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Author	Euan Hogg	28/07/2020
Approved	Emily Galloway	28/07/2020

Client Details	
Contact	Julie Aitken
Client Name	Fred Olsen Renewables Limited
Address	Ochil House Springkerse Business Park Stirling FK7 7XE

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Appendix 1.1

Scoping Report

Fred. Olsen Renewables

natural power

Natural Power acting as lead consultants on behalf of Fred. Olsen Renewables.

Scawd Law

Scoping Report

28 July 2020

Fred Olsen Renewables Limited

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Author	Euan Hogg	28/07/2020
Approved	Emily Galloway	28/07/2020

Client Details	
Contact	Julie Aitken
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Local Office:

Registered Office:

The Natural Power Consultants Limited
The Green House
Forrest Estate, Dalry,
Castle Douglas, Kirkcudbrightshire,
DG7 3XS

Reg No: SC177881
VAT No: GB 243 6926 48

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1. Introduction

This Scoping Report has been prepared by Natural Power Consultants Limited (Natural Power) on behalf of Fred. Olsen Renewables Ltd (FORL) in anticipation of an application under Section 36 of the Electricity Act 1989 for a wind farm development located approximately 3km north of Walkerburn in the Scottish Borders Council area.

Under the statutory procedures set out in the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations) it is proposed that any such application is accompanied by an Environmental Impact Assessment Report (EIAR).

The purpose of this Scoping Report is to provide sufficient information to consultees to agree the scope of the EIAR. Where the applicant is proposing to 'scope out' particular elements from the EIAR, sufficient information and justification has been provided in this report. The intention is to ensure the focus in the EIAR is on any receptors impacted by the proposed development that may experience significant effects.

Consultees will note that the Scoping Report contains a number of questions, which it would be useful to receive a response on. Not all questions will be relevant to all consultees, therefore we request that consultees provide feedback only on those questions appropriate to them. The questions should not be considered an exhaustive list, and consequently consultees are welcome to provide further responses on any issue they consider relevant to the proposed development. If consultees elect not to respond FORL will assume that consultees are satisfied with the approach adopted/proposed.

2. Background

Scawd Law wind farm was originally proposed in 2017 allowing some early stage surveys and discussions to take place with key stakeholders such as Scottish Borders Council (SBC), Scottish Natural Heritage (SNH) and the Scottish Environmental Protection Agency (SEPA). The original proposal was for an 18 turbine project, however following a review of the development and a further understanding of the constraints that exist from an engineering, planning, landscape and environmental perspective, taking into account the wind energy resource and the potential energy yield of the proposed development. Consequently, following this review the current layout of 12 turbines has been proposed for submission to scoping.

2.1. Purpose of this scoping report

For this application we propose to begin stakeholder consultation into the scoping stage in order to provide information on the proposed development area's baseline conditions and the possible impacts from the development. Therefore, this report utilises the existing information, experience from the existing wind farm and data gathered to date to focus on key areas and likely significant effects in agreement with consultees. Other minor and non-significant issues will be scoped out, and thus not included within the final submission in the EIAR.

As a consequence of this extensive use of existing data, this scoping document provides an in-depth understanding of the baseline and provides evidence to enable key consultees to focus on key areas, likely significant effects and to the 'scoping out' of minor and not significant issues.

Question 1: Do the consultees agree with the have any comments about the proposed approach to scoping and the purpose of the scoping report?

Whilst this larger scoping report will inevitably require more engagement from key consultees at an early stage, the eventual EIAR submitted should be more streamlined than previous submissions **and focus on only likely significant effects**. This approach is very much supported by the 2107 EIA regulations and by determining authorities such as the Energy Consent Unit (ECU). The applicant will ensure that regular and continued liaisons with key stakeholders (including the community) are carried out and documented to agree the assessment baseline, methodology and thus the EIA process and final EIAR documents will be more efficient and streamlined.

3. The applicant

The applicant, Fred. Olsen Renewables Ltd. (FORL), which through its parent company (Bonheur ASA) is listed on the Oslo Stock Exchange and is responsible for their renewable energy activities. FORL has been developing and operating wind farms in the UK since the mid 1990's demonstrating long term commitment to the renewable energy generation market in the UK, Scotland and the North east of Scotland in particular. The company's operational wind farm portfolio, all in Scotland, comprises Rothes (92 MW), Paul's Hill (64.4 MW), Mid Hill (75.9 MW) Crystal Rig (214.3 MW) and Windy Standard (61.5MW) giving a total generating capacity of 508.1 MW.

4. The proposed development

The proposed development is located to the north-east of Innerleithen approximately 3 km to the east of the B709 and some 4 km north of the A72 (Figure 3.1 and 3.2, Appendix A).

The proposed development lies along the top of two ridges, lying between 500 m and 640 m above sea level; with steep slopes to the south, leading down to small water courses that drain south towards the River Tweed. Habitat is considered typical of this area, comprising a mix of heather moorland and rough, semi-improved grassland, with extensive plantation forestry situated c.1 km to the south and west. The land is currently used for sheep farming, and the estate also release birds (pheasant *Phasianus colchicus* and red-legged partridge *Alectoris rufa*) for game shooting.

The proposed development has been through a number of design iterations and will continue to evolve as the EIA progresses.

The proposed development is summarised as follows:

- Up to 12 wind turbines up to 180m to tip height:
- Turbine foundations and hardstandings;
- External transformer housing;
- Crane pads;
- Access tracks;
- Tree felling
- Underground electricity cables between the turbines;
- Onsite substation and control building;
- Anemometry mast;

- Temporary borrow pits;
- Temporary construction and storage compounds and ancillary infrastructure;
- Site signage; and
- Waste water and surface water drainage.

The proposed development location has a good wind resource consequently a project located here will significantly contribute to the UK and Scottish Government's renewable energy targets. Wind farm design with turbines up to 180m tip height is considered reflective of Scottish Government aspirations for demonstrably better energy yields from sites optimised with higher tip heights. As far as possible, the proposed development will also utilise and upgrade existing tracks where possible which will further minimise potential effects on the local environment.

If consented, the proposed development would follow good practise guidance for the construction (and operation) of wind farms.

The proposed lifespan of the project is estimated to be 35 years, after this time the project will then enter the phase of decommissioning.

4.1. Project design

During the review process further assessment has been carried out on the wind resource at site and the key landscape and visual constraints. Key Considerations to the scheme are as follows:

- A viable development in terms of energy yield;
- Relationship with existing and consented developments;
- Relationship to the surrounding landscape; and
- Technical and environmental constraints.

Numerous iterations were investigated which considered a range of turbine heights. The proposed development area lies within defined as Group 3 (Areas with potential for wind farm development) as set out in the Scottish Borders Council Supplementary Guidance – Renewable Energy (2018). The proposed turbines would be positioned following the line of the three ridge tops.

4.2. Wind turbines, foundations, transformers & crane pads

The specific turbine model has not yet been selected. Any turbines selected are likely to have external transformers.

The turbines will be fixed to reinforced concrete foundations. The foundations will be formed in excavations approximately 3.5 m deep, depending upon ground conditions.

Crane pads would be left in-situ following erection of turbines to allow for maintenance and replacement of parts as necessary during the lifetime of the project.

4.3. Access tracks

The A72 will be used to gain access to the proposed development area for both construction materials and turbine components. Existing access tracks would be utilised where possible. The routes would be chosen to minimise potential impacts on the environment and the EIAR will include Felling

Areas potentially required for tree felling have been identified but are limited to relatively small pockets of mixed woodland and relate to the route of the proposed access track. Any felling works required will be carried out in accordance with the UK Forestry Standard and Forestry Commission Forest and Water Guidelines.

4.4. Underground electricity cables

To form power and control circuits linking each turbine to the on-site substation, cables would be placed in trenches (dimensions to be determined by the ground conditions but typically 0.5m x 1m deep) routed alongside the tracks.

4.5. Onsite substation and control building

The proposed development would include a new on site substation and control building. The substation and control building is anticipated to be a single storey building housing the switchgear, metering, protection and control equipment.

4.6. Anemometry mast

Likely to be a steel tower anemometer mast deployed on site in order to assist with ongoing wind turbine performance monitoring.

4.7. Borrow pits

The proposed development would require crushed stone to construct new tracks, create hard standing areas for the cranes and lay the foundations. It is the intention that suitable stone and aggregate would be sourced from on-site borrow pits. However, for the purposes of the scoping and EIA exercise an alternative option of external delivery of stone and aggregate would also be considered.

4.8. Temporary construction and storage compounds and ancillary infrastructure

To provide a secure area for site office facilities and storage of materials and components. To be constructed adjacent to the site track, surrounded by a security fence and locked gates. The fence and gates would be removed at the end of the construction phase and the hardcore base retained but allowed to re-vegetate.

4.9. Construction Environment Management Plan

A Construction Environmental Management Plan (CEMP) would be created and agreed with the Local Planning Authority (LPA) prior to construction commencing through an appropriately worded suspensive condition in order to ensure the impacts from construction are kept to a practical minimum. The CEMP would set out the method statements for constructing site infrastructure, measures that would be undertaken by contractors to ensure good site practice with regards to construction practices and environmental management. Such measures would include for the transport and storage of potentially polluting substances such as oils and lubricants as well as waste management, for example.

Should the proposed development be consented best practice guidelines and method statements will be adopted to ensure again that the development does not impact negatively on the local environment.

No development shall take place (including demolition, ground works, vegetation clearance) until a CEMP, incorporating a Construction Method Statement (CMS), has been submitted to and approved in writing by the local planning authority.

No development shall commence until the role and responsibilities and operations to be overseen by an appropriately competent ECoW have been submitted to and approved in writing by the local planning authority. The appointed person shall undertake all activities, and works shall be carried out, in accordance with the approved details. The ECoW will ensure that during construction impacts to ecological features are minimised

through best practice, including ensuring water quality is maintained and the potential for disturbance or risk of injury/death is minimised for protected species which may be using the site on an occasional basis.

4.10. Grid Connection

The wind turbines would produce electricity at 690 - 1000 Volts. The electricity would then be transformed to 33,000 Volts (33 kV) via a transformer which is likely to be immediately adjacent to the tower of each turbine. The transformers would be linked to the onsite substation via high voltage underground cables placed in trenches which would generally follow the route of the on-site tracks. In addition, where appropriate, the transformers would connect to the substation via underground cables across open ground with electrical marker posts used to identify their locations.

The underground 33 kV cables routed from the turbines would be brought together via the onsite substation. The detailed construction methods, layout of turbines and contents of the substation compound would be provided within the proposed development CEMP.

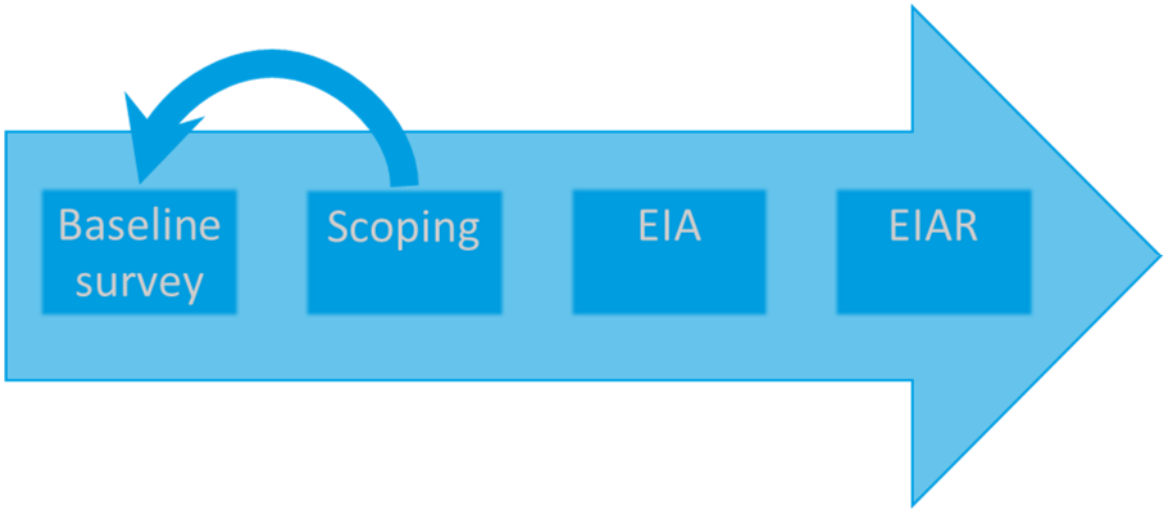
5. Approach to Environmental Impact Assessment (EIA)

The EIA is a statutory procedure which draws together in a systematic way an assessment of the likely significant environmental effects arising from a proposed development.

As the process has numerous steps as set out below, it allows for the opportunity to ‘design out’ adverse environmental effects at an early stage through the design of the project. This of course is preferable to mitigation or remedy at a later stage.

An iterative design approach is already in process for this project and will continue to be adopted throughout the EIA process, which will allow the proposed development to have adopted a design that works well for both the local environment and environmental resources within the area as well as being an economically viable scheme.

The steps taken for informing and developing the EIA process are identified in the flow diagram below:



For this particular project **the collection of the baseline data** has, for the majority, been completed. Therefore FORL has a comprehensive understanding of the site and the local vicinity. Likewise, statutory and non-statutory consultees will also be aware of the environmental resources in the area, and the possible impacts from the proposed development. This has allowed for the design identified within the **Scoping Report** to have 'designed out' impacts to the environment already.

The information within this Scoping Report will provide consultees with the information to agree on those features and topics that are likely to experience a significant effect, and thus 'scope out' the rest. In doing so the **impact assessment** will be **focussed** and proportionate to those that will actually **influence** the **decision** has to whether to not the **project** should **receive consent.**

The impact assessment will determine for those assessed receptors what the effect, either directly or indirectly will be from the project, by comparing the baseline conditions with the conditions that would prevail should the proposed development be constructed, operated (and decommissioned). The environmental effects of the project will be predicted in relation to environmental receptors (i.e. people), built resources and natural resources.

A distinction will be made in the assessments between impacts and effects, where:

- Impacts are defined as the predicted change to the baseline environment attributable to the scheme; and
- Effects are the consequence of impacts on environmental resources or receptors.

5.1. What will the EIA assess?

The EIA will address the construction phase of the wind farm, the operational phase which would last approximately 35 years, and the decommissioning phase. The geographical coverage of the EIA will take account of the following:

- The physical extent of the proposed works;
- The nature of the baseline environment and the manner in which effects are propagated; and the
- National and Local planning and policy context for the scheme.

5.2. Gathering baseline information

The vast majority of the baseline data has already been collected for this project, the assessment team will ensure that sufficient data is obtained to enable a robust assessment, appropriate to the nature and scale of the proposed works. The extent of the baseline assessment will be determined using both professional

judgement and industry best practice. The EIA will also identify areas where the baseline may change, prior to the construction and operational phases of the proposed development from current conditions (for example, maturation of landscaping).

The collection of baseline data will be achieved through desk study (including the use of data gathered for the previous developments in the area), consultation, field survey and monitoring and will be clearly reported in the subsequent sections, or within the EIAR (should there be an expected significant impact from the development). In line with the regulations, the EIAR will also indicate any difficulties encountered in compiling environmental baseline conditions; such as access to land to carryout surveys where permission was not granted.

5.3. Prediction and evaluation of Impacts and effects

The prediction of impacts examines the change to the baseline environment that could result from the construction and operation of the scheme. The effects will be classified into one or more of the following:

- Positive effects that have a beneficial influence;
- Negative effects that have an adverse influence;
- Temporary effects that persist for a limited period only, due for example to particular construction activities;
- Permanent effects that result from an irreversible change to the baseline environment or which persist for the foreseeable future;
- Direct effects that arise from activities that form an integral part of the proposed development;
- Indirect effects that arise from activities not explicitly forming part of the proposed development;
- Secondary effects that arise as a result of an initial effect of the scheme; and
- Cumulative effects that arise from the combination of different impacts at a specific location, the recurrence of impacts of the same type at different locations, the interaction of different impacts over time, or the interaction of impacts arising from the scheme in conjunction with other development projects.

There is no statutory definition of what constitutes a significant effect. **A significant effect may be broadly defined as an effect which, either in isolation or combination with others, should be taken into account in the decision-making process.** This general definition will be used as the basis against which the significance criteria for environmental disciplines will be developed. The threshold of significance for predicted effects tends to vary between the environmental topics. The assessment team will ensure that a consistent approach is applied where suitable to prevent undue weight being given to a particular discipline to the detriment of another.

5.4. Mitigation of environmental effects

The proposed development has been designed and will be developed with best practice methodologies (e.g. construction processes and methodologies set out in the Construction Method Statement (CMS) are embedded into the project design) to reduce any potential significant effects as far as practicable from the initial stages of the development. Mitigation measures will be considered for each significantly adverse effect. The EIAR will include a description of the measures envisaged to prevent, reduce and where possible remedy any significant adverse effects. In line with the regulations, when identifying mitigation measures, the proposed development will take into account the practicability and cost effectiveness of the proposals and their efficiency in reducing environmental impacts. Where practical, mitigation measures will be set out as commitments which will ensure they are implemented. Where the effects of the impact are significant, and where there is uncertainty in the mitigation proposed monitoring may be proposed to ensure that the mitigation is both required and effective. Monitoring will allow for adaptation of the mitigation measures to ensure that they are

fit for purpose. Monitoring will be proportionate to the level of significant experienced and not simply proposed as monitoring for monitoring sake.

Once the final design has been adopted and account has been taken of any mitigation measures, residual effects will be listed. The significance of a residual effect will be determined by correlating the magnitude of the change arising from the scheme with the sensitivity of the particular attribute under consideration. The magnitude of change will be evaluated in accordance with the following table, Table 5.1

Table 5.1: Magnitude of change

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

Where applicable in carrying out individual assessments, a scale of increasing sensitivity of the resource or receptor will be defined. This may be defined in terms of quality, value, rarity or importance and can be classed as 'Low', 'Medium' or 'High'. For certain assessment areas, guidance will be taken from the value attributed to elements through designation or protection under law. Where assessment of this nature takes place the correlation of magnitude against sensitivity will determine a qualitative expression for the significance of the residual adverse effect. This is demonstrated in the matrix below in Table 5.2:

Table 5.2: Significance of effect

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

Those residual adverse **effects indicated as Major and Moderate/Major will be regarded as being significant** effects in terms of the relevant legislation. However, other factors may have to be considered including the duration and the reversibility of the effect.

5.4.1. Securing commitments and mitigation through planning conditions

Where commitments and mitigation have been discussed within this scoping report they will form part of the EIAR and therefore ensure that they are secured if the proposal receives consent through specific planning conditions.

Question 2: Do consultees agree with the approach to the Environmental Impact Assessment and the associated mitigation and monitoring? We intend to focus the EIAR on the significant effects and will therefore propose to scope out non-significant effects.

