an assessment of the potential environmental effects associated with increased traffic generated as a result of the Proposed Development.

The chapter is supported by a Transport Assessment (including a draft Construction Traffic Management Plan (CTMP)) and an Abnormal Loads Assessment (Technical Appendices 9-1 and 9-2).

To determine appropriate access routes to the Proposed Development Site, detailed consideration and assessment of the surrounding road network has been undertaken in the form of a comprehensive desk-based study.

The Proposed Development is anticipated to result in temporary increases in traffic along roadways in the Study Area during the construction phase. These temporary rises will taper off significantly outside of peak hours, especially considering the generally low background traffic levels in the area.

Turbine components will be transported to the Proposed Development Site from Wick Harbour, necessitating temporary remedial works at certain points along the delivery route.

The peak traffic impact of constructing the Proposed Development is forecasted to occur in the fifth month of the construction schedule. During this period, an average of 83 vehicle movements per day are expected, comprising 28 Car / LGV movements and 55 HGV movements.

This translates to around 7 HGV movements per hour during a typical 12-hour working day. The most significant impact is anticipated on C1069 Poolhoy / Wester Road, where access to the Proposed Development Site is situated, necessitating all construction vehicles to utilize it.

During the operational phase, traffic levels are estimated to be minimal, with only one or two vehicles per week for maintenance purposes. Traffic levels are expected to decrease further during the decommissioning phase compared to the construction phase due to potential elements being left in place or dismantled onsite.

No notable capacity issues are foreseen on any roads within the Study Area as a result of the additional construction traffic associated with the Proposed Development. Implementing the measures in the CTMP will mitigate the impacts of both construction and operational phase traffic flows.

No significant residual effects are foreseen regarding traffic and transport concerns. Any residual effects are assessed to be minor or not significant, occurring solely during the temporary construction phase and thus reversible.

10 Socio-economics, Tourism and Recreation

Chapter 12 Socio-economics, Tourism and Recreation assesses the likelihood of significant socio-economic, recreation and tourism effects of the Proposed Development on the surrounding area, with regards to local residents.

Surveys of the public's attitudes to wind farms provide no clear evidence that the presence of wind farms in an area has a negative impact on local tourism.

Tourists using the local core paths and local tourist attractions may have a particular sensitivity to visual effects; however, access to tourist facilities will be unaffected.

Hence, even where significant visual effects are predicted they are not likely to have a significant effect on tourism and recreational receptors, including attractions, trails and paths and visitor accommodation, in accordance with the EIA Regulations.

Approximately 13 jobs are expected to be created during the development phase with up to 92 jobs predicted to be created during the construction phase of the Proposed Development. The Proposed Development could also generate approximately £247,131 annual turnover in GVA during the operational phase alone.

The Applicant is proposing a community benefit package of up to £48,000 per annum over the 30-year life of the Proposed Development, based on a figure of £5,000 per MW of the installed wind generating capacity of 9.6MW.

The Applicant proposes to utilise a portion of the community benefit package to directly benefit households within close proximity to the Proposed Development with the implementation of a Near Neighbours Electricity Contribution Scheme.

This scheme looks to offer properties within 2km of the Proposed Development up to £600 per annum as a contribution to electricity bills. This benefit can be capitalised as a one off payment of up to £6000 to supplement the cost of decarbonising properties, if that was of more interest than an annual contribution.

This benefit package is a voluntary contribution by the Applicant and is not to be considered a material planning consideration.

Overall, the socio-economic impact during construction of the Proposed Development was assessed as minor beneficial in Highland and the wider area (Scotland). The annual economic impacts related to operation were assessed as negligible to minor beneficial for both study areas. All effects have been assessed as not significant.

11 Climate Change and Carbon Balance

Chapter 13 Climate Change and Carbon Balance assesses the effects of the Proposed Development on climate change, carbon balance, and presents a Climate Change Impact Assessment (CCIA).

Through the use of the Scottish Government Carbon Calculator, the influence of the Proposed Development on climate change is considered. In addition, the vulnerability of the Proposed Development, as a receptor, to climate change is evaluated. Stakeholder consultation with THC during the EIA process has informed the assessments.

The results of the carbon balance assessment show that the Proposed Development is expected to provide a saving of over 6,000 tonnes of CO_2 equivalent that there is a moderate (beneficial) influence of the Proposed Development on climate change as well as to national and international targets relating to combatting climate change.

The Applicant undertook an iterative design approach for the wind farm layout to avoid siting infrastructure in deep peat where possible to minimise disturbance of peat soils and associated carbon losses.

The cumulative effect of the Proposed Development, along with other renewable generation within Scotland and the UK, is considered to have a major, positive, environmental (climate change) effect that is Significant under the EIA Regulations.

Climate related parameters considered to have the potential to impact upon the operation of the Development including wind, temperature and precipitation were evaluated.

Over the lifetime of the Proposed Development, The UK Climate Projections (UKCP[4]) show the change in wind speeds and storms is limited to well within the limits of current inter-annual variability.