6. Community consultation and community benefits

FORL and Natural Power believe public consultation is important throughout the development of a wind farm and has built up relationships with local communities in the area. As this is a Section 36 application there is no formal requirement to follow the procedures for major developments under the Planning etc. (Scotland) Act 2006, however this application will follow the processes and standards set by the legislation and best practice guidelines (PAN 3/2010 - Community Engagement). A Pre-Application Consultation report will be submitted with the application.

As part of the iterative planning process and best practice, FORL is keen to engage with local communities close to the proposed development to gather their views, so these can, where possible, inform the planning information required for any forthcoming application. In recognition of the current disruptions of the regular dates and format for Community Council meetings due to Covid-19, FORL will be seeking to present a virtual presentation and discuss the development with representatives of your Community Council via a virtual meeting.

The views of local communities will be continually sought throughout the planning process and there will be other opportunities for key stakeholders and community members to share their views on the project as it progresses throughout the planning process.

Question 3: Do consultees agree with the proposed approach set out for community consultation?

7. Other stakeholder consultation

Natural Power and FORL consider consultation with statutory and non-statutory consultees as an integral part of the iterative EIA process and recognise the benefits in carrying out early consultation with all concerned parties. The consultation will progress with the circulation of this Scoping Report and will continue for the duration of EIA process.

8. Legal, policy climate change context

The application will conform to the statutory requirements legislated by Section 36 of the Electricity Act 1989 and The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Deemed

planning permission will be sought by the Scottish Ministers under section 57(2) of the Town and Country Planning (Scotland) Act 1997 as amended.

A Planning Statement will accompany the application for consent and assess the proposed development in a legal and policy context against the relevant legislation and planning policies in force. The Planning Statement will assess such documents at international, national, regional and local levels, where applicable, including but not limited to:

- National Planning Framework for Scotland 3 (NPF3);
- Scottish Planning Policy 2014 (SPP);
- Scottish Borders Council Local Development Plan (2016);
- Climate Change (Emissions Reduction Targets) (Scotland) Act 2019; and
- Scottish Energy Strategy: The future of energy in Scotland 2017.

The current Supplementary Planning Guidance will also be accounted for in the submitted EIAR with the appropriate weighting given relative to established policies.

9. Environmental impact assessment report (EIAR)

The EIA process will result in the production of an Environmental Impact Assessment Report (EIAR). The EIAR will identify those features/ receptors that have been agreed are likely to have a significant effect from the proposed development (or cumulatively with other projects) and will make an influence on their decision process.

The EIAR will focus on each of the broad topics identified within this Scoping Report, plus any others that develop throughout the remainder of the EIA process until submission.

Where features are considered, the assessment methodology, results, effects and mitigation proposed (if any) will be included. This will allow for the residual effect from the proposed development to be identified to allow the competent authority sufficient information to determine the application.

The EIAR will supplement the application and will also be accompanied by a Carbon Balance Assessment, a Non-Technical Summary (NTS) a Pre-Application Consultation (PAC) Report and a Planning, Design and Access Statement (PDAS).

The EIAR is likely to follow the structure below:

Background Information

Chapter 1: Introduction

Chapter 2: Legal and Policy Context

Chapter 3: Approach to EIA

Chapter 4: Site Selection and Design Evolution

Chapter 5: Project Description

Biological and Physical Environment

Chapter 6: Landscape and Visual Impact Assessment (LVIA)

Chapter 7: Ecology Assessment

Chapter 8: Ornithology Assessment

Chapter 9: Hydrology, Geology and Hydrogeological Assessment

Chapter 10: Cultural Heritage Assessment

Population and Human Health

Chapter 11: Traffic and Transport Assessment

Chapter 12: Aviation and Existing Infrastructure

Chapter 13: Socio-Economic Assessment

Chapter 14: Climate Change

Summary of Assessment

Chapter 15: Residual, Synergist Effects & Mitigation and conclusions

The EIAR will be produced both in a hard copy print and electronically. For the majority of consultees, unless otherwise requested, the EIAR will be provided electronically. Upon submission of the application, these documents will be made available for public inspection at appropriate locations to be agreed with Scottish Borders Council and will be distributed to the relevant consultees. An NTS will be submitted alongside the EIAR, which will provide a summary of the main findings and will be written in a non-technical language to help enable a better understanding and overview of the assessments for the general public.

Question 4: Do consultees agree with the proposed chapters to be included in the EIAR?

10. Embedded mitigation and further layout iterations

The design of Scawd Law Wind Farm to date has been an iterative process, and the layout of which has avoided environmental and physical constraints as far as possible (embedded mitigation).

Throughout the remainder of the EIA process (until the submission of the EIAR), it may be that the layout presented here in the Scoping Report, further develops (especially in light of the Scoping Opinion and public consultations). Should the layout change from now to the application, it should be noted that the layout presented within this Scoping Report represents a **'worst case scenario'** (e.g. turbines have been presented in the greatest number and tallest height) and therefore the proposal as identified now will have the greatest environmental impacts, and generally any amendments to the design will further reduce potential significant effect.

Should any changes occur that are likely to have a significant effect on the receptor these will be included within the EIA. If the changes are not likely to have a significant effect, these will first be discussed with the relevant consultees, to ensure that they too are in agreement with the applicants' understanding before excluding them from the EIAR.

Whilst the above sets out the maximum specifications of the proposed development, and therefore worst case scenario, FORL is considering a Rochdale envelope approach to the application and therefore potentially also seeking to set out the minimum specifications of the proposed development. It is considered that this approach would allow the applicant with sufficient flexibility to realise the development should it be consented but narrows the range and therefore requirements for assessment.

Question 5: Do consultees agree that a Rochdale envelope would assist in assessing the application and focusing the EIA?

In the following sections the subject areas to be covered in the Scoping Report and EIAR are provided. Where it is considered that certain subjects or particular aspects within subjects can be scoped out of the EIAR, evidence and a rationale is provided

11. Landscape and Visual

11.1. Introduction

This chapter sets out the proposed methodology and approach to be applied to the Landscape and Visual Impact Assessment (LVIA) of the proposed development. The objective of the LVIA is to identify and assess the potential significant effects that the proposed development may have on physical elements of the landscape such as the landscape fabric and character of the site; landscape character; designated and protected landscapes; and visual amenity within an identified study area.

The purpose of this scoping report is to establish the landscape, visual and cumulative baselines of the study area for the proposed development and focus on the key landscape and visual effects likely to arise which will be reported on in the LVIA EIAR Chapter.

The key project components likely to result in effects include the following:

- Wind turbines;
- Anemometer mast;
- Temporary and permanent infrastructure including crane pads, construction compound and borrow pits;
- Access (both to and within the site boundary); and
- Cabling, Control Building and Substation.

Each of the above elements will be considered during the following development stages:

- Construction;
- Operation; and
- Decommissioning.

The LVIA will be undertaken by Chartered Landscape Architects experienced in undertaking siting, design and assessment of onshore wind energy developments in accordance with best practice guidance.

11.2. Landscape policy and guidance

The LVIA would be prepared in accordance with the *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (GLVIA3) (Landscape Institute and the Institute of Environmental Assessment (2013).

In addition to the above, the LVIA will take account of the following guidance and policy documents:

- *GLVIA3 Statement of Clarification 1/13 10-06-13* (Landscape Institute, 2013);
- *Landscape Character Assessment, Guidance for England and Scotland,* (The Countryside Agency and Scottish Natural Heritage (SNH) 2002 Edition)*;*
- *Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland.* (SNH, Historic Environment Scotland, April 2018);
- *Spatial Planning for Onshore Wind Turbines – natural heritage considerations, Guidance* (SNH, June 2015);
- *Siting and Designing Windfarms in the Landscape, Version 3a*, (SNH, August 2017);
- *Good Practice during Wind Farm Construction, 4th Edition 2019* (Scottish Renewables, SNH, SEPA, Forestry Commission Scotland, Historic Environment Scotland, Marine Scotland Science, AEECoW);
- *Visual Representation of Windfarms, Version 2.2*, (SNH February 2017);

- *Visual Representation of Development Proposals, Technical Guidance Note 06/19* (Landscape Institute, 07/2019);
- *Residential Visual Amenity Assessment (RVAA), Technical Guidance Note 2/19* (Landscape Institute, March 2019);
- *Assessing the Cumulative Impact of Onshore Developments* (SNH, March 2012);
- *Scottish Borders Council Supplementary Guidance: Renewable Energy* (Scottish Borders Council, July 2018); and
- *Scottish Borders Wind Energy Consultancy: Update of Wind Energy Landscape Capacity and Cumulative Impact Study* (Scottish Borders Council, November 2016).

The assessment would also take cognisance of relevant national and local landscape planning policy and other such material that may be published during the preparation of the LVIA.

11.3. Assessment methodology

A methodology including detailed criteria for assessing landscape and visual effects will be included as an appendix document to the main LVIA EIAR Chapter. Below is a summary of the intended methodology that has been used for initial assessments to determine the landscape and visual baseline.

Study Area

A Zone of Theoretical Visibility (ZTV) map has been produced to illustrate the potential extent of visibility of the proposed development at both hub and tip height (Figures 11.1 & 11.2, Appendix A). The ZTV assumes a bare earth surface, i.e. no trees or buildings etc. that might otherwise obscure the view of the turbines and therefore is a worst-case illustration. The ZTV has been produced with an extent of 45 km based on SNH guidance[1] for ZTV production in relation to turbines of greater than 150 m in height. Following further evaluation of potential effects within this 45 km area, the assessment will focus on the potential significant landscape and visual effects of the proposed development.

Impact and effects

A distinction will be made in the assessments between impacts and effects:

- Impacts are defined as the predicted change to the landscape and visual baseline as a result of the construction and operation of the proposed scheme; and
- Effects are the consequence of those impacts on landscape resources or visual receptors.

It is a requirement of the EIA Regulations to state whether effects are positive, neutral or adverse. However, as a precautionary approach, effects on landscape character and views will be considered in the LVIA to be adverse, but it should be noted that not all people would experience effects on landscape character, views and visual amenity as adverse, as people's perception of wind turbines varies between negative and positive attitudes. An additional point is that simply because turbines are visible from a particular location or receptor, this does not mean that there will be an adverse effect. Rather, it is dependent on the level (or significance) of that effect or change.

[1] Scottish Natural Heritage Visual Representation of Wind Farms, Guidance, Version 2.2 (SNH, February 2017)

Landscape and visual effects

In accordance with GLVIA3 the assessment of Landscape effects and visual effects are considered separately.

Landscape effects are defined as the potential changes as a result of the proposal on the physical landscape resource, including landscape features, which may give rise to changes in its' character, or constituent parts of its' character. This in turn may affect the perceived value ascribed to the landscape. Landscape resources evaluated include whole Landscape Character Types (LCTs), individual elements and features and perceptual aspects and those areas designated for their scenic or landscape qualities at a national, regional or local policy level.

Visual effects consider potential changes as a result of the proposal on population or people. It considers changes to available views as a result of changes to the landscape and people's responses to these changes, otherwise referred to as visual amenity. Changes in views consider the appearance and prominence of the development from key viewpoint locations, settlements, routes and recreational areas. Viewers from such areas are collectively known as visual receptors. Visual effects include issues of intrusion (turbines encroach in the view) or obstruction (turbines intercept or block a view) and whether important opportunities to enjoy views may be improved or reduced as a result of the proposal.

The two principal criteria for determining the significance of both landscape and visual effects are:

- The nature of the location or receptor (sensitivity); and
- The nature of an effect (magnitude).

Landscape effects

As guided by GLVIA3, the nature of the landscape receptors (sensitivity) will be assessed in terms of the susceptibility of the receptor to the proposed change and the value of the receptor and will be expressed in terms of High, Medium or Low sensitivity. The nature of the effect (magnitude) on each landscape receptor will be assessed in terms of the size and scale, geographical extent, duration and reversibility of that effect and will be expressed in terms of Substantial, Moderate, Slight and Negligible.

Visual effects

As guided by the GLVIA3, the nature of the visual receptors (sensitivity) will be assessed in terms of the susceptibility of the receptor or viewer (not the view) to the proposed change in views and visual amenity and the value attached to particular views. This will be expressed in terms of High, Medium or Low. The nature of the effect (magnitude) on each visual receptor will be assessed in terms of the size and scale, geographical extent, duration and reversibility of that effect and will be expressed in terms of Substantial, Moderate, Slight and Negligible.

Significance of Landscape and Visual Effects

For both landscape and visual effects, an overall judgement is made on the nature of the receptor and the likely change resulting from the proposed development. This judgement is based on evaluations of the individual aspects of sensitivity (value and susceptibility) and magnitude (size and scale, geographical extent, duration and reversibility). Table 11.1 illustrates the four main levels of landscape and visual effects that will be used in this LVIA; Major, Moderate, Minor and Negligible. Three intermediate combinations are also used for determining landscape and visual effects; Major/moderate, Moderate/minor and Minor/negligible. The table is not a prescriptive tool and the evaluation of potential effects makes allowance for the use of professional judgement and experience.

Landscape Institute advice, contained in GLVIA3 statement of clarification[2], states that following the determination of magnitude and sensitivity, '*the assessor should then establish (and it is for the assessor to decide and explain) the degree or level of change that is considered to be significant'*. In accordance with this advice, the LVIA will establish at what level in the assessor's opinion, '*significant*' effects arise, as referred to in the EIA (Scotland) Regulations 2017[3].

Those effects considered to be **Major** and **Major/moderate** effects by virtue of the more sensitive receptors and the greater magnitude of effects, are considered to be **Significant Landscape or Visual Effects**. Moderate, Moderate/minor, Minor, Minor/negligible and Negligible effects are considered to be Not Significant Landscape or Visual Effects. However, whilst assessments are based on factual and objective data where possible, they involve qualitative considerations, and are therefore essentially and inevitably a matter of professional judgement undertaken on an individual basis. In some instances, Moderate effects may be judged to be Significant by the assessor and equally some Major/moderate effects may be judged to be Not Significant. In these instances, the level of significance of the effect determined by the assessor will be explained in detail.

Examples of significant landscape effects can arise where changes to important key elements or attributes of a LCTs occur without necessarily giving rise to a change in character, or where a new landscape type or sub-type and therefore new character type (at various scales) would result from the introduction of the proposed development.

A significant visual effect is considered to be a change in the view that would markedly change the composition of that view.

It should be noted that significant effects need not be unacceptable or necessarily adverse and may be reversible.

Table 11.1: Levels of Landscape & Visual effects and overall significance

Nature of Effect (Magnitude) ↑	Nature of Receptor (Sensitivity) ← High	Medium	Low
Substantial	Major		
Moderate		Moderate	
Slight		Minor	
Negligible			Negligible

Cumulative Effects

The Cumulative Landscape and Visual Impact Assessment (CLVIA) will be undertaken in a similar process to the LVIA. The aim of the CLVIA is to identify, predict and evaluate potential key effects arising from the addition of the proposed development to a theoretical landscape baseline which includes cumulative sites currently present in the landscape and that may or may not be present in the landscape in the future. Cumulative sites consist of other wind farm developments only. As with the LVIA, the CLVIA deals with the effects on landscape and visual receptors separately.

The difference between LVIA and CLVIA is the different baseline conditions in terms of other wind farm developments that are assumed to be present in the landscape. The LVIA baseline conditions consider the introduction of the proposed development to a landscape with other operational wind farm developments and

[2] GLVIA3 Statement of Clarification 1/13 10-06-13 (Landscape Institute, 2013);

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

those under construction. The CLVIA baseline conditions consider the introduction of the proposed development to a landscape with other wind farm developments at more speculative stages of the planning system, such as:

- consented wind farms which have been granted planning consent but are not yet constructed; and
- submitted valid wind farm applications awaiting determination, including those at appeal.

For clarity, the cumulative assessment separates out these different speculative stages of development by identifying different **'cumulative baseline scenarios'**.

- The existing scenario of operational wind farms and those under construction is assessed in the LVIA and is referred to as **Scenario 1**. The CLVIA considers the following scenarios;
- **Scenario 2** considers the addition of the proposed development in the context of operational wind farms, those under construction and additionally those developments currently consented. This represents the likely future scenario; and
- **Scenario 3** considers the addition of the proposed development in the context of operational, under construction, consented, undetermined planning applications and wind farm developments currently at appeal i.e. a less certain future scenario.

Scenario 3 represents the most unlikely cumulative baseline as not all planning applications would necessarily be approved. The detailed cumulative assessment will comprise the assessment of the introduction of the proposed scheme into each scenario baseline. Projects which have come forward of relevance at Scoping or pre-application stage would be acknowledged.

In the CLVIA, cumulative effects will be reported as the additional effects of the introduction of the proposed development, should other cumulative schemes be present in the different baseline scenarios, over and above the effects identified in the LVIA. For each receptor, it is clarified as to whether the effect has increased or decreased relative to the LVIA or whether the effects will be the same as in the LVIA.

Types of Cumulative landscape effects

Cumulative landscape effects are defined as effects on either the physical fabric, aesthetic aspects of the landscape or overall character of the landscape, or any special values attached to it.

Cumulative effects on the physical fabric of the landscape arise when two or more developments affect the landscape components or features such as woodland, dykes or hedgerows.

Cumulative effects on the aesthetic aspects of the landscape arise when two or more developments affect the aesthetic or perceptual components of landscape character including scale, sense of enclosure, diversity, pattern and colour and perceptual or experiential attributes such as naturalness, remoteness or tranquillity

Cumulative effects on the landscape character can arise when a new proposal results in a progression from a landscape which contains one development which forms an individual, isolated feature, to a landscape in which two or more developments are evident and may form a significant or dominant characteristic.

Types of Cumulative visual effects

Cumulative visual effects are defined as effects that can be caused by combined visibility, which occurs where the observer is able to see two or more developments from one viewpoint or sequential effects which occur when the observer has to move to another viewpoint to see different developments e.g. along linear routes or journeys.

Combined visibility can occur as simultaneous visibility, where more than one development is visible in the same angle of view or successive visibility where two or more developments are present in views from the

same viewpoint but cannot be seen at the same time as they are not in the same angle of view e.g. the viewer has to turn their head to see the other developments which become visible in succession.

Sequential visibility occurs where two or more developments are not present in views from the same viewpoint and cannot, therefore, ever be seen at the same time. The observer has to move to another viewpoint to see the other developments so they will then appear in sequence. Sequential effects are most common along linear routes and journeys. Sequential effects range from frequently sequential when the developments keep appearing regularly and with short time lapses between, depending on speed of travel and distance between the viewpoints, to occasionally sequential, where there may be long time lapses between appearances, because the observer is moving very slowly and/or there are large distances between the areas of visibility.

Assessing Cumulative Landscape and Visual Effects

Assessing the significance of cumulative effects requires:

- the identification of the landscape and visual receptors;
- the consideration of the nature of the receptors (sensitivity) as identified in the LVIA; and
- the determination of the nature of the effect (magnitude) which would be experienced by each receptor as a result of the addition of the proposed development to each baseline scenario.

The landscape and visual receptors to be considered in the CLVIA will consist of all the LCTs, designated landscapes, sequential routes and static locations such as viewpoints or settlements assessed in the LVIA as having more than negligible effects.

The susceptibility of receptors may be affected by the presence of other wind energy developments. Some viewers may consider that susceptibility is reduced because other wind farms are ‘already there’, but for others it may be that sensitivity is increased because more development would be ‘too much’. However, to retain a consistent and objective approach, the susceptibility of receptors used for the cumulative assessment is taken to be the same as that identified in the LVIA. The value of the receptor would also remain the same in the cumulative assessment and therefore the overall sensitivity of the receptor is considered to be the same as will be identified in the LVIA.

As in the LVIA, the nature or magnitude of the cumulative effect on landscape and visual receptors considers the size and scale, geographical extent, duration and reversibility of the change likely to result from the addition of the proposed development to the different baseline scenarios. With particular regard to cumulative visual effects, the following additional factors are also considered in determining the magnitude of cumulative visual change from each visual receptor:

- The number of turbine developments visible;
- The prominence of the developments likely to be seen;
- The amount of available view affected;
- The arrangement of turbine developments e.g. developments seen in one direction or in only part of the view, or seen in all directions;
- The relationship of the scale of the turbine developments including size and number of turbines which may also be expressed as the horizontal and vertical angle occupied by turbines;
- The position of the turbine developments in the view e.g. on the skyline, against the backdrop of land;
- The distances from the viewer and between developments;
- The landscape setting, context and separation (or coalescence) of turbine developments; and
- Potential screening by land cover such as vegetation and local variations in topography.

As in the LVIA, four main levels of cumulative effect will be used in the CLVIA; Major, Moderate, Minor and Negligible. Three intermediate combinations will also be used; Major/moderate, Moderate/minor and

Minor/negligible. The evaluation of potential effects makes allowance for the use of professional judgement and experience.

Significance of cumulative effects

SNH guidance considers that the concept of a '*threshold of acceptable change*' beyond which turbine developments in a particular area become unacceptable, is a crucial element in identifying significant adverse cumulative effects. In other words, the effect of the present proposal is limited, but when added to the effect of what has already been permitted, or to new proposals which have been submitted for planning permission, it can become over-dominant in planning terms.

There are varying degrees of cumulative landscape effect. These are as follows:

- Multiple wind farms are seen as separate isolated features within the Landscape Character Type, too infrequent and of insufficient significance to be perceived as a characteristic of the area;
- Multiple wind farms are seen as a key characteristic of the landscape, but not of sufficient dominance to be a defining characteristic of the area;
- Multiple wind farms appear as a dominant characteristic of the area, seeming to define the character type as a 'wind farm landscape' character area; and
- Wind farms cross different character types, reducing the distinction between the different types.

The appropriateness of such effects will depend on the value of a landscape, the objectives for change as defined in local capacity studies and scale of that effect, i.e. whether affecting a local character type or occurring at a regional level.

A significant cumulative landscape effect is considered to be a Major or Major/moderate landscape effect likely to be when the combination of the multiple wind farms (following the addition of the proposed development) become a dominant characteristic of the area and/or reduces the distinction between different character types and/or transforms/re-defines local or wider baseline landscape character.

A significant cumulative visual effect is considered to be a major or major/moderate visual effect and would result in a view whose composition would be markedly changed.

It should be noted that significant cumulative effects need not be unacceptable or necessarily negative and may be reversible. Each effect is evaluated on its own merit.

Question 6: Do the consultees agree with the LVIA and CLVIA methodologies proposed?

11.4. Landscape Assessment

The assessment of the levels of effect on the landscape resource will be carried out in the detailed LVIA to be contained in the EIAR and will adopt the following general process:

- Identify and describe the key landscape characteristics of the proposed development site;
- Describe the LCTs and landscape designations identified in the Landscape Baseline to represent the wider landscape resource;
- Identify and describe the type of changes which are likely to occur to the proposed development site and wider landscape resource as a result of the construction and operation of the proposed wind farm;
- Describe the extent to which the key characteristics of the proposed development site and the wider landscape resource would be altered in terms of being weakened or strengthened by the introduction of the proposed wind farm; and

- Assess the nature of the effect (magnitude) on the development site and wider landscape resource which are likely to result from the introduction of the proposed wind farm, at construction, operational and decommissioning stages.

Landscape Baseline

The assessment of landscape effects of the proposed development will consider the effect on the landscape as a resource or a group of identifiable receptors. These include:

- Landscape fabric and character of the proposed development area;
- SNH's LCT mapping database[4];
- Protected and designated landscapes, at international, regional and local level.

The proposed development would be entirely located within the Dissected Plateau Moorland LCT covering the Moorfoot Hills. The LVIA will include an analysis of all 64 LCTs and designated landscapes within the study area and will focus on those considered to receive an adverse effect. This analysis will be presented during consultation with SBC and SNH and will form an Appendix in the EIAR LVIA Chapter.

11.5. Visual Assessment

The assessment of the visual effect of the proposed development considers the effect on visual receptors throughout the study area. Visual receptors identified within the study area will comprise the visual baseline.

Visual receptors are people who will be affected by changes in views or visual amenity at different places. They are usually grouped by what they are doing at these places, such as residents, road users, walkers. They include people living and working in the area, people who view the proposed development sequentially such as people travelling through the area on road, rail or other forms of transport, walking routes, people visiting promoted tourist attractions and landscapes, and people pursuing other recreational activities.

Zone of Theoretical Visibility Mapping

Computer generated ZTV mapping has been undertaken to assist in determining the likely extent of visibility of the proposed development within the study area and the likely landscape and visual receptors affected by the proposed development. The ZTVs (Appendix A - Figures 11.1 & 11.2) have been undertaken in accordance with best practice guidance[5].

Viewpoint Locations

The viewpoints selected should represent the views experienced towards the proposed development throughout the study area by various groups of people or receptors. Selected viewpoints should include representative, specific and illustrative views from publicly accessible locations, which are defined as:

- **Representative viewpoints**: selected to represent the experience of different types of visual receptors, where larger number of viewpoints cannot all be included individually and where the significant effects are unlikely to differ. For example, certain points may be chosen to represent the views of users of particular public footpaths and bridleways;
- **Specific viewpoints**: chosen because they are key views and sometimes promoted viewpoints within the landscape, including for example scenic viewpoints from roads, specific local visitor attractions, viewpoints in areas that are particular noteworthy for visual and/or recreational amenity, such as landscapes with statutory landscape designations, or viewpoints with particular cultural landscape associations; and

[4] Scottish Natural Heritage Landscape Character Types Map and Description (SNH, 2019)

[5] Scottish Natural Heritage Visual Representation of Wind Farms, Guidance, Version 2.2 (SNH, February 2017)

- **Illustrative viewpoints**: chosen specifically to demonstrate a particular effect or specific issue.

In accordance with SNH guidance, '*The aim is* **to choose a range of viewpoints from where there are likely to be significant effects and those that are representative of views within the study area**…*It is preferable not to include too many viewpoints as this can distract attention from the key significant effects*…**We therefore encourage all applicants and consultees to further scrutinise the list of viewpoints selected and reduce these where possible**.' (SNH[5],).

Computer generated wire-frame visualisations of the proposed development will then be produced for each selected viewpoint to determine the potential view and suitability for EIA. It is suggested that between 10 and 20 viewpoints would be an appropriate quantity.

A list of viewpoints is provided in Table 11.2 for preliminary assessment.

Table 11.2: Viewpoint Locations

VP				Receptor		Visualisation Type	
No.	Location	Easting	Northing	Landscape	Visual	Wireline	Photomontage
1	A72 road, east of Hoylee	339730	637092	Upland Valley with Woodland LCT Tweed Valley SLA	Road users	●	
2	A7 road, near Buckholm	347305	639004	Pastoral Upland Valley LCT	Road users	●	
3	B709 road, NCR1, north of Innerleithen	333255	639896	Upland Valley with Woodland LCT	Road users	●	●
4	SUW, Minch Moor	335870	633058	Southern Uplands with Scattered Forests – Borders LCT Tweedsmuir Uplands SLA	Walkers	●	●
5	SUW / B709 road near Kirkhouse	332225	633705	Upland Valley with Woodland LCT Tweedsmuir Uplands SLA	Walkers Road users	●	●
6	Windlestraw Law	337165	643127	Dissected Plateau Moorland LCT	Walkers	●	●
7	Bonnington Road, Peebles	325105	638324	Upland Valley with Woodland Tweed Valley SLA	Road users Settlement	●	●

VP No.	Location	Easting	Northing	Receptor Landscape	Receptor Visual	Visualisation Type Wireline	Visualisation Type Photomontage
8	B709 road, near Innerleithen	333542	635686	Upland Valley with Woodland LCT Tweed Valley SLA	Road users	●	●
9	Eildon Hills	354807	632322	Upland Fringe with Prominent Hills LCT	Walkers	●	●
10	Three Brethen	343290	631935	Southern Uplands with Scattered Forest – Borders LCT Tweed, Ettrick & Yarrow Confluences SLA	Walkers	●	●
11	Dewar Gill (B709 road/NCR1)	334741	646358	Dissected Plateau Moorland LCT	Road users	●	
12	Core Path 41 near Scroof Hill	340955	643448	Dissected Plateau Moorland LCT	Walkers	●	●
13	Lauder Common	348592	645627	Plateau Grassland – Borders LCT	Road users	●	
14	Innerleithen Car Park	332900	636694	Upland Valley with Woodland LCT Tweed Valley SLA	Visitors Settlement	●	●

Question 7: Do consultees agree with the suggested viewpoint locations and visualisations detailed in Table 11.2?

Aviation Lighting

At time of writing the Civil Aviation Authority (CAA) requires visible red aviation warning lighting at up to 2000 candela for any structure at and greater than 150 m in height. The worst-case scenario lighting scheme would require a 2000 candela light would positioned on the nacelle and 32 candela lights on the tower of each turbine. At time of writing the CAA guidance for lighting onshore wind turbines allows for the lighting intensity to be reduced to 10% in good visibility conditions and furthermore that the lighting be omni-directional and therefore dim in intensity outside of a 0° - 3° viewing angle. The current guidance is that the lighting would be static and only be operating during night-time hours. The above methods mitigate the potential effects of the lighting.

As a precautionary measure, it is proposed a description of any lighting proposals visible from each selected viewpoint will be included in the viewpoint assessment. A limited number of viewpoints may be illustrated in additional photomontages using photographs taken at dusk.

The applicant has engaged the services of Malcolm Spaven of Aviatica Ltd with a view to propose and agree a reduced lighting scheme from the outset of this proposed development. Aviatica will engage with the Civil Aviation Authority (CAA) to identify the appreciate aviation stakeholders to be consulted.

Residential Visual Amenity Assessment

Question 8: Do consultees agree with the approach suggested for aviation lighting?

The Residential Visual Amenity Assessment (RVAA) consists of a detailed study of the visibility from individual properties within a 2 km radius of the outer turbine of the proposed development. In the absence of published guidance on the distance from the proposed development that should be adopted for a detailed study of visual amenity from residential properties, a 2 km study area is considered appropriate.

Following a review of existing properties within a 2km radius of the outer turbines of the proposed development there is only 1 property within 2km buffer. This property is financially involved with the development. For this reason, we are proposing to **scope out residential visual amenity assessment** from the assessment.

Sequential Receptors

Sequential impacts occur when an observer moves through a landscape along a linear route. This can lead to a series of viewpoints and experiences which may include other developments in addition to the proposed development.

An initial list of routes to be assessed includes the Southern Upland Way (SUW), the A76, A702, A712, A76, B729, and B794. Core Paths to a radius of 5 km from the proposed development will also be included. The aim of the initial assessment will be to ascertain which sequential routes have the potential to experience significant visual effects including significant cumulative sequential effects.

Question 10: Do consultees agree with the approach to the sequential assessment?

11.6. Cumulative Assessment

As detailed above in Section 11.3, the difference between LVIA and CLVIA is the different baseline conditions in terms of other wind farm developments. This cumulative baseline is divided into different scenarios that reflect which groups of wind farm developments are assumed to be present in the landscape.

Figure 11.3 includes other wind farm developments identified within 45 km of the proposed development.

Question 11: Could consultees provide a list of cumulative sites within 45 km of the proposed development?

The operational Longpark, Carcant, Bowbeat, and Toddleburn are likely to be the primary developments against which cumulative effects will be most relevant. Cumulative assessment of other projects at application stage will be dependent on their progress through the planning system.

These most relevant wind farm developments comprise the cumulative baseline (or Cumulative Study Area). As stated in the SNH guidance '*Assessing the Cumulative Effects of Onshore Wind Energy Developments*,' (SNH, 2012) 'the key principle for all cumulative impact assessments is to focus on the likely significant effects

and in particular those which are likely to influence the outcome of the consenting process'. (para 33 SNH 2012).

The cumulative baseline identifies those developments it is considered require further cumulative assessment in the detailed CLVIA. These include all operational, consented and valid planning applications within an approximate 15 km radius from the proposed development. Turbines below 50 m are only considered within a have been identified relating to the SUW long distance walking route and potential successive cumulative visibility occurs from points along the SUW.

Beyond 30 km is considered too distant to present significant cumulative combined and cumulative sequential effects with the proposed development. Such developments are requested to be scoped out of the cumulative baseline.

Question 12: Do consultees have comments regarding the cumulative baseline?

It should be noted that the cumulative baseline represents the 'maximum development scenario'. It considers the effects of the proposed development in addition to other developments that do not yet exist in the current landscape but which may exist in the future. This results in a high level of uncertainty in the cumulative baseline as not all of the other undetermined proposals will necessarily gain planning approval.

Owing to this uncertainty with regard to the maximum development scenario, the cumulative baseline is split into different scenarios with a decreasing likelihood of becoming operational.

The continually evolving nature of the cumulative baseline requires a reasonable end date beyond which any further changes to the baseline would not need to be considered in the CLVIA. It is suggested a 'cut-off' date of three months prior to the submission of the LVIA and CLVIA be a reasonable timeframe.

Cumulative assessment

Question 13: Do consultees have comment regarding a reasonable end date of three months prior to submission of the LVIA and CLVIA after which point any additional sites will not be assessed with the application?

The landscape and visual receptors to be considered in the CLVIA will also consist of relevant LCTs, designated landscapes, sequential routes and static locations such as viewpoints and settlements.

In the CLVIA, cumulative effects will be reported as the additional effects of the introduction of the proposed development to the different baseline scenarios, over and above the effects identified in the LVIA. For each receptor, it is clarified as to whether the effect has increased or decreased relative to the LVIA assessment or whether the effects will be the same as in the LVIA assessment.

Cumulative wind farms will be shown in the viewpoint visualisations in accordance with SNH good practice guidance[6] (2017). In addition, a ZTV to blade tip height of each wind farm proposal identified in the cumulative baseline will be prepared and then combined with the ZTV of the proposed scheme to create 'paired ZTVs' which illustrate the areas of mutual visibility, i.e. where the proposed scheme and other proposals are both visible from. ZTVs showing the combined visibility of each cumulative baseline scenario will also be prepared to illustrate the total visibility for each scenario.

[6] Scottish Natural Heritage Visual Representation of Wind Farms, Guidance, Version 2.2 (SNH, February 2017)

Proposed Mitigation

By their nature landscape and visual effects require early consideration of mitigation which is embedded in the design of the proposed development and has been specifically designed to avoid or to minimise the occurrence of adverse environmental impacts. All effects identified in the final detailed assessment will therefore be '*residual effects*'.

12. Ecology

12.1. Introduction

The intention of this section of the scoping report is to provide the competent authority and its advisors with sufficient information (where it currently exists) on the likely impacts of the proposed Scawd Law Wind Farm on important ecological features. This will allow for an EIA Report (EIAR) that focusses on features which could be significantly affected, or for which the predicted effects are currently unknown.

Baseline survey work to inform scoping and therefore the EIA commenced in September 2017; the results of these surveys are summarised in the following sections. These results are used to identify important ecological features that could sustain positive or negative impacts as a result of the development of the proposed Scawd Law Wind Farm. Where likely non-significant impacts are identified in this section, Natural Power proposes that these are not carried forward for inclusion in the relevant EcIA and are 'scoped out'.

This section also provides information on statutory sites of international importance, upon which the proposed development may have a 'Likely Significant Effect' (LSE). A screening process will be undertaken alongside the EIA to determine whether the predicted impacts of Scawd Law Wind Farm will result in a LSE. The screening process will allow the competent authority to determine whether an Appropriate Assessment (AA) will be required.

The original turbine layout proposed in 2017 was for 18 turbines, however the turbine layout was updated in 2019 to a 12-turbine layout. Some surveys reported in this section covered the original, larger turbine layout, this encompasses the entirety of the new turbine layout. Hereafter the survey area covering the 18-turbine layout proposed in 2017 will be referred to as the 'original survey area' and the up-to-date 12 turbine layout will be referred to as the 'updated survey area'.

12.2. Legislation and Guidance

The ecological baseline surveys and preliminary assessment presented in this report have been carried out with reference to a number of national policy documents. Legislative and guidance documents with relevance to ecology are listed below:

Legislation

- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive);
- Environmental Impact Assessment Directive 85/337/EEC (the EIA Directive);
- The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), which transposes the Habitats Directive into UK law;
- The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007;
- The Conservation of Habitats and Species (Amendment) Regulations 2012, relating to reserved matters in Scotland;
- Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Nature Conservation (Scotland) Act 2004;
- The Wildlife and Natural Environment (Scotland) Act 2011;
- Protection of Badgers Act 1992 (as amended); and
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

National Policy Guidance

- PAN 51: Planning, Environmental Protection and Regulation (revised 2006);

- PAN 60: Planning for Natural Heritage (Scottish Government 2000);
- Planning Advice Note (PAN) 1/2013 – Environmental Impact Assessment (Scottish Government 2013);
- Nature Conservation: Implementation in Scotland of the Habitats and Birds Directives: Scottish Executive Circular 6/1995 as amended (June 2000); and
- Scottish Planning Policy (SPP) (2014).

Other Guidance

Particular attention has also been given to the guidance documents listed below, that are applicable to assessing the effects of wind farm developments on ecology. Reference has also been made to guidance documents through the report where relevant:

- Scottish Executive, 2001 (updated 2006). European protected species, development sites and the planning system: Interim guidance for local authorities on licensing arrangements. Scottish Executive, Edinburgh;
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018);
- SEPA, 2012. Land Use Planning System Guidance Note 4: Planning guidance on windfarm developments. Appendix 2. Version 7: 14 May 2014;
- Scottish Renewables, SNH, SEPA, Forestry Commission Scotland, 2015. Good practice during windfarm construction. Version 3;
- SNH. 2019. Bats and onshore wind turbines: survey, assessment and mitigation. Version January 2019;
- Natural England, 2014. Technical Information Note TIN051 Bats and onshore wind turbines interim guidance, 3rd Edition
- Scottish Borders Council. 2006. Supplementary Planning Guidance for Biodiversity
- The SBL forms a list of species and habitats of importance for biodiversity conservation in Scotland, produced by the Scottish Government ; and
- North East Scotland Local Biodiversity action Plan (LBAP).