These changes will have a low / negligible magnitude of effect on energy projections and on the efficient operation of the Proposed Development. The vulnerability of the Proposed Development to Climate Change is therefore considered to be not significant under the EIA Regulations.

[4] See https://www.metoffice.gov.uk/research/approach/collaboration/ukcp

12 Other Considerations (including aviation, telecommunication and shadow flicker)

Chapter 14 Other Considerations summarises the potential effect of the Proposed Development on aviation and telecommunications as well as the potential shadow flicker effects on sensitive receptors. The Ministry of Defence (MOD), Highland and Islands Airports Limited (HIAL) and NATS were consulted during the EIA process and their feedback has informed the assessments.

Aviation and Radar

NATS confirmed that the Proposed Development is located outwith their consultation zones.

HIAL confirmed through consultation that an assessment of the Instrument Flight Procedures (IFP), Aviation Lighting Requirements and Crane and lifting equipment should be assessed in relation to Wick (John O Groats) Airport.

The IFP assessment of the Proposed Development concluded there would be an effect on one of Wick (John O Groats) Airport IFPs. Through consultation with HIAL, draft wording of a planning condition has been agreed that has been designed to provide assurance of the commitment of The Applicant to continue consulting with HIAL and THC to agree an appropriate mitigation plan.

Although the MOD indicated in the Scoping Opinion that the Proposed Development is located within a Low Flying Area (LFA 14),following an IFP assessment, it was determined that the Proposed Development lies adjacent to LFA 14. Therefore, the Proposed Development is not expected to interfere with MOD operations.

The Aviation Lighting Review determined that the Proposed Development and associated cranes present during construction may require Aviation Lighting in accordance with the Civil Aviation Authority (CAA), Air Navigation Order 2016. Final agreement on whether aviation lighting is required for the Proposed Development will be determined through further consultation with THC and HIAL.

Subject to the agreement of suitable mitigation measures, it is anticipated that the Proposed Development will not adversely affect aviation interests.

Telecommunication

The moving rotors of wind turbines have the potential to affect telecommunication and television signals by causing Electromagnetic Interference (EMI). Wind turbines can cause EMI by reflection of signals from rotor blades so that a nearby receiver picks up both a direct and reflected signal.

The types of civilian and military communication signals which may be affected by EMI include TV and radio broadcasting, microwave and cellular radio communications and various navigational and air traffic control systems. A turbine located within, or near to, the communication link may interfere with the signal causing unwanted 'noise'.

The potential for negative effects on domestic television reception are greatly diminished post digital switchover, which was completed across the UK in 2012.

No telecommunication links cross the Proposed Development Site therefore no significant effects are anticipated on telecommunication links as a result of the Proposed Development.

Shadow Flicker

Shadow flicker can arise from the passing of the moving shadow of a wind turbine rotor-blade over a narrow opening such as the window of a nearby residence. A similar effect can also occur when the gloss blades of a rotating turbine reflect the sun causing a flashing light.

The flickering may have the potential to cause disturbance and annoyance to residents. It is, however, not possible for turbines to trigger photosensitive epilepsy.

Shadow Flicker effects can occur within 130 degrees either side of North and within 10 rotor diameters of the turbine position (1,328m for the case of the Proposed Development). There are eight properties within potential shadow flicker impact distance of the proposed turbines however, the modelling of potential shadow flicker has shown that there are no significant effects anticipated on receptors.

13 Summary and Conclusion

The Applicant is seeking planning permission under the Planning Act for the construction and operation of an electricity generating station known as Swarclett Wind Farm.

An EIA has been conducted based on a Pre-Application Advice, Scoping Opinion and consultation with THC as outlined in Chapter 2 EIA Approach and Methodology.

The EIA also considers advice obtained from technical consultation (summarised in Chapters 5 to 14) to inform assessments of the effects on the Proposed Development on the following:

- Landscape and Visual;
- Ecology;
- Ornithology
- Hydrology and Hydrogeology;
- Noise;
- Cultural Heritage;
- Transport and Access
- Socio-economics, Tourism and Recreation;
- Climate Change and Carbon Balance; and
- Other Considerations (including aviation, telecommunication and shadow flicker).

Best practice will be used to control the potential effects of construction activities including undertaking the work in accordance with the guidelines of best practice proposed in the Outline CEMP and Outline HMP provided as Technical Appendices 15-1 and 6-4 respectively as part of this EIA Report.

The assessments have not identified any residual (inclusive of mitigation measures) significant effects with the exception of Landscape and Visual. A number of adverse significant residual effects are predicted on local landscape fabric, views within 1-2km, the landscape character and at nine viewpoints.

Mitigation of Landscape and Visual effects has been undertaken through design modifications and input to the design process.

There are significant beneficial effects in relation to the Proposed Development, in terms of recreational access (Chapter 13: Socioeconomics, Tourism & Recreation) and in terms of the reduction of carbon emissions through the displacement of conventional electricity generation in terms of carbon balance and contribution to Net Zero (Chapter 14: Climate Change and Carbon Balance).

Minor beneficial effects are also anticipated both in employment and GVA terms in the context of local and national economies as well.