12.3. Methods

12.3.1. Designated Sites

A web-based search was undertaken to identify and provide information on statutory sites with an international or national designation for ecological interests, located within 10 km of the proposed Scawd Law Wind Farm. The Scottish Natural Heritage (SNH) online tool Sitelink[7] and the online GIS tool MAGIC (Multi-Agency Geographic Information for the Countryside)[8] were used.

Data were sought for the following:

- Special Areas of Conservation (SACs) – within 10 km of the proposed site boundary;
- Sites of Special Scientific Interest (SSSIs) – within 5 km of the proposed site boundary;
- Locally designated sites such as Sites of Important Nature Conservation (SINCs) and Sites of Nature Conservation Interest (SNCIs) – within 5 km of the proposed site boundary; and
- Local and National Nature Reserves (including RSPB and Wildlife Trust Reserves) – within 5 km of the proposed site boundary.

[7] https://sitelink.nature.scot/home

[8] https://magic.defra.gov.uk/MagicMap.aspx

12.3.2. Habitat Survey

A Phase 1 Habitat survey and National Vegetation Classification (NVC) survey were carried out concurrently within the updated survey area and 300 m buffer defined in August 2019. The Phase 1 Habitat surveys followed the standard habitat survey method as described in the JNCC's Handbook for Phase 1 Habitat Survey[9]. Descriptions of habitat types were provided, and target notes were taken to document habitats and features of conservation interest, where present. The NVC survey was undertaken following the standard survey method as described in the NVC Users' Handbook[10]. Quadrat data were to be collected for any priority habitats encountered, with at least one quadrat per habitat type.

12.3.3. Bat Surveys

Roost Surveys

Occupied and unoccupied buildings or ruins, structures such as bridges, quarries and forested areas with mature or dead trees all have the potential to provide suitable locations for roosting or hibernating bats. Within the original development area, and a 200 m buffer, any such features were surveyed, and their suitability to support roosting bats determined, along with any evidence of occupation. Features were classified into potential roost categories of negligible, low, moderate or high potential. For buildings at any risk level, dusk emergence and dawn re-entry surveys should be undertaken. For trees, dusk emergence and dawn re-entry surveys should be undertaken when the risk is moderate or high. Tree surveys should include climb and inspect surveys where possible, or traditional dusk or dawn activity surveys where climbing to inspect the feature is not possible.

Acoustic Surveys

Bat surveys were undertaken in 2019 with 13 static detectors with full spectrum Wildlife Acoustic SM4 detectors. Detectors were placed on site at 10 turbine locations and three further control locations; a stream, a pond and a mixed conifer and broadleaf plantation (MCB). The turbine locations represent the old turbine layout (18 turbines), the final turbine layout was subsequently altered, therefore static detectors were not located in exactly the same positions as the turbines in the new turbine layout (see Figure 12.1, Appendix A). Two detectors (A and B) represent areas that are no longer proposed turbine locations however, the habitat represented by the other detector locations is relatively uniform; the change in turbine layout is therefore not seen as a significant limitation to assessment.

Static detectors were deployed in early summer and autumn, in June (Survey 1), July (Survey 2) and August (Survey 3), for 14-15 nights each deployment.

Analysis was undertaken at species level (excepting *Myotis* sp.) using Kaleidoscope automatic identification software. *Myotis* sp. and in some cases Pipistrelle sp. were not identified further than genus due to the overlap in call-frequency between species. Signal parameters used to identify potential bat calls and filter out noise calls within the Kaleidoscope software were set to all recordings between 15-120 kHz, 2-500 ms, 500 ms maximum inter-syllable gap and with a minimum of 3 pulses.

Manual checks of the auto-identified results were undertaken for quality assurance (10% of calls), as well as to confirm rarer species identification or species which could not be identified within the software.

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[9] *JNCC*. 2010. Handbook for *Phase 1* Habitat Survey – a Technique for Environmental Audit. Joint Nature Conservation Committee, Peterborough

[10] Rodwell, J. S. 2006. National Vegetation Classification: Users' handbook. JNCC, Peterborough.

The assessment of the bat survey data was undertaken following standard guidance[11]

Survey data has been submitted to Ecobat on-line tool as required by SNH[11]. However, there were issues relating to the Ecobat outputs and uncertainty regarding the results. Following discussion with Ecobat we have not used the output to inform this report. The Bat Activity Index (BAI) is calculated by Natural Power as the median of bat passes per night, based on the number of calls per night of a given species and on the number of hours between sunset and sunrise[12].

12.3.4. Other Protected Mammal Surveys

Protected mammal surveys were undertaken in July 2019 to determine the presence of mammal species for which there is legal protection. The methods comprised a walkover of the site plus a species-specific buffer (where access allowed). Surveys were conducted in the updated survey area. All water courses within the development area plus a 250 m buffer, including Walker Burn and Gatehopeknowe Burn, were surveyed for otter and water vole. Surveys followed standard methods as described by Sargent & Morris (2003)[13] for otter and Strachan *et al*. (2011)[14] for water vole.

The development area and a 150 m buffer were surveyed for badger and pine marten; with both species known to occur in this part of Scotland. Field signs searched for were as described in Neal & Cheeseman (1996)[15], Bang & Dahlstrøm[16] and SNH (2001)[17] for badger and in Sargent & Morris[13] for pine marten.

Additionally, any forested areas that lie within 100 m of the development area were surveyed for red squirrel. All signs of squirrel (e.g. dreys or feeding signs) were considered to represent the potential presence of red squirrel, as both red and grey squirrel are known to be present in this area and field signs cannot be identified down to species.

12.3.5. Fish Habitat Surveys

A basic fish habitat assessment (walkover survey) of the water courses was undertaken on the Walker, Gatehopeknowe and Hope Burn, which flow into the River Tweed and the Leithen Water, both of which are part of the River Tweed Special Area of Conservation (SAC) which is designated for Atlantic salmon, sea lamprey, river lamprey and brook lamprey. The survey method is used to assess the suitability of habitats on site to support fish species and is based upon the Scottish Fisheries Coordination Centre (SFCC) methodology[18]. Surveys were conducted in the updated survey area.

This methodology approximates in-stream habitat availability for fish as a percentage (%) within a known length of the water course (100 m lengths). A number of parameters are recorded for each section, including the percentage of each substrate type (bedrock, boulder, cobble, pebble, gravel, clay, sand and silt) and also the flow characteristics (pool, riffle, glide, slack). Although these surveys do not identify the presence of fish, they

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[11] SNH. 2019. Bats and onshore wind turbines: survey, assessment and mitigation. Version January 2019

[12] Lintott, P.R., Mathews, F. 2018. Basic mathematical errors may make ecological assessments unreliable. *Biodivers Conserv* **27,** 265–267. https://doi.org/10.1007/s10531-017-1418-5

[13] Sargent, G. & Morris, P. 2003. How to Find & Identify Mammals. The Mammal Society, London

[14] Strachan, R., Moorhouse, T. & Gelling, M., 2011. The Water Vole Conservation Handbook. Third Edition, Wildlife Conservation Research Unit, University of Oxford, Abingdon

[15] Neal, E. & Cheeseman, C. 1996. Badgers. Poyser Natural History, London.

[16] Bang, P. & Dahlstrøm, P. 2001. Animal Tracks and Signs. Oxford University Press, Oxford.

[17] SNH, 2001. Scotland's Wildlife: Badgers and Development. SNH, Battleby

[18] *Hendry* and *Cragg-Hine*,*1997*. *Environment Agency manual Restoration* of *Riverine Salmon Habitats* – A *Guidance Manual.* 2003 Version. *Environment Agency*, Bristol.

do highlight key habitat where certain species may be present based on known habitat preferences. The results can then inform the requirement for further survey, such as electrofishing to identify which fish species are present.

12.4. Results

12.4.1. Designated Sites

Two designated sites of International importance are located less than 1 km from the proposed Scawd Law Wind Farm (Table 12.1). Moorfoot Hills SAC lies directly north of the site, designated for protected habitats and upland bird assemblage, and the River Tweed SAC lies to the south of the site, with protected tributaries to the east of the site, designated for salmon and lamprey species, and for freshwater habitats and species assemblage. Waterways on the proposed site flow into the River Tweed and may therefore sustain species that are designated within the River Tweed SAC. Surveys to assess the presence of suitable habitat for fish species have been carried out on site in response to this (see Section 12.4.5).

Four additional sites, designated as SSSI for upland and woodland habitats, are located within 5 km of the proposed site (Table 12.1).

Impacts to designated sites in close proximity to the development may cause pollution through hydrological connectivity and impact on designated features, including upland bird communities, upland habitat, protected fish species and otters. Should impact assessment identify the likelihood of significant impacts to designated sites close to the development area, then suitable mitigation measures will be proposed in the EIAR.

Table 12.1: Designated sites within 10 km of the proposed Scawd Law Wind Farm

Site	Designation	Distance from Proposed Site	Size	Designation Criteria
Moorfoot Hills	SAC/SSSI	<1 km	8831 ha	Blanket bog and dry heath. Breeding bird assemblage (inc. golden plover), upland habitat and upland birch woodland.
River Tweed	SAC/SSSI	<1 km	2534 ha	Atlantic salmon, brook lamprey, river lamprey, sea lamprey and otter. Freshwater habitats. Beetle and fly assemblage.
Plora Wood	SSSI	2.1 km	23 ha	Upland oak woodland
Williamhope	SSSI	4.0 km	69 ha	Lowland calcareous and neutral grasslands,

Site	Designation	Distance from Proposed Site	Size	Designation Criteria
				lowland dry heath and springs
Nut Wood	SSSI	4.2 km	2.9 ha	Upland mixed ash woodland
Glenkinnon Burn	SSSI	4.8 km	38 ha	Upland birch and mixed ash woodland, and lichen assemblage

Source: MAGIC Online GIS tool[8]

12.4.2. Habitat Survey

Habitats found during Phase 1/NVC surveys at Scawd Law are described below.

Woodland and scrub

Woodland and scrub on site comprised commercial plantation forestry, semi-natural broadleaved woodland and hawthorn and gorse scrub. The commercial plantation forestry was generally not diverse enough to form an NVC habitat or was formed of non-native trees. This was predominantly coniferous trees but there were also some areas mixed with broadleaved trees. Areas of semi-natural broadleaved woodland were predominantly planted trees along riparian corridors. Some areas were classified as W7 *Alnus glutinosa-Fraxinus exelcesior-Lysimachia nemorum* woodland, which is listed as a priority habitat on the Scottish Biodiversity List (SBL) (as wet woodland) and has high potential to be ground water dependent (GWDTE).

Grassland and marsh

Grassland and marsh on site comprised acid, calcareous, neutral, improved and marshy grassland communities. Areas classified as acid grassland were mainly in upland areas of the site, but some were in lowland agricultural areas. Areas of lowland agricultural acid grassland are listed on the SBL as a priority habitat. In upland areas there were some patches of U6 *Juncus squarrosus-Festuca ovina*, which has moderate potential to be a GWDTE. Calcareous grassland on site was in lowland areas and classed as CG10 *Festuca ovina-Agrostis capillaris-Thymus praecox* grassland, which has moderate potential to be a GWDTE and is also included on the SBL. Areas of marshy grassland were classified as MG9 *Holucus lanatus-Deschampsia cespitosa* grassland, M23 *Juncus effusus/acutiflorus – Galium palustre* rush-pasture and M25 *Molinia caerulea- Potentilla erecta* mire. M23 and M25 communities have high potential to be ground water dependent, with one sub-community of M23 (M23a) being on the SBL. MG9 has moderate potential to be ground water dependent.

Tall herb and fern

Areas of bracken (U20 *Pteridium aquilinum-Galium saxatile* NVC community) were found across the site in small and large patches. Some patches were continuous, while others were more scattered and in mosaic with heath and/or acid grassland.

Heathland; Dry dwarf shrub heath

Dry dwarf shrub heath covered much of the upland area of the site, as well as some small patches in the lowland area of the site. The main dry heath community encountered was H12 *Calluna vulgaris-Vaccinium myrtillus* heath, but there were also large areas of H9 *Calluna vulgaris-Deschampsia flexuosa*, H10 *Calluna*

vulgaris-Erica cinerea and H18 *Vaccinium myrtillus-Deschampsia flexuosa* heaths. All types of dry dwarf shrub heath on site are on the SBL.

Mire: Blanket Bog

The upland area of the site almost exclusively comprised open ground that were dominated by the blanket bog community M19 *Calluna vulgaris-Eriophorum vaginatum* mire or the degraded wet modified bog community M20 *Eriophorum vaginatum* mire. In areas of wet modified bog, grazing and drainage have considerably degraded the bog community. The proposed locations for Turbines 4, 5 and 12 are on areas of blanket or wet modified bog. The above blanket bog habitats are listed on Annex 1 of EU Habitats Directive and on the SBL. Blanket bog communities indicate areas of deep peat.

Mire: Acid flush

There were some small areas of acid flush, which was predominantly classified as M23 *Juncus effusus/acutiflorus – Galium palustre* rush-pasture, but there were also areas of M10 *Carex dioica-Pinguicula vulgaris* mire, M32 *Philonotus fontana-Saxifraga stellaris* spring and M35 *Ranunculus omiophyllus-Montia fontana* rill. These acid flush communities have high potential to be GWDTE. M10, M32 and M35 are also listed on Annex 1 of EU Habitats Directive and on the SBL.

Swamp and fen/inundation communities

There were two areas of swamp – S10 *Equisetum fluviatile* swamp and S19 *Eleocharis palustris* swamp. These areas are not GWDTE, but are partially inundated and therefore require careful mitigation, to be defined in the EcIA. No infrastructure is planned to be on or adjacent to these areas. These habitats are also on the SBL.

Other habitats

Other areas comprised of open water, including the River Tweed, areas of arable crops/cultivated land a defunct hedgerow and buildings and gardens. These habitat types are not defined under the NVC.

Summary of Potential Impacts

Table 12.2 lists a summary of the protected habitats with potential to be impacted by the development of the proposed Scawd Law Wind Farm. Further investigation of habitats listed on Annex 1 of EU Habitats Directive and those with potential to be GWDTE will be presented in the EIAR. Should impact assessment identify the likelihood of significant impacts to protected habitats, mitigation measures, such as a Habitat Management Plan and/or Peat Management Plan, will be proposed in the EIA report.

Table 12.2: Summary of protected habitats with potential for impact during development

Phase 1 Habitat	NVC community	Conservation Status
Semi-natural broadleaved woodland	W7/W7a	Potential GWDTE (high); Annex 1; SBL
Calcareous grassland	CG10/CG10a	Annex1; SBL
Acid grassland	U4/U4a/U4b/U4cN	SBL
Marshy grassland	MG9/MG9a	Potential GWDTE (moderate)
Marshy grassland	M23a	Potential GWDTE (high); Annex 1; SBL
Marshy grassland/Acid flush	M23/M23b	Potential GWDTE (high)
Marshy grassland	M25	Potential GWDTE (moderate)

Phase 1 Habitat	NVC community	Conservation Status
Dry dwarf shrub heath	H9/H9b/H9c/H9e; H10/H10a/H10c/H10d; H12/H12a/H12b/H12c; H18; H21	Annex 1; SBL
Blanket bog	M19/M19b/M19c; M20/M20b	Annex 1; SBL; deep peat
Acid flush	M10; M32; M35a	Potential GWDTE (high); Annex 1; SBL
Swamp	S10; S19	Annex 1; SBL

GWDTE – Ground water dependent terrestrial ecosystem; Annex 1 – Listed on Annex 1 of EU Habitats Directive; SBL – Listed on Scottish Biodiversity List and UK Biodiversity Action Plan.

12.4.3. Bat Surveys

Roost Survey

The roost assessment survey identified a number of features having the potential to support roosting bats within 200 m of the development area, including roofed structures, stone bridges and mature trees. Further surveys should be completed on these features once the turbine locations and the access track route are confirmed. After further surveys have been completed, a robust assessment of the risks associated with the proposed development can be made.

No potential roost features were identified within 200 m of the original turbine locations (see Figure 12.2 in Appendix A). However, a number of features were recorded along the access track. This includes trees with features of moderate and high bat roost potential, as well as buildings of low and moderate risk. The habitat on site is classed as moderate quality, with the potential to support bat species.

Bat Acoustic Surveys

In 2019, a total of c. 26,391 bat passes were recorded, consisting of the following species / species groups: soprano pipistrelle, common pipistrelle, Nathusius' pipistrelle, *Pipistrelle* sp., *Myotis* sp., noctule, *Nyctalus* sp. and brown long-eared. The highest number of calls were associated with soprano pipistrelle followed by common pipistrelle and noctule.

Bat Activity Per Location

Table 12.3 details the BAI through the night, across all of the survey periods. The locations with the highest levels of activity were identified as the control locations: stream, the pond, MCB, and Detector A (Figure 12.1, Appendix A). Detector A, close to forestry, no longer represents a turbine location in the new turbine layout, and none of the turbines in the updated turbine layout are located close to forestry. The rest of the turbine locations all had median values of less than five.

The SNH[12] categorised levels of bat activity as low medium or high according to the BAI (Table 12.3). At maximum range, the majority of locations were classified as having high levels of activity.

According to the median BAI, across all of the survey periods, the stream location had the highest levels of activity (moderate to high), with MCB, Pond and detector A (no longer a representative turbine location) with moderate levels of activity. The remaining locations had low levels of activity.

Table 12.3: The BAI (bat passes per night) and risk category per location across the year

Location	Median BAI	Maximum BAI	Median BAI Category	Maximum BAI Category
MCB	49.5	874	Moderate	High

Location	Median BAI	Maximum BAI	Median BAI Category	Maximum BAI Category
Pond	59.5	736	Moderate	High
Stream	85	958	High	High
A	44	1780	Moderate	High
B	3	459	Low	High
C	0.5	229	Low	High
D	0	86	Low	High
E	0	43	Low	Low to Moderate
F	0.5	64	Low	Moderate to High
G	0	111	Low	High
H	2.5	251	Low	High
I	3.5	235	Low	High
J	2.5	264	Low	High

Source: Natural Power 2019

Activity levels by Species

Using information provided within Tables 3a and 3b of SNH guidance, an overall risk assessment can be made in relation to the site. The overall risk assessment for each species or species group is provided in Table 12.4 below. Risk has been classified according to guidance, with low assessed as between 0-4, medium as 5-12 and high as 15-25.

Across the three survey periods and based on the maximum BAI, common pipistrelle, soprano pipistrelle, Pipistrelle sp. and noctule had high levels of activity and these species have been identified as high risk of turbine impact using the maximum range activity assessment. Common and soprano pipistrelle are also classified as high risk at the median BAI. Nathusius' pipistrelle and *Myotis* sp. are considered of moderate risk at their maximum assessment.

Summary of Potential Impacts

Based on SNH guidance, a 12-turbine development is considered a medium sized project with moderate quality habitat present to support bats (habitat used extensively by foraging bats; site connected to the wider landscape by linear features; buildings, trees or structures with moderate to high potential as roost sites[12]) which gives it a **site risk level of 3: low risk.** Species most at risk are pipistrelle species and noctule.

Bat species may suffer disturbance or displacement impacts or damage to their roost sites during the wind farm development if no mitigation measures are applied. Bat species are further vulnerable to collisions during the wind farm operational period. Should impact assessment identify the likelihood of significant impacts to bat species, mitigation measures will be proposed in the EIAR.

Table 12.4: Overall risk assessment for Median and Maximum species values

Species	Assessment (Median)	Assessment (Maximum)
Common pipistrelle	High	High
Soprano pipistrelle	High	High
Nathusius' pipistrelle	Low	Low to Moderate

Species	Assessment (Median)	Assessment (Maximum)
Pipistrelle sp.	Low	High
Myotis sp.	Low	Moderate
Noctule	Low to Moderate	High
Nyctalus sp.	Low	Low
Brown long-eared	Low	Low

Source: SNH 2019

12.4.4. Other Protected Mammal Surveys

Otter

All suitable habitat within the original survey area and 250 m buffer was surveyed for signs of otter in July 2019. Otter spraints were recorded at three locations within the proposed site in the southern part of the site close to Holylee farm (Figure 12.3, Appendix A), however no holts or resting sites were recorded.

Water Vole

All suitable habitat within the original survey area and 250 m buffer was surveyed for signs of water vole in July 2019. No signs of water vole were detected within the proposed site and no suitable habitat for water vole was recorded.

Badger

All suitable habitat within the original survey area and 150 m buffer was surveyed for signs of badger in July 2019. Two active badger setts were recorded on the proposed site; these were located in the valley throughout the site (Figure 12.3, Appendix A). One potential sett was recorded near Holylee farm, with an active latrine nearby, indicating that badgers are using the area. These setts may fall within 30 m of any construction activity.

Pine Marten

All suitable habitat within the original survey area and 150 m buffer was surveyed for signs of pine marten in July 2019. No signs of pine marten were recorded in the survey area.

Red Squirrel

All suitable habitat within the original survey area and 100 m buffer was surveyed for signs of red squirrel in July 2019. Squirrel feeding signs were recorded in the woods around Holylee farm in the south of the site, and in the centre of the site in the forested parts of the valley (Figure 12.3, Appendix A). Two live sightings of squirrels were recorded in this southern part of the site, one red and one grey indicating that the signs are likely to be connected with both species in this area. The remains of a squirrel was found near the feeding sign in the centre of the site, but it is not clear what species it was due to the extent of decomposition.

The squirrel signs that were encountered near the turbine locations (and likely felling areas) at the centre of the site were old signs suggesting low activity or that red squirrels are no longer present in that area.

Summary of Potential Impacts

Protected mammals could suffer displacement or disturbance impacts if their habitat is disturbed during the Wind Farm construction if no mitigation measures are applied. Should impact assessment identify the likelihood of significant impacts to protected mammal species, mitigation measures will be proposed in the EIAR. Protected mammals with the potential to suffer negative impacts from development are summarised in Table 12.5 below.

Table 12.5: Summary of protected mammal species with potential for impact during development

Protected Mammal Species	Status on Site	Conservation Status
Otter	Species Present	European Protected WCA 1981 (as amended): Schedule 5 SBL
Water Vole	Habitat Present	Habitat - WCA 1981 (as amended): Schedule 5 SBL
Badger	Species Present	Protection of Badgers Act 1992 (as amended)
Pine Marten	Habitat Present	WCA 1981 (as amended): Schedule 5 SBL
Red Squirrel	Species Present	WCA 1981 (as amended): Schedule 5 SBL

WCA: Listed on the Wildlife and Countryside Act 1981 (as amended). SBL: Listed on Scottish Biodiversity List and UK Biodiversity Action Plan

12.4.5. Fish Habitat Surveys

The surveyed section of the waterways on the proposed Scawd Law Wind Farm (see Figure 12.3) was considered to represent highly suitable habitat for fish along its entire length. The flow characteristics were fairly uniform between sections, and principally comprised glides interspersed with riffles and slacks, with occasional pools. Sediment types were primarily gravel, pebble or cobble interspersed with boulders, sand and silt. In some areas clay and bedrock were present in very low percentages (5-10%).

Suitable spawning habitat for both salmon and lamprey species incorporating riffle with gravel and pebble was evident within the site (Table 12.6). In addition, areas of silt sufficient for lamprey larvae were also available. Boulder and cobble areas, providing good juvenile salmon habitat, can be found throughout the site in 50% of the waterway.

Additional cover for fish was provided by low branches and fallen trees. Instream vegetation was present in 52% of the surveyed waterways, with occasional areas of heavy vegetation, mainly grasses and rushes. Bankside vegetation covered 44% of the banks, providing stabilisation, preventing bank erosion and giving additional cover for fish species.

Areas with pools and high flow rates are suitable for adult fish in Seahope burn, to the east of the site, and the section of Gatehopeknowe burn to the south of the site (near the A72 road) having the highest proportion of pools (over 20% on average). All surveyed areas were reported to have clear visibility and water depth averaged 22 cm (ranging from 5 to 50 cm), which indicates good habitat for spawning salmon and lamprey. Fish were extensively observed throughout the survey using the waterways although it was not practical to speciate these individuals during a walkover survey.

Flow constrictions throughout the site comprised primarily debris from fallen trees and branches and several water gates throughout the site. There is a dam to the south of the site close to Holylee farm, with a fish ladder installed for migrating fish. This is not considered to pose a barrier to salmon and sea lamprey migration due to the low height ladder at elevated flow posing a small barrier to these species. Further investigation would

be required to ascertain if river and brook lamprey were able to pass this obstruction if they are found to be present on this site.

Table 12.6: Fish habitat survey results summary at proposed Scawd Law Wind Farm

Category	Feature	% Cover
Habitat	% Riffle	14.9
	% Glides	59.0
	% Slack	18.7
	% Pools	7.4
Sediment	% Sand	5.0
	% Gravel	24.5
	% Pebble	27.6
	% Cobble	22.1
	% Boulder	8.7
	% Bedrock	0.1
	% Silt	11.4
	% Clay	0.6
Flow	% High	16.8
	% Low	83.2
Visibility	% Clear	100.0
Vegetation	% Bank Vegetation	43.6
	% No Instream Vegetation	48.5
	% Instream Vegetation	49.7
	% Heavy Instream Vegetation	1.8
Average Depth (cm)		21.7
Average Width (m)		2.0

Source: Natural Power

Summary of Potential Impacts

The waterways throughout the proposed Scawd Law Wind Farm are considered to represent good habitat for salmon and lamprey species at all life stages, throughout the surveyed area. Best practice construction methods will be embedded into the design of the project to ensure that Fish species do not suffer displacement or disturbance impacts or habitat damage due to pollution events during the wind farm construction. Should impact assessment identify the likelihood of significant impacts to protected fish species, mitigation measures will be proposed in the EIAR.

12.5. Discussion

12.5.1. Designated Sites

We propose that **Statutory Sites shall be scoped in** to the EIAR.

Under Habitats Regulations any development that may have a Likely Significant Effect (LSE) on an SAC, either alone or in combination with other projects, requires an Appropriate Assessment (AA) to be carried out by the

relevant competent authority, to determine whether or not the development would have an adverse effect on the integrity of the SAC.

Before an AA is initiated, a screening process is undertaken to determine whether any of the predicted impacts of the development will result in an LSE. This screening assessment provides information to the competent authority to allow them to reach a decision on whether or not the development will have an LSE on any SAC and therefore whether an AA is required.

There are two statutory sites (SAC's) with an international designation and potential connectivity located within 10 km of the proposed Development (Table 12.1). Waterways within the proposed site connect to the River Tweed SAC and there is appropriate habitat on site for otters (see Section 12.5.4) and protected fish species (see Section 12.5.5). Upland habitat, as designated in the Moorfoot Hills SAC, is present on site within the proposed turbine layout. As such, the above two SACs will be carried forward for AA screening alongside the EcIA, due to potential connectivity with the proposed Development.

The four SSSI's within 5 km of the proposed site, designated for upland woodland and grasslands, are not connected with the site and are therefore not anticipated to be impacted by the proposed development.

12.5.2. Habitats

We propose that **Habitats shall be scoped in** to the EIAR.

The results of the Phase 1 and NVC survey has provided an overview of the habitats likely to be encountered during development of Scawd Law Wind Farm. Full results from this survey will be presented in the EIAR.

There is a requirement under the Water Framework Directive to carry out assessment of the likely impacts of development on habitats which are dependent on groundwater (GWDTEs), in line with SEPA LUPS guidance. Guidance states that survey of all habitats within 250 m of excavations greater than 1 m deep is undertaken, and within 100 m of all other excavations. The habitat survey work undertaken to date has identified several habitat types that are likely to have a high or moderate potential to support GWDTEs, as well as several Annex I and SBL habitats and habitats indicative of areas of deep peat. If SBL habitats are impacted a Habitat Management Plan will be proposed in the EIAR and if deep peat habitats are impacted a Peatland Restoration Plan will be proposed in the EIAR.

12.5.3. Bats

We propose that **Bats shall be scoped in** to the EIAR.

Given the potential roost features located within a 200 m buffer of development area and the assessment of risk associated with the activity levels for each species recorded on site, it is anticipated that further surveys are required for bats before a robust assessment of effects can be made.

Any trees or buildings which hold potential bat features and may be directly affected by the access route require further survey to establish whether roosts are present. Any potential roost features within 200 m plus blade length of the final turbine layout should also be subject to further survey. The static surveys currently omit the spring season, which can be an important season for foraging bats. Given the levels of activity across the site, it is recommended that surveys are completed to cover the spring season, with results reassessed prior to any assessment of impacts.

12.5.4. Other Protected Mammals

Otter

We propose that **Otter shall be scoped in** to the EIAR.

Otter are a European protected species and are included on the SBL and are a qualifying feature of the nearby River Tweed SAC. Otter may be negatively impacted if there is disturbance to holts or rest sites during construction. Therefore, otter shall be subject to full EcIA.

The baseline surveys have confirmed the presence of otter on site at Scawd Law, mainly using the water courses in the south of the site outside of the proposed turbine layout. It is recommended that pre-felling and/or pre-construction checks for otter signs and holts/resting areas are undertaken within the construction corridor and 250 m buffer.

Water Vole

We propose that **Water Vole shall be scoped out** of the EIAR.

In Scotland, water vole habitat (rather than water voles themselves) is protected under the WCA 1981 (as amended). Water vole is also included on the SBL. Water vole may be negatively impacted if there is disturbance to banks and waterways they are using during construction.

As there were no signs of water vole found on site it is proposed that water vole is scoped-out of the EcIA. It is, however, recommended that pre-felling and/or pre-construction checks for water vole signs are undertaken within the construction corridor and 250 m buffer, alongside otter surveys.

Badger

We propose that **Badgers shall be scoped in** of the EIAR.

In Scotland badger is protected under the WCA 1981 (as amended) and the Protection of Badgers Act 1992 (as amended). Badgers may be negatively impacted if there is disturbance to setts during construction.

As badger setts and badger activity were found during baseline surveys within the proposed site, potential impacts and mitigation measures shall be outlined in the EcIA. Although the badger setts encountered were well beyond 30 m from currently proposed wind farm infrastructure, there are some areas suitable for badgers within the proposed construction area. It is therefore recommended that pre-felling and/or pre-construction checks for further badger setts are undertaken within the construction corridor and 250 m buffer.

Pine Marten

We propose that **Pine Marten shall be scoped out** of the EIAR.

Pine marten is included on the SBL and is protected under Schedule 5 of the WCA 1981 (as amended). Pine marten may be negatively impacted if there is disturbance to dens and habitat during construction.

As there were no signs of pine marten found on site it is proposed that pine marten is scoped-out of the EcIA. However, habitat suitable for pine marten exists on site, it is therefore recommended that pre-felling and/or pre-construction checks for pine marten dens are undertaken within the construction corridor and 250 m buffer, along with red squirrel surveys.

Red Squirrel

We propose that **Red Squirrel shall be scoped in** to the EIAR.

Red squirrels are included on the SBL, and are protected under the WCA, Schedule 5, which includes protection against having their access to any structure or place which they use for shelter or protection being obstructed. Squirrel may be negatively impacted if there is disturbance to dreys and habitat during construction.

The presence of red squirrel was confirmed during baseline surveys at the proposed Scawd Law Wind Farm. Red squirrel habitat on the proposed site is constrained to forested areas, and primarily outside of the proposed turbine envelope, close to Holylee farm. Red squirrel may however use any forest on site, and it is recommended that pre-felling and/or pre-construction checks for red squirrel dreys and other signs within the construction corridor and 250 m buffer are undertaken.

12.5.5. Fish

We propose that **fish shall be scoped in** to the EIAR.

Suitable habitat and accessibility for protected fish was recorded throughout the waterways on the proposed Scawd Law Wind Farm. Fish may be negatively impacted if there are pollution events that enter the waterways or disturbance to waterways. Consultation with SNH and the Tweed Foundation will be required to assess the requirements for baseline surveys on this site. Following consultation baseline fish surveys may be required as part of the EcIA or as a pre-felling/pre-construction condition.

These features will be scoped back into the EIAR, should the following arise;

- These species or ecological receptors are found to be present on-site during subsequent surveys; or
- Developments in site layout which increase potential for significant impacts on these features.

12.6. Conclusions

12.6.1. Features Proposed for Assessment within the EcIA

In order to ensure that the EIAR is compliant with the EIA Directive, and to ensure that the EcIA is focussed on potentially significant effects only, we proposed that only those important ecological features and impacts shown in Table 12.7 are carried forward for EcIA within the relevant EIAR chapter, unless further baseline survey work shows otherwise.

Table 12.7: Important ecological features proposed for assessment with the EcIA

Receptor	Potential Impact	Assessment
Designated sites	Pollution (hydrological connectivity), impact on designated features: upland bird communities, upland habitat, protected fish species and otter)	EcIA
Habitats	Habitat loss	EcIA
Bats	Disturbance/displacement Collision Roost damage/disturbance	EcIA

Receptor	Potential Impact	Assessment
Otter	Disturbance/displacement impacts	EcIA
Badger	Disturbance/displacement impacts	EcIA
Red squirrel	Disturbance/displacement impacts	EcIA
Fish	Disturbance/displacement impacts Damage to habitat	EcIA

Source: Natural Power

12.6.2. Proposed Mitigation

To ensure compliance with legislation, and to follow good practice guidance and consultation recommendations, a number of mitigation measures will be implemented should the application be consented. The applicant would suggest that in order to ensure these practices are adopted that they be included as planning conditions. The proposed wording of these conditions (which is of course open to discussion), which can easily be transposed into the planning consent, is as follows:

- Prior to commencement of works at Scawd Law, pre-construction ecology walkover surveys will be carried out, including surveys for potential bat roosts, badger, pine marten and squirrel dreys, and a check of all riparian habitat for signs of otter and water vole. This will enable any refinements to be made if necessary, to mitigation, micrositing and/or the construction programme to take into account any updated distribution

Question 14: Do consultees agree with the EcIA only concentrating on those receptors which may be subject to significant effects from the proposed development (either directly or indirectly)?

Question 15: Table 12.7 above notes the receptors and potential impact proposed to be included within the EcIA. Do consultees agree that this sufficiently covers the potential impacts on features from the proposed development and what is proposed to be scoped out?

or presence of protected species, with a suitable mitigation plan adopted on a case by case basis; and

- Consultation should be carried out with SNH and the Tweed Foundation regarding requirements for further baseline fish surveys. Should further survey work be required, this should take place prior to commencement of works at Scawd Law.

13. Ornithology

13.1. Introduction

This proposed methodology has been reiterated in the updated CIEEM guidelines[19] which state that the level of the EcIA required should be "proportionate to the scale of the development and the complexity of its potential impacts". Indeed, the guidelines state that "emphasis in EcIA" should be on "significant effects rather than all ecological effects". Natural Power has therefore provided information within this section of the scoping report to determine which important ornithological features should be taken forward to EcIA.

This chapter describes the baseline ornithology surveys carried out for Scawd Law Wind Farm and presents the results to identify important ornithological features that could be affected by the development. Where non-significant impacts are identified, Natural Power proposes that these are not carried forward for inclusion in the relevant EIA Report and are 'scoped out' in the following sections.

In addition, this chapter also provides information on statutory sites of international importance, upon which the proposed development may have a 'Likely Significant Effect' (LSE). A screening process will be undertaken alongside the EcIA to determine whether the predicted impacts of Scawd Law Wind Farm will result in a LSE. The screening process will allow the competent authority to determine whether an Appropriate Assessment (AA) will be required.

Throughout this chapter, specific questions for consultees have been posed and these are highlighted in boxes within each relevant section. These questions are summarised in Section 21 to allow consultees to comment upon this scoping report.

13.1.1. Legislation and Guidance

The ornithological baseline surveys and preliminary assessment presented in this report have been carried out with reference to a number of national policy documents. Legislative and guidance documents with relevance to ornithology are listed below:

Legislation:

- Council Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive);
- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive);
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (the Habitats Regulations), which transposes the Habitats Directive into UK law;
- The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2012;
- The Conservation of Habitats and Species (Amendment) Regulations 2017, relating to reserved matters in Scotland;
- Wildlife and Countryside Act 1981 (as amended);
- The Nature Conservation (Scotland) Act 2004; and
- The Wildlife and Natural Environment (Scotland) Act 2011.

[19] CIEEM, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

National policy guidance

- PAN 60: Planning for Natural Heritage (Scottish Government 2000); and
- Nature Conservation: Implementation in Scotland of the Habitats and Birds Directives: Scottish Executive Circular 6/1995 as amended (June 2000).

Other guidance

- Guidelines for EcIA in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine 2018;
- SNH, 2017. *Recommended bird survey methods to inform impact assessment of onshore wind farms*. Scottish Natural Heritage, Battleby;
- de Lucas, M., Janss, G. & Ferrer, M. (eds.) 2007. *Birds and Wind Power*. Quercus, Madrid;
- Band, W., Madders, M. & Whitfield, D.P. 2007. *Developing field and analytical methods to assess avian collision risk at wind farms*. In de Lucas, M., Janss, G. & Ferrer, M. (eds.) Birds and Wind Power. Quercus, Madrid;
- SNH. 2000. *Windfarms and birds: calculating a theoretical collision risk assuming no avoidance action*. Scottish Natural Heritage, Edinburgh;
- SNH. 2018. *Assessing significance of impacts from onshore windfarms on birds outside designated areas*. Scottish Natural Heritage, Inverness;
- SNH. 2009. *Monitoring the impact of onshore wind farms on birds* (Guidance note). Scottish Natural Heritage, Edinburgh;
- SNH. 2009. *Guidance on methods for monitoring bird populations at onshore wind farms*. Scottish Natural Heritage, Edinburgh;
- SNH, 2017. *Avoidance rates for the onshore SNH wind farm collision risk model.* Scottish Natural Heritage, Battleby;
- SNH. 2018. *Assessing the cumulative impacts of onshore wind farms on birds: guidance*. Scottish Natural Heritage, Inverness ;
- SNH. 2016. *Assessing connectivity with Special Protection Areas (SPAs)* (Guidance note: Version 3). Scottish Natural Heritage, Edinburgh;
- SNH, 2016. *Wind farm proposals on afforested sites – advice on reducing suitability for hen harrier, merlin and short-eared owl.* Scottish Natural Heritage;
- Ruddock, M. & Whitfield, D.P., 2007. *A Review of Disturbance Distances in Selected Bird Species*. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage;
- British Standard 42020:2013 Biodiversity – code of practice for planning and development;
- Wilson, M.W., Austin, G.E., Gillings, S. & Wernham, C.V. 2015. *Natural Heritage Zone bird population estimates*. SWBSG commissioned report number 1504. Pp72. Available from www.swbsg.org;
- Gilbert, G., Gibbons, D.W. & Evans, J. 1998. *Bird Monitoring Methods*. RSPB, Sandy;
- Brown, A. F. & Shepherd, K. B. 1993. A method for censusing upland breeding waders. Bird Study, 40: 189-195;
- Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. 2013. *Raptors: a field guide to survey and monitoring*. 3rd Edition. The Stationery Office, Edinburgh ;
- Eaton M.A., Aebischer N.J., Brown A.F., Hearn R.D., Lock L., Musgrove A.J., Noble D.G., Stroud D.A. and Gregory R.D. 2015. *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man.* British Birds 108, 708–746;
- Scottish Borders Council, 2018. *Scottish Borders Local Biodiversity Plan 2018-2028*. Supplementary Guidance; and

- Scottish Biodiversity List (SBL).

13.2. Methods

13.2.1. Desk-Based Review

Statutory Sites

In order to assess any connectivity between ornithological features recorded on site with populations protected on designated sites, a desk study involving an online search was made for all sites with an international or national designation for ornithological interests within a 10 km radius of the site (measured from the central point of the current development area) and extended to 25 km for those sites with geese or gulls listed as a qualifying feature. The search included Special Protection Areas (SPAs), Ramsar sites, and Sites of Special Scientific Interest (SSSIs). The following sources were accessed to obtain information on designated sites;

- Joint Nature Conservation Committee (JNCC) website (http://www.jncc.gov.uk); and
- SNH Sitelink website (http://gateway.snh.gov.uk/sitelink/index.jsp).

Species of Note

To provide background information pertaining to the baseline status of protected species in the local environment, a web-based search for historical records of protected and relevant species recorded within the last 10 years (2008-2017) within 10 km of the proposed Scawd Law Wind Farm, was carried out using data held on the National Biodiversity Network (NBN)[20].

Before the EIA Report is submitted, further records of relevant ornithological data shall be requested from the following organisations, to obtain any records they hold for Scawd Law and the surrounding area:

- Lothian & Borders Raptor Study Group (LBRSG);
- Royal Society for Protection of Birds (RSPB); and
- The Lothian and Borders Wildlife Information Centre (LBWIC).

13.2.2. Field Surveys

The baseline ornithology surveys undertaken are described below. A suite of complementary surveys was carried out between September 2017 and August 2018, comprising vantage point (VP) surveys, breeding bird surveys, dedicated raptor surveys and dedicated black grouse surveys. These surveys recorded a typical ornithological assemblage with low numbers of target species recorded (of 12 target species recorded during VP surveys, eight were recorded in single digits throughout the whole baseline monitoring period). It was considered that these 12 months of baseline surveys were therefore likely to be sufficient to describe the baseline conditions of the proposed site. Consultation was sought with SNH on this approach and it was agreed that the data collected “should be sufficient for informing impact assessment”.

However, changes in the proposed turbine layout were made in early 2019 resulting in additional turbines being proposed at Seathope Rig (an area previously not covered by baseline surveys). Therefore, 12 months of VP surveys (lasting from March 2019 to February 2020), and raptor and breeding bird surveys (covering the 2019 breeding season) were carried out, to provide survey coverage of the previously unsurveyed area around Seathope Rig. As data were collected for the two adjacent survey areas over two different 12-month periods, the baseline information for the full proposed site still comprises one year of data overall. As these areas are

[20] https://nbn.org.uk/

immediately adjacent to each other and relatively small in size with similar habitat types, it can be assumed that the bird species present are likely to be similar. Consultation was sought with SNH on this approach and it was agreed that the bird survey information gathered over two different years from the two separate areas of land, that now form the proposed Scawd Law Wind Farm site, could be used as the baseline for the impact assessment.

Survey methodology followed standard SNH guidance. Surveys were all carried out by appropriately qualified and experienced personnel, in possession of a Schedule 1 licence where appropriate, and were undertaken in suitable weather conditions. These surveys are summarised in the following sections.

Full information on the dates, times and weather conditions for all ornithology surveys undertaken at Scawd Law can be provided upon request.

Target Species

SNH guidance states that work to establish the ornithological baseline should focus on those species which are afforded a higher level of legislative protection, or those which, as a result of their behaviour, may be more likely to be subject to impact from wind farms. There are three important species lists from which target species may be drawn:

- Annex I of the EC Birds Directive;
- Schedule 1 of the Wildlife & Countryside Act 1981; and
- Red-listed Birds of Conservation Concern (BoCC[21]

Consideration should also be given to species of regional conservation concern, as listed within Local Biodiversity Action Plans (LBAPs).

Target species should be restricted to those likely to be affected by wind farms. It is generally considered that passerine species are not significantly impacted by wind farms.

As such, and in accordance with the SNH guidance, surveys focused on the following target species:

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

Raptor species that do not appear on the Annex I/ Schedule 1 lists (such as kestrel), and which are considered to be of lower conservation concern than target species, are termed secondary species. Recording of secondary species is subsidiary to recording of target species. The following species were considered secondary species for the purposes of flight activity surveys:

- All other raptor and owl species (buzzard, sparrowhawk, kestrel, tawny owl and long-eared owl);
- Gull species;
- Grey heron;
- Red grouse;
- Raven;
- Schedule 1 passerines (e.g. crossbill); and
- Any large aggregations of red-listed passerines.

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[21] Eaton M.A., Aebischer N.J., Brown A.F., Hearn R.D., Lock L., Musgrove A.J., Noble D.G., Stroud D.A. and Gregory R.D. 2015. *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man.* British Birds 108, 708–746.

Vantage Point Surveys

Vantage Point (VP) surveys were undertaken during the non-breeding season and breeding season to complete a full twelve months of baseline monitoring. These surveys were used to record the flight activity of target species within the vicinity of the proposed Scawd Law Wind Farm. The flight activity of secondary species was also recorded. The results of these surveys are presented in Section 13.3.

Three vantage points were used to carry out the VP surveys: VP1 and VP2 covering the originally proposed turbine layout (between September 2017 and August 2018), and VP3 covering the additional area of Seathope Rig (between March 2019 and February 2020). The VP locations were carefully selected based on viewshed analysis and a ground-truthing visit prior to surveys commencing (Figure 13.1, Appendix):

- VP1 was located to the east of the site on Seathope Rig, at grid reference NT 37844 41340;
- VP2 was located on Priesthope Hill, to the south-west of the site, at grid reference NT 35150 40030; and
- VP3 was located to the south-west of Redscar Law, to the north-east of the site, at grid reference NT 37770 42447.

The viewsheds of the three VPs fully cover the locations of the proposed turbines, however, due to the complex terrain and steep gradients of the surrounding land, it was not possible to fully cover a 500 m buffer around the proposed turbines (Figure 13.1, Appendix). The large majority of this area was visible from the VPs though, and the coverage that was obtained meant that it was not possible for a bird to cross through an observer's viewshed without being seen.

Following SNH guidance, a minimum of 36 hours of survey effort was undertaken at each VP during the non-breeding (September to February) and breeding (March to August) periods. In addition to this, during October and November 2017, an extra 18 hours of VP surveys were carried out at VP1 and VP2, in order to determine whether migratory geese overfly the site. These additional surveys started at either one hour before dawn or ended one hour after dusk. Note that these supplementary surveys were not repeated during the spring migration period due to the paucity of goose records made during VP surveys in autumn 2017 and over the 2017/18 winter period. Note that surveys scheduled for April 2019 and September 2019 could not be completed within that calendar month due to site access restrictions and unfavourable weather conditions and that this missing survey effort was realised in May 2019 and October 2019 respectively.

A summary of the number of hours completed at each VP is shown in Table 13.1. Full details of the dates, timings and weather conditions of each VP survey can be provided on request.

Table 13.1: Vantage Point survey effort

Month	VP1 (hours per month)	VP2 (hours per month)	VP3 (hours per month)
September 2017	6	6	-
October 2017	15	15	-
November 2017	15	15	-
December 2017	6	6	-
January 2018	6	6	-
February 2018	6	6	-
Total non-breeding season	54	54	-
March 2018	6	6	-
April 2018	6	6	-
May 2018	6	6	-

Month	VP1 (hours per month)	VP2 (hours per month)	VP3 (hours per month)
June 2018	6	6	-
July 2018	6	6	-
August 2018	6	6	-
Total breeding season	36	36	-
March 2019	-	-	6
April 2019	-	-	5
May 2019	-	-	9
June 2019	-	-	6
July 2019	-	-	6
August 2019	-	-	6
Total breeding season	-	-	38
September 2019			-
October 2019			12
November 2019			6
December 2019			6
January 2020			6
February 2020			6
Total non-breeding season	-	-	36

Source: Natural Power

Breeding Bird Surveys

Breeding bird surveys (BBS) were undertaken in 2018 and 2019, following standard SNH guidance these surveys covered all parts of the proposed site plus a 500 m buffer (Figure 13.1, Appendix). Survey area coverage was split across the two years, as described above, providing one year of survey effort overall. The surveys followed the widely used Brown & Shepherd (1993)[22] methodology, but utilising four survey visits, as is currently recommended (Calladine *et al.,* 2009)[23]. The SNH recommendation is that only waders, skuas, gulls, red grouse and some wildfowl species are targeted during moorland BBS, and moorland passerine species do not need to be recorded; however, all bird species encountered were recorded during the BBS undertaken at Scawd Law. The breeding bird survey effort for both years is summarised in Table 13.2.

Table 13.2: Breeding bird survey effort

Visit	2018	2019
1st	19th April	14th May
2nd	24th May	5th / 6th June
3rd	22nd June	25th / 26th June
4th	5th July	15th / 16th July

[22] Brown, A.F., & Shepherd, K.B. (1993) A method for censusing upland breeding waders. Bird Study, 40, 189-195.

[23] Calladine, J., Garner, G., Wernham, C. & Thiel, A. (2009) The influence of survey frequency on population estimates of moorland breeding birds. Bird Study, 56, 381-388.

Source: Natural Power

Upon completion of the fourth survey visit, records from all visits were combined and analysed to estimate the location of breeding territories; based upon the territory analysis method outlined in Bibby *et al.*, (2000)[24]. For passerine species, no territory mapping analysis were performed; instead, the breeding status for each species was established based on noting the breeding behaviour during any single visit and registering the same species during different visits. The number of breeding pairs was estimated based on a combined tally from all four visits (divided by four).

Full details as to how the data were analysed to produce the territory maps can be provided on request. The results of the breeding bird surveys are provided in Section 13.2.7.

Breeding Raptor Surveys

Dedicated breeding raptor surveys, covering the proposed site and a 2 km buffer, were carried out during 2018, with additional surveys carried out in 2019. The nature of these surveys was determined by the target species recorded during the VP surveys and BBS and by those species considered to have the potential to breed within the survey area, based upon the available habitat. Surveys involved walkovers and short VP watches to identify breeding sites and, where possible, productivity. Surveys were undertaken by experienced surveyors holding a Schedule 1 Licence. Species-specific survey methods were informed by the methods outlined in Gilbert *et al*. (1998)[25] and Hardy *et al*. (2013)[26].

Four survey visits were undertaken and can be summarised as follows:

- Visit 1: 23rd March 2018 – early timed visit to check for raptor occupancy, and specifically to target goshawk;
- Visit 2: 25th April 2018 – check for raptor occupancy on open ground areas and further checks within forest;
- Visit 3: 25th May 2018 – further checks for occupancy on open ground and forested areas; and
- Visit 4: 21st June 2018 – targeted checks based on previous surveys, including visits to known nests.

In 2019, complementary raptor surveys were conducted to check the known nest locations discovered in 2018 as well as areas highlighted by the 2018 surveys which were considered to have breeding potential, but which were not occupied in that year. The visits were made on 27th May, 6th June, 21st June and 28th August.

Black Grouse Surveys

Dedicated black grouse surveys were carried out in spring 2018 following methods outlined The National Black Grouse Survey Instructions (Etheridge and Baines, 1995[27] ; summarised in Gilbert *et al.* 1998[25]).

The surveys covered the proposed development site plus a 1.5 km buffer of the original nine-turbine layout. Three survey visits were undertaken and can be summarised as follows:

- Visit 1: 27th March 2018 – to determine areas of suitable habitat for lekking birds;
- Visit 2: 25th April 2018 – survey starting at sunrise, to determine presence of black grouse; and
- Visit 3: 11th May 2018 – survey starting before sunrise, to count the number of birds (lekking males and any females in attendance).

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[24] Bibby, C. J., Burgess, N. D., Hill, D. A. & Mustoe, S. (2000) *Bird Census Techniques*. Second Edition. Academic Press, London.

[25] Gilbert, G., Gibbons, D. W. & Evans, J. 1998. *Bird Monitoring Methods: A Manual of Techniques for Key UK Species*. RSPB, Sandy, Bedfordshire.

[26] Hardey, J, Crick, H., Wernham, C., Riley, H., Etheridge, B. &Thompson, D. 2013. *Raptors: A Field Guide to Surveying and Monitoring.* 3rd Edition. SNH.

[27] Etheridge, B. & Baines, D. 1995. Instructions for the Black Grouse Survey 1995/6: a Joint RSPB/GCT/JNCC/SNH Project. Unpublished.

After the first two visits it was determined that black grouse were not present within the survey area, but incidental records had found that birds were present outside the 1.5 km buffer, to the west of the site. Therefore, the third visit focussed mainly on counting the number of males at these leks, in order to best understand the status of black grouse within the wider area.

13.2.3. Collision Risk Modelling

Collision Risk Modelling (CRM) uses data collected during flight activity surveys to predict the number of individuals per species that have the potential to collide with turbine rotors. The modelling methods proposed for Scawd Law are based on the Band *et al.*[28] collision risk model recommended by SNH. When using the Band model, height bands are typically chosen such that all flights recorded within certain height bands can be considered to be at collision risk height (CRH); i.e. the height at which rotor blades sweep.

At Scawd Law flight activity data were recorded into the following height bands, based on the expected turbine specifications that were current at the time survey work commenced:

1. <25 m;
2. 25-50 m;
3. 50-200 m; and
4. >200 m.

The current layout for Scawd Law comprises 12 turbines, all of which are proposed to be 180 m in height (to blade tip). Due to the turbine dimensions, a CRH of 60-180 m which is fully comprised within height band 3 was used in recording flights during the VP surveys. Therefore, all flights in height band 3 are considered to be within CRH, although this will be a precautionary approach as some flights at the lower and higher ends of the height band will lie outside CRH. Flights recorded in height bands 1 and 2 are below CRH and flights recorded in height band 4 are above CRH. Full CRM will be undertaken for the EIA Report.

13.3. Results

13.3.1. Desk-based Review

Designated Sites

Table 13.3 lists the protected areas within the vicinity of the proposed site, based upon the search criteria described in Section 13.2.1.

[28] Band, W., Madders, M. & Whitfield, D.P. 2007. *Developing field and analytical methods to assess avian collision risk at wind farms.* In de Lucas, M., Janss, G. & Ferrer, M. (eds.) Birds and Wind Power. Quercus, Madrid.

Table 13.3: Summary of protected sites designated for their ornithological interest, within 10 km of the proposed site (within 25 km for geese and gulls)

Site name	Designation	Designated feature	Distance and direction from proposed site
Moorfoot Hills	SSSI	Golden plover (breeding) Breeding bird assemblage	<0.5 km to north
Gladhouse Reservoir	SPA/ Ramsar/ SSSI	Pink-footed goose (non-breeding)	12.5 km to north-west
Fala Flow	SPA/ Ramsar/ SSSI	Pink-footed goose (non-breeding)	16.5 km to north-east

Source: Natural Power

Species of Note

Bird species on the NBN database that have been recorded within 10 km of Scawd Law Wind Farm within the last 10 years (2010-2020) represent a typical bird assemblage associated with open moorland habitat in this region of Scotland. The search didn't highlight any species of note for which supplementary baseline surveys were required.

13.3.2. VP surveys

Target Species: breeding seasons 2018 and 2019

The breeding season surveys during both years recorded flight lines from a total of 11 target species, most of which were birds of prey. Table 13.4 summarises levels of flight activity for each species and the amount of that flight activity which was in collision risk zone (CRZ) at CRH (i.e. potential for collisions). This shows that goshawk and curlew were the most frequently recorded species, but golden plover was recorded in the greatest numbers overall. The associated flight lines are shown in Figures 13.3 – 13.4 in the Appendix. In bold are species for which flight activity meets the required criteria for conducting CRM.

Table 13.4: Results of the breeding season vantage point surveys in 2018 and 2019

Species	No. of flights (individuals) - 2018	No. of flights (individuals) at CRZ - 2018	No. of flights (individuals) - 2019	No. of flights (individuals) at CRZ - 2019
Greylag goose	1 (2)	-		
Osprey	-	-	1 (1)	1 (1)
Hen harrier	4 (4)	1 (1)		
Red kite	-	-	1 (1)	
White-tailed eagle	2 (2)	-		
Goshawk	9 (9)	3 (3)	1 (1)	
Golden plover	3 (22)	2 (20)		
Curlew	6 (10)	1 (3)	15 (36)	3 (4)
Short-eared owl	1 (1)	-		
Merlin	2 (2)	1 (1)	2 (2)	
Peregrine	2 (2)	-		

Source: Natural Power

Target Species: non-breeding seasons 2018 and 2019

A total of five target species were recorded during non-breeding season VP surveys between September 2017 and February 2018, and October 2019 and February 2020 (inclusive). Four of those species were also recorded during the breeding season, the only target species not recorded during breeding seasons was pink-footed goose. Table 13.5 summarises levels of flight activity for each species and the amount of that flight activity which was in CRZ at potential collision height (PCH). In terms of number of records, goshawk was the most frequently recorded species. However pink-footed goose and golden plover were recorded in greater numbers. The flight lines for the non-breeding season target species are shown in Figures 13.2 and 13.5 in the Appendix. Three species (goshawk, golden plover and peregrine) were recorded in CRZ but only the level of activity recorded for goshawk and golden plover meets the required criteria for conducting CRM. These species are in bold in Table 13.5.

Table 13.5: Results of the non-breeding seasons vantage point surveys in 2017/18 and 2019/20

Species	No. of flights (individuals) - 2017/18	No. of flights (individuals) at CRZ - 2017/18	No. of flights (individuals) - 2019/20	No. of flights (individuals) at CRZ – 2019/20
Pink-footed goose	4 (292)	-	-	-
Unidentified goose	-	-	1 (50)	-
Goshawk	32 (35)	7 (7)	-	-
Golden plover	2 (46)	2 (46)	5 (241)	-
Merlin	3 (3)	-	1 (1)	-
Peregrine	1 (1)	1 (1)	-	-

Source: Natural Power

Incidental Records

A number of incidental records of target species were made during VP surveys. Records in this category include birds not in flight; birds heard only; birds seen simultaneously where only one could be tracked; birds recorded before/ after formal survey effort; and, most commonly, birds beyond the viewshed. These records are summarised in Table 13.6 for completeness.

Table 13.6: Incidental records of target species recorded during VP surveys

Species	Number of records/flights	Number of individuals
Greylag goose	3	29
Goshawk	3	3
Curlew	9	10
Woodcock	1	1
Snipe	2	2

Source: Natural Power

Secondary Records

Table 13.7 summarises the secondary species recorded during the VP surveys. The species have been separated into those recorded infrequently, i.e. less than ten times during the survey period, those recorded more frequently (more than ten times), and those for which evidence of breeding was recorded.

Table 13.7: Summary of secondary species recorded during VP surveys

Species	Infrequently recorded (< 10 times)	Frequently recorded (> 10 times)
Red grouse		X
Grey heron	X	
Cormorant	X	
Sparrowhawk	X	
Buzzard		X
Common gull	X	
Black-headed gull	X	
Herring gull	X	
Lesser black-backed gull		X
Great black-backed gull	X	
Unidentified gull	X	
Kestrel		X
Raven		X
Common crossbill	X	

Source: Natural Power

13.3.3. Breeding Bird Surveys

The results of the breeding bird survey and subsequent territory analysis are presented in Table 13.8. A total of 35 species were recorded across the breeding bird survey area, of which 18 species were considered to have held territories that overlapped with the survey area (proposed turbines and a 500 m buffer). Only locations of wader species and red grouse territories were mapped (by estimated central point) as shown in Figure 13.6 in the Appendix (passerines and near-passerine species were not mapped).

Table 13.8: Abundance estimates for species breeding on Scawd Law Wind Farm recorded during breeding bird survey 2018 and 2019 (in bold are wader species)

Species	Estimated number of territories in 2018	Estimated number of territories in 2019	Estimated total number of territories on Scawd Law
Red grouse	5	-	5
Golden plover	1	1	1 - 2
Curlew	1	3	3 - 4
Snipe	1	1	2
Woodpigeon	No estimate	No estimate	No estimate
Cuckoo	1	-	1
Skylark	25	8	33
Willow warbler	-	2	2
Wren	4	2	6
Ring ouzel	1	-	1
Robin	-	1	1
Stonechat	2	-	2
Whinchat	-	1	1
Wheatear	-	4	4
Dunnock	-	1	1
Pied wagtail	-	1	1
Meadow pipit	136	29	165
Chaffinch	-	2	2

Source: Natural Power

Table 13.9 shows all species recorded on the site during breeding bird surveys along with their breeding status.

Table 13.9: All species recorded during breeding bird surveys in 2018 and 2019 and their breeding status

Species	Breeding status
Red grouse	Breeding on site
Red-legged partridge	Bred and released on site
Pheasant	Bred and released on site
Goshawk	Recorded on site, breeding beyond site boundary
Red kite	Recorded on site
Buzzard	Recorded on site, breeding beyond site boundary
Golden plover	Breeding on site
Curlew	Breeding on site
Snipe	Breeding on site
Black-headed gull	Recorded on site
Herring gull	Recorded on site
Lesser black-backed gull	Recorded on site
Woodpigeon	Breeding on site
Cuckoo	Breeding on site
Kestrel	Recorded on site, breeding beyond site boundary
Peregrine	Recorded on site
Carrion crow	Recorded on site
Raven	Recorded on site
Coal tit	Recorded on site, likely to be breeding
Skylark	Breeding on site
Swallow	Recorded on site
Willow warbler	Breeding on site
Blackcap	Recorded on site
Wren	Breeding on site
Mistle thrush	Recorded on site
Ring ouzel	Breeding on site
Robin	Breeding on site
Whinchat	Breeding on site
Stonechat	Breeding on site
Wheatear	Breeding on site
Dunnock	Breeding on site
Pied wagtail	Breeding on site
Meadow pipit	Breeding on site
Chaffinch	Breeding on site
Yellowhammer	Recorded on site

Source: Natural Power

13.3.4. Breeding Raptor Survey

The results of the dedicated raptor surveys are shown on Figure 13.7 in the Appendix. No target raptor species were recorded breeding within the survey area in either survey year (proposed site plus a 2 km buffer). However, in 2018 a goshawk nest was located a short distance outside the southern edge of the survey area. This nest lies approximately 2.5 km from the nearest turbine. The behaviour of an adult bird in the vicinity of this nest and the fact it was still active at the end of June suggests that chicks probably hatched; but it is not known whether they successfully fledged. In 2019, this nest site was not occupied.

Data from the non-breeding season VP surveys had suggested that another goshawk territory may also lie to the west of the proposed Scawd Law Wind Farm area. However, the dedicated raptor surveys did not find any evidence of breeding here in 2018 nor in 2019.

Several small copses and shelter-belts of mature coniferous trees lie in the valley to the east of Scawd Law. An active buzzard nest was located in the block of trees closest to the proposed site (c.600 m from the nearest turbine). Other, inactive, raptor nests were also located in these blocks of trees. The small size of each woodland block suggests that these are unsuitable breeding areas for goshawk and it is considered that the inactive nests are all likely to belong to buzzards, from breeding attempts in previous years.

The other raptor species that were occasionally recorded during baseline surveying showed no evidence of breeding within the surveyed area. Neither merlin nor peregrine were recorded during the core breeding period of April to July and therefore there is no suggestion that these birds were breeding in the vicinity of the site. In 2018, a male hen harrier was observed on two dates in April and one date in May but it was not recorded after this date and there were no records of females. Therefore, the evidence suggests that hen harrier was also a non-breeder. Short-eared owl was recorded on one date only (in April). The crepuscular behaviour of this species means that it could have been under-recorded and could have bred within the survey area undetected. However, no short-eared owls were recorded during the breeding bird survey so there can be some confidence that this species, if it did in fact breed, did not do so within the site and 500 m buffer. Consultation with LBRSG will provide further information as to known historic breeding records of raptors, including short-eared owl, within the vicinity of the proposed site.

13.3.5. Black Grouse Survey

The dedicated survey did not record any black grouse within the survey area (proposed site plus a 1.5 km buffer). Black grouse were also not recorded during the other ornithological surveys. The landowner also confirmed that, to his knowledge, black grouse are not present on the estate (C. Thomson per comm on 15th May 2018).

However, lekking birds were heard during the second survey visit, beyond the survey area to the west and north-west. Therefore, the third survey visit focussed on determining a count of black grouse from these lekking locations. Although outside the survey area and well away from the development site (the nearest lek being 2.8 km from a proposed turbine) this provides context and supplementary data as to the current status of this species locally.

It is these incidental leks that are shown on Figure 13.8 in the Appendix. On 11th May 2018, two males attended the lek by Colquhar. On the same date a minimum of five males accounted for the birds recorded at the two leks near Blackhopebyre. Thus, a minimum of seven black grouse males were present within this supplementary survey area.

13.4. Discussion

13.4.1. Statutory Sites

Under the Conservation (Natural Habitats, & c.) Regulations 1994, as amended (the Habitats Regulations) any development that may have a LSE on an SPA or SAC, either alone or in combination with other projects, requires an AA to be carried out by the relevant competent authority, to determine whether or not the development would have an adverse effect on the integrity of the SPA or SAC.

Before an AA is initiated, a screening process is undertaken to determine whether any of the predicted impacts of the development will result in a LSE. This screening assessment provides information to the competent authority to allow them to reach a decision on whether or not the development will have a LSE on any SPA or SAC and therefore whether an AA is required.

There are two sites of international ornithological importance (both designated for wintering pink-footed geese) within 25 km of the proposed Scawd Law Wind Farm, comprising:

- Gladhouse Reservoir SPA (c. 12.5 km); and
- Fala Flow SPA (c. 16.5 km).

Given that only a single flight of pink-footed goose was recorded during the non-breeding season, outwith the CRZ, it is unlikely that there is connectivity between the proposed Scawd Law Wind Farm and the Gladhouse Reservoir and Fala Flow SPAs. However, full consideration will be given towards likely Habitats Regulations Appraisal (HRA) requirements in the EIA Report.

The close proximity of the Moorfoot Hills SSSI (for which a breeding bird assemblage and specifically golden plover are designated features) means that any impact on this designated site shall also be assessed.

13.4.2. Target Species

Greylag goose

We propose that **Greylag goose shall be scoped out** of the EIAR.

Greylag goose is a resident breeder and winter migrant. It is BoCC amber-listed[21] due to its localised non-breeding population.

Only a single record of two individuals was made during the breeding season VP surveys, whilst three incidental records were made during the winter months (totalling 29 individuals). No breeding greylag goose were observed within the survey area of the upland breeding bird survey.

Pink-footed goose

We propose that **Pink footed goose shall be scoped out** of the EIAR.

Pink-footed goose is Amber-listed[21] due to the international importance of the UK non-breeding population. There were no records of this species roosting or foraging at the proposed development, and no suitable habitat exists here

The VP surveys recorded only sporadic flight activity of pink-footed geese over the site. A total of four flights (of 292 individuals) were recorded from the VP surveys, however none of those occurred within the CRZ.

SNH guidance states that they "*have reviewed the requirement for conducting CRM in support of wind farm applications for pink-footed geese. In light of the robust population and high avoidance rate of 99.8%, we advise that CRM will no longer be required for applications in the wider countryside. However, CRM will still*

be expected in support of applications where there is connectivity with designated areas for which pink-footed goose is a qualifying interest". Two SPA/Ramsar sites lie within a distance from the proposed Scawd Law Wind Farm that may suggest potential connectivity (Gladhouse Reservoir lies c. 12.5 km and Fala Flow SPA lies c. 16.5 km from Scawd Law), however given the low number of pink-footed geese flying over Scawd Law Wind Farm (this species does not qualify for CRM) we would seek to **scope out collision risk to pink-footed goose of the EIA Report.**

Black grouse

We propose that **Black grouse shall be scoped out** to the EIAR.

Black grouse is a BoCC red-list[21] species due to both historical and recent population declines.

No black grouse were recorded during baseline surveys within the survey area (proposed site plus a 1.5 km buffer), however lekking birds were recorded outwith the proposed development (2.8 km from the nearest proposed turbine).

Although no black grouse leks were found within the developable area, black grouse can generally nest within 1.5 km of the lek site. This would be still over 1 km from the nearest proposed turbine therefore no disturbance/displacement impacts are anticipated. The amount of suitable black grouse breeding habitat to be lost directly to components of the wind development can be relatively small; however, the general type of construction activity associated with wind farms has the potential for disturbance during construction.

Osprey

We propose that **Osprey shall be scoped out** of the EIAR.

Osprey is a rare migrant breeder. It is a Schedule 1 and Annex I species and also a BoCC amber-list[21] species due to a historic decline in the breeding population and subsequent partial recovery.

Only one individual was recorded during baseline surveys on 29th March 2019, flying in a northerly direction.

The level of recorded flight activity does not qualify this species for CRM.

Goshawk

We propose that **Goshawk shall be scoped in** to the EIAR.

Goshawk is a rare breeding resident and is a Schedule 1 species.

During baseline VP surveys, a total of 42 flights were observed of goshawk (mostly in the non-breeding season 2017-2018); with ten flights recorded in the CRZ. The flight activity occurred over various parts of the site, with all but one flight recorded from either VP1 or VP2. There was only one goshawk flight recorded in 2019, when the eastern part of the site was surveyed. In 2018 an active goshawk nest was located to the south of the site, approximately 2.5 km from the nearest turbine. No active nests were found in 2019.

The level of recorded flight activity in both breeding and non-breeding seasons qualifies this species for CRM. Also, given the evidence of a breeding attempt in the vicinity of Scawd Law in 2018, potential disturbance/displacement effects for this species during construction and operation are possible.

Hen harrier

We propose that **Hen harrier shall be scoped out** of the EIAR.

Hen harrier is a rare resident breeder. It is a Schedule 1, Annex I and a BoCC red-list[21] species due to both historical and recent population declines.

Three individuals were seen during VP surveys in 2018: on 18th April; 24th April (same individual seen twice) and 11th May, however only a single flight was recorded in the CRZ.

The level of recorded flight activity does not qualify this species for CRM and therefore potential collision risks are considered to be negligible. No breeding activity of this species was observed within the survey area during baseline surveys, and potential disturbance/displacement effects during construction and operation are considered to be negligible.

Red kite

We propose that **Red kite shall be scoped out** of the EIAR.

Red kite is a Schedule 1 and Annex I species.

There was one record of red kite during the VP surveys, on 27th May 2019. The open hill ground within the development site provides limited foraging opportunities for this species and is not likely to be regularly used. The area is not suitable for breeding birds due to the lack of open woodland for nesting.

White-tailed eagle

We propose that **White-tailed eagle shall be scoped out** of the EIAR.

White-tailed eagle is a rare resident breeder. It's a Schedule 1, Annex I and a BoCC red-list[21] species due to its small and localised population.

White-tailed eagle was recorded only twice during VP surveys, both records were made on 29th March 2019 and relate to the same individual.

Golden plover

We propose that **Golden plover shall be scoped in** to the EIAR.

Golden plover is a resident breeder and winter migrant. It is an Annex I species. It is also a designated breeding feature of the nearby Moorfoot Hills SSSI.

During flight activity surveys golden plover was recorded sporadically (ten records in total), however the number of individuals qualified this species for CRM. In 2018, two flocks (20 individuals) were recorded in the CRZ during the breeding season and two flocks (46 individuals) were recorded in the CRZ during the non-breeding season. In winter 2019/20, a total of five flocks (241 individuals) were recorded overall, however none of these flights occurred in the CRZ. One breeding pair of golden plovers was found to the north of the site during breeding bird surveys each year, therefore it is possible that the site could hold two breeding pairs (the distance between the two territories found in separate years was 1300 m).

Despite the low number of flocks recorded in the CRZ, the risk of collision during operation cannot be ruled out for golden plover. Given that golden plovers breed at Scawd Law, potential disturbance/displacement effects during construction and operation of the proposed Development are possible.

Curlew

We propose that **Curlew shall be scoped in** to the EIAR.

Curlew is a resident breeder and winter migrant. It is a BoCC red-list[21] species due to a severe long-term breeding population decline.

Curlew were only recorded at Scawd Law during breeding seasons. A total of 21 flights were recorded during both 2018 and 2019, with seven individuals being recorded in the CRZ. Nine incidental records were also made during the breeding seasons. A single pair was recorded breeding at Scawd Law in 2018 and three

pairs were recorded breeding in a separate area over Seathope Rig in 2019, therefore the total of breeding curlew at Scawd Law could be four pairs.

The level of recorded flight activity this species allows for conducting CRM only during the breeding season 2019, however given the breeding status of curlew at Scawd Law potential collision risk cannot be ruled out. As breeding activity of this species was observed within the survey area during baseline surveys, potential disturbance/displacement effects during construction and operation are possible.

Snipe

We propose that **Snipe shall be scoped out** of the EIAR.

Snipe is a resident breeder and winter migrant, which is included on the BoCC amber-list[21] due to moderate long-term declines in breeding range.

No flight activity was recorded during VP surveys in either year, however a breeding territory was identified in both 2018 and 2019 during breeding bird surveys in separate areas of the proposed development (therefore the estimated total of breeding snipe at Scawd Law is two pairs).

Due to low density of breeding snipe at Scawd Law, the potential for disturbance/displacement effects during construction and operation can be considered negligible.

Short-eared owl

We propose that **Short-eared owl shall be scoped out** of the EIAR.

Short-eared owl is a resident breeder and winter migrant. It is an Annex I and a BoCC amber-list[21] species due to moderate long-term declines in breeding range, and also moderate declines in breeding range within a recent 25-year period.

Only one record of short-eared owl was made during baseline surveys (in April 2018).

As no breeding activity of this species was observed within the survey area during baseline surveys, potential disturbance/displacement effects during construction and operation are considered to be negligible.

Merlin

We propose that **Merlin shall be scoped out** of the EIAR.

Merlin is a resident breeder and winter migrant. It is a Schedule 1, Annex I and a BoCC red-list species[21] due to historic declines in its breeding population.

Merlin was recorded eight times during the VP surveys during both breeding and non-breeding periods in both years (one record in the CRZ). However, this species was not picked up during the breeding raptor surveys or any other type of surveys and there was no evidence of breeding.

The level of recorded flight activity does not qualify this species for CRM and therefore potential collision risks are considered to be negligible. As no breeding activity of this species was observed within the survey area during baseline surveys, potential disturbance/displacement effects during construction and operation are considered to be negligible.

Peregrine

We propose that **Peregrine shall be scoped out** of the EIAR.

Peregrine is a resident breeder. It is a Schedule 1 and Annex I species.

Peregrine was recorded only on three occasions during VP surveys: on 25th October 2017, 24th April 2018 and 8th August 2018. No other records were made of this species during any other baseline surveys.

The level of recorded flight activity does not qualify this species for CRM and therefore potential collision risks are considered to be negligible. As no breeding activity of this species was observed within the survey area during baseline surveys, potential disturbance/displacement effects during construction and operation are considered to be negligible.

Secondary Raptor Species

We propose that **buzzard, kestrel and sparrowhawk shall be scoped out** of the EIAR.

Buzzard (no conservation designations) and kestrel (BoCC amber-list[21]) were regularly recorded during the VP surveys with 359 flights (551 individuals) and 68 flights (68 individuals) recorded respectively. Sparrowhawk (no conservation designations) was only recorded sporadically (seven flights).

Should the development receive consent, good practice mitigation measures (e.g. pre-construction nest checks, use of exclusion zones etc.) will be followed during the pre-construction and construction phases, to ensure compliance with the Wildlife and Countryside Act (1981).

Turbine collision is a potential risk for these species, particularly for buzzard and kestrel which spend more time hunting over open ground compared to sparrowhawk. However, any such effects are considered unlikely to have any more than a local impact on these populations.

Other Secondary Species

We propose that **secondary species shall be scoped out** of the EIAR.

Raven (no conservation designations) and red grouse (BoCC amber-list[21]) were regularly recorded during baseline VP surveys, with 169 flights (390 individuals) and 24 flights (30 individuals) recorded respectively. Grey heron, cormorant and five gull species were only recorded sporadically and, apart from lesser black-backed gull, were all recorded in single digit numbers.

Should the development receive consent, good practice mitigation measures (e.g. pre-construction nest checks, use of exclusion zones etc.) will be followed during the pre-construction and construction phases, to ensure compliance with the Wildlife and Countryside Act (1981).

Turbine collision is a potential risk for these species, particularly for raven and large gulls which spend more time flying at CRZ than other non-raptor secondary species (i.e. scavenging over open ground). However, any such effects are considered unlikely to have any more than a local impact on these populations.

Passerines Species

We propose that **passerines shall be scoped out** of the EIAR.

No passerines of moderate and high conservation concern were recorded in high numbers during baseline surveys. Passerines are not considered to be significantly affected by collision with turbines. As such, it is expected that there will be no significant population level impact of disturbance/displacement and/or collisions on these species as a result of construction and operation of the proposed Development.

13.5. Conclusions

13.5.1. Features Proposed for Assessment within the EcIA

In order to ensure compliance with the EIA Directive, and to ensure that the EcIA is focussed on potentially significant effects only, we propose that only those important ornithological features and impacts identified in Table 13.10 be assessed within the relevant EIA Report.

Table 13.10: Features and impacts to be assessed within the EIA Report

Question 16: Do consultees agree with the EcIA only concentrating on those receptors which may be subject to significant effects from the proposed development (either directly or indirectly)?

Question 17: Table 13.10 above notes the receptors and potential impact proposed to be included within the EcIA. Do consultees agree that this sufficiently covers the potential impacts on features from the proposed development and what is proposed to be scoped out?

Receptor	Impacts	Assessment
Black grouse	Disturbance/displacement	EcIA
Goshawk	Collision & Disturbance/displacement	EcIA, including CRM
Golden plover	Collision & Disturbance/displacement	EcIA, including CRM
Curlew	Collision & Disturbance/displacement	EcIA, including CRM
Fala Flow SPA	Adverse effects on site integrity (migratory pink-footed goose)	Screening for AA
Gladhouse Reservoir SPA	Adverse effects on site integrity (migratory pink-footed goose	Screening for AA

Source: Natural Power

14. Hydrology, geology and hydrogeology

14.1. Introduction

This section of the scoping report outlines the information currently available and presents the baseline conditions applicable to the hydrological, hydrogeological and geological environment in the surrounding region of the Scawd Law wind farm ("the proposed development").

The intention of this section of the scoping report is to introduce the project and provide the competent authority and its advisors with sufficient information (where it currently exists) on the likely impacts of the proposed development on individual receptors and important features at this stage. The intended approach will allow for an EIAR that focusses on only those aspects of the proposed development that are likely to have a significant effect on known hydrological, hydrogeological and groundwater receptors, as well as those receptors that are currently unknown.

Where the impacts on important hydrological, hydrogeological and geological features (whether it be direct or indirect) from the proposed development are not likely to cause a significant effect these have been detailed below. For each of these features, it is proposed that these receptors are 'scoped out' and thus not included within the EIAR.

The structure of this section notes the guidance and legislation, methodologies to be used and identifies the results from the desktop review and survey work undertaken to date.

14.2. Embedded mitigation and layout iterations

The design of the proposed development to date has been an iterative process, and the layout has avoided impacts on hydrological receptors as far as possible (embedded mitigation). Throughout the remainder of the EIAR process and feedback from the consultation process it may be that the layout presented here in the Scoping Report further develops. Should the layout change from now to the application, it should be noted that the layout presented within this Scoping Report represents a 'worst case scenario' from the development, and therefore generally any amendments to the design will not increase the likelihood of a significant impact. However, should any changes occur that are likely to result in a significant or unknown effect on a feature previously scoped out then this feature will be included within the EIAR. Any changes will first be discussed with the relevant consultees, to ensure that they agree with the applicants understanding before altering the inclusion or exclusion of features from the EIAR.

14.2.1. Mitigation by design

A series of buffer distances have been adopted to help reduce effects of the proposed development on the hydrological environment. A 50 m buffer has been implemented for all identified natural hydrological features.

Table 14.1 confirms that all turbines associated with the proposed development are located outside the buffer limits. Distances were calculated using functionalities provided within the QGIS package. Watercourses are linear features that were identified from OS 1:10,000 raster data as well as any additional features identified during the site visit. A blanket buffer of 50 m was established for such features.

Table 14.1: Distance of turbines from identified hydrolgical features

Turbine ID	Turbine Distance from Watercourse/Waterbody 50 m buffer (m)
T1	386
T2	189

Turbine ID	Turbine Distance from Watercourse/Waterbody 50 m buffer (m)
T3	225
T4	69
T5	170
T6	287
T7	231
T8	245
T9	180
T10	122
T11	145
T12	177

Source: Natural Power

Proposed watercourse crossing associated with the new access track required as part of the proposed development have been minimised to six in total.

14.3. Legislation and guidance

14.3.1. International legislation and guidance

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

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

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

- Discharges to all wetlands, surface waters and groundwaters (replacing the Control of Pollution Act 1974);
- Disposal to land (replacing the Groundwater Regulations 1998);
- Abstractions from all wetlands, surface waters and groundwaters;
- Impoundments (dams and weirs) of rivers, lochs, wetlands and transitional waters; and
- Engineering works in inland waters and wetlands.

SEPA recently opened CAR to consultation to propose changes whereby individual sites will require a site specific license, rather than just individual activities required to adhere to the regulations. It is acknowledged that to support the license application further information on the drainage and environmental management requirements is likely to be required. It will be acknowledged within the EIAR that this information is required, but that the level of detail to support a CAR license application is not required to support the planning application.

14.3.2. National legislation and policy

- The assessment takes account of the following legislation and policy:
- The Water Environment and Water Services (Scotland) Act 2003;
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
- The Water Environment (Miscellaneous) (Scotland) Regulations 2017;
  - A CAR license is required to be put in place prior to commencing construction works which involve discharging water to the water environment for projects which are larger than 4 hectares, have access road longer than 5 km, or have an area of more than 1 hectare or length >500 m with slope of more than 25 degrees.
  - Pre-construction, a site-specific Pollution Prevention Plan (PPP) is prepared and a CAR license is applied for. Note that the applications can have a four-month determination period.
- Flood Risk Management (Scotland) Act 2009;
- The Private Water Supplies (Scotland) Regulations 2006;
- Water Intended for Human Consumption (Private Water Supplies (Scotland) Regulations 2017;
- Part IIA of the Environment Protection Act 1990;
- Waste Management Licensing Regulations 1994;
- Pollution Prevention and Control (Scotland) Regulations 2012;
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Electricity Act 1989;
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017; and
- Scottish Planning Policy (2014).

14.3.3. Regional policy

Table 14.2 below lists other key guidance and good practice documentation which has been considered as part of this assessment.

Table 14.2: Guidance and good practice

Topic	Source of information
Scottish Government Planning Advice Notes (PAN's)	PAN 50: Controlling the Environmental Effects of Surface Mineral Workings; PAN 51 Planning (revised 2006), Environmental Protection and Regulation; PAN 1/2013 Environmental Impact Assessment; PAN 61 Planning and Sustainable Urban Drainage Systems; and PAN 79 Water and Drainage.
Scottish Environment Protection Agency (SEPA) Guidance for Pollution Prevention (GPPs) and Pollution Prevention Guidelines (PPGs)	PPG 1: Understanding your Environmental Responsibilities - Good Environmental Practices; GPP 2: Above Ground Oil Storage Tanks;

Topic	Source of information
	GPP 4: Treatment and Disposal of Wastewater Where there is no Connection to the Public Foul Sewer; GPP 5: Works and Maintenance in or Near Water; PPG 6: Working at Construction and Demolition Sites; PPG 7: Safe Storage - The Safe Operation of Refuelling Facilities; GPP 8: Safe Storage and Disposal of Used Oils; GPP 13: Vehicle Washing and Cleaning; GPP 21: Pollution Incident Response Planning; GPP 22: Dealing with Spills; and GPP 26 Safe Storage - Drums and Intermediate Bulk Containers.
SEPA Position Statements (Published)	WAT-PS-06-02: SEPA (2015), Culverting of Watercourses, Version 2; WAT-PS-07-02: SEPA (2012), Bank Protection, Version 2; WAT-SG-23: SEPA (2008), Engineering in the Water Environment, Good Practice Guide - Bank Protection Rivers and Lochs, Version 1; WAT-SG-25: SEPA (2010), Engineering in the Water Environment, Good Practice Guide, Construction of River Crossings, Version 2; WAT-SG-26: SEPA (2010), Engineering in the Water Environment, Good Practice Guide, Sediment Management, Version 1; WAT-SG-31: SEPA, (2006) Special Requirements for Civil Engineering Contracts for the Prevention of Pollution, Version 2; and WAT-SG- 78: SEPA (2012), Sediment Management Authorisation, Version 1.
SEPA Policies	SEPA (2009), Groundwater Protection Policy for Scotland Version 3; SEPA (2016), Planning Authority Protocol (Policy 41) Development at Risk of Flooding: Advice and Consultations; SEPA, No. 54 Land Protection Policy; and SEPA, No. 61 Control of Priority & Dangerous Substances & Specific Pollutants in the Water Environment.
Construction Industry Research and Information Association (CIRIA)	CIRIA C692 Environmental Good Practice on Site (third edition);

Topic	Source of information
	CIRIA C753 SuDS Manual (2015); CIRIA C532 Control of Water Pollution from Construction Sites; CIRIA C648 Control of Water Pollution from Linear Construction Projects; and CIRIA C689 Culvert Design and Operation Guide.
Other Guidelines	SNH and Scottish Renewables Joint Publication, (2019) Good Practice During Wind Farm Construction Version 4; FCE, SNH, (2010), Floating Roads on Peat; Scottish Renewables, Joint Publication (2012), Development of Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste; SEPA, The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A Practical Guide, Version 8.4, October 2019; River Crossings and Migratory Fish: Design Guidance, A Consultation Paper, The Scottish Executive; SEPA Land Use Planning Guidance Note 4 (2017): Planning Guidance on On-Shore Windfarm Developments, Version 9; and SEPA Land Use Planning Guidance Note 31 (2017): Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, Version 3.

Source: Natural Power

14.4. Survey work undertaken

The following sections summarise the survey work that has been undertaken to inform the details presented in this Scoping report.

14.4.1. Desk based study

A desk-based study has been undertaken in order to establish the surface and groundwater hydrology underlying the area of the proposed development. A detailed review of documentation and data sources has been undertaken, as detailed in Table 14.3.

Table 14.3: Baseline information sources

Topic	Sources of Information
Designated Nature and Conservation Sites	In-house Designated Site Database. Scottish Natural Heritage, SiteLink website, http://gateway.snh.gov.uk/sitelink/searchmap.jsp
Solid and Superficial Geology	BGS Geology of Britain Viewer, http://mapapps.bgs.ac.uk/geologyofbritain3d/index.html
Soils and Peat	Scotland's soils, http://map.environment.gov.scot/Soil_maps/?layer=1#
Surface Water Hydrology	1:10,000 OS Raster Data 1:50,000 OS Raster Data Flood Estimation Handbook (FEH): FEH Web Service, https://fehweb.ceh.ac.uk/
Flooding	Indicative River and Coastal Flood Map (SEPA) http://map.sepa.org.uk/floodmap/map.htm
Water Quality	SEPA, River Basin Management Plans, Web Mapping Application, http://gis.sepa.org.uk/rbmp/ SEPA, Water Classification Hub, https://www.sepa.org.uk/data-visualisation/water-classification-hub
Water Resources	DWQR, https://dwqr.scot/
Hydrogeology	Scotland's Environment Web Interactive Map, https://map.environment.gov.scot/sewebmap/ BGS Geology of Britain Viewer, http://mapapps.bgs.ac.uk/geologyofbritain3d/index.html

Source: Natural Power

14.4.2. Site investigations

An investigation was carried out in August 2019 to assess the hydrological characteristics of the site and to complete a 100 m grid peat depth survey, which was based on the current proposed layout. The purpose of the field surveys was to gain an understanding of the topography, soils and geography of the site.

The desk based study and fieldwork have been undertaken to:

- Identify designated areas of relevance to hydrology;
- Confirm surface water catchment areas and watersheds;
- Describe the hydromorphological conditions of watercourses;
- Identify all flooding risks;
- Collate water quality and flooding data for the immediate area and main downstream watercourses;
- Carry out first phase (100m gird) peat probing;
- Collect soil, geological and hydrogeological information;

- Identify private drinking water abstractions and public water supplies within 3 km of the site; and
- Collect information relating to recreational and fisheries resources.

14.5. Baseline results

14.5.1. Designated areas

There are no designated areas within the proposed development boundary however the area to the north-east of the site known as the Moorfoot Hills is classified as a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The blanket bog upland habitat is classified as in a favourable/recovering condition (last assessed September 2009). The dry heath upland habitat is classified as an unfavourable condition (last assessed July 2013) with pressures recorded as burning, invasive bracken species and deer overgrazing.

The proposed development is hydrologically unconnected to the SAC and SSSI with majority of the site located downgradient of the Moorfoot Hills. The Moorfoot Hills designated area also extends to the east of the proposed development however it is hydrologically unconnected to the site. The proposed development is unlikely to have any significant effect on the hydrology of the designated site and therefore it will not be considered further in the hydrology, geology and hydrogeology chapter of the EIAR.

The site drains into the River Tweed which is classified as a SAC and a SSSI. The River Tweed is of high conservation and ecological value and is designated for Atlantic salmon, sea lamprey, river lamprey, brook lamprey, otters and freshwater habitats[29]. Further assessment will be required to assess if there is any impact to the River Tweed SAC and SSSI as part of the EIAR.

The Gatehopeknowe Burn is not designated however the watercourses to the east and west and the River Tweed are indicated as a surface drinking water protected area. This includes the Walker Burn which drains from areas of proposed infrastructure which will require further assessment as part of the EIAR to assess potential impacts.

Question 18: Based on the information provided above, further assessments are required to confirm if the proposed development will have an impact on the River Tweed SAC and SSSI given its hydrological connectivity with the proposed development.

Do the consultees agree with this approach?

14.5.2. Site hydrology

A walkover and morphological assessment of the watercourses identified as part of the desk assessment was undertaken in August 2019.

The land use within the proposed development was summarised as predominately for agriculture and open moorland habitat. The lowland and valley areas within the proposed development are used for sheep grazing and rearing pheasant and partridge. The higher relief is used for grazing with small isolated patches of forestry.

The proposed development lies within the catchments of the Gatehopeknowe Burn and Walker Burn. Both of which are part of the wider catchment of the River Tweed.

[29] Scottish Natural Heritage, River Tweed Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). Advice for developers and competent authorities when considering projects which could affect the River Tweed SAC and SSSI.

The Gatehopeknowe Burn is classified as good overall status (condition assessed in 2018). The main stem of the Gatehopeknowe Burn is approximately 6.1 km long.

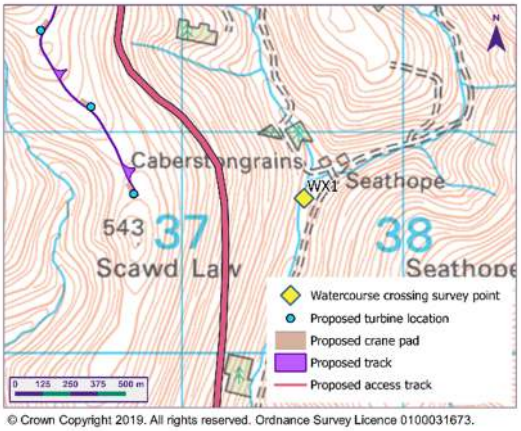
The Walker Burn is not classified whereas the River Tweed, which it drains into is assessed as good overall status (condition assessed in 2018). The River Tweed (Scotsmill to Ettrick Water confluence) is a river in the River Tweed catchment of the Solway Tweed river basin district. The main stem is approximately 29.0 kilometres in length.

The watercourses are described in further detail below.

Gatehopeknowe Burn

The headwaters of the Gatehopeknowe Burn and that catchment areas of the Gatehopeknowe Burn are contained entirely within the site. Sub-catchments of the Gatehopeknowe Burn, the Seathope Burn to the east and Caberston Grain to the west are fed by several smaller tributaries and converge at NT 37577 40807. The watercourse conditions at this location, downstream of the converge was observed during the baseline survey works as summarised in Table 14.4.

Table 14.4: Gatehopeknowe Burn watercourse assessment

WX1 (NT 37553 40699)		
	Description: Downstream of Seathope Burn and Caberston Grain tributaries joining the Gateshope Burn.100 m upstream of this survey point there is an existing road crossing with a culvert 0.9 m diameter. Note; this sampling point does not indicate the location of where proposed infrastructure intersects the watercourse.	
Water depth: 0.1-0.2 m Water width: 1.6-1.8 m Bankfull width: 3.5-4.0 m Flooded bankfull width: 5.5-6.0 m Flooded bankfull height: 1.7-2.0 m	Valley Form: Shallow vee Channel type: Meandering Channel Gradient: Gentle	Bed material: Rounded pebbles, course gravel, fine sand/silt Bank condition: Stable Flow condition: Moderate Riparian corridor: Moorland, agricultural grazing
Crossing Photographs		
Upstream	Downstream	Across

Source: Natural Power

The Gatehopeknowe Burn catchment is characterised by ridges and steep topography which separates the upstream tributaries from each other. Photographs displaying the steep relief within the catchment are displayed in figures Figure 14.1 and Figure 14.2 below.

Source: Photographs taken by Jack Walton on 13/08/19

Figure 14.1: Gatehopeknowe Burn with the steep slopes of Scawd Law displayed.

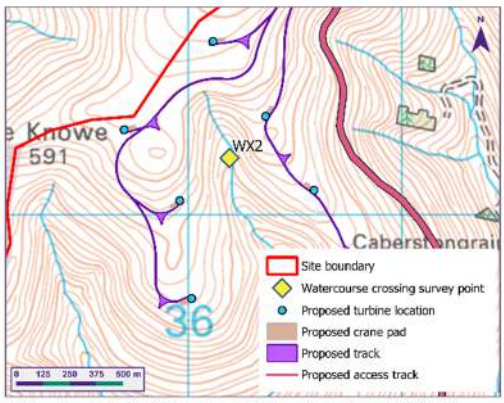
Figure 14.2: Western slopes of Seathope Rig within the Gatehopeknowe Burn catchment.

Walker Burn

The Walker Burn is approximately 5.6 km long. The headwaters of the Walker Burn are contained within the site. The East Grain and West Grain converge at NT 36007 39891 to form the Priesthope Burn and then later downstream the watercourse is named as the Walker Burn. The Walker Burn joins the River Tweed approximately 3.2 km upstream of the Gatehopeknowe Burn joining the River Tweed.

The watercourse conditions at the East Grain, the upper eastern headwater tributary of the Walker Burn is summarised in Table 14.5.

Table 14.5: Walker Burn watercourse assessment

		WX2 (NT 36194 41264)
 © Crown Copyright 2019. All rights reserved. Ordnance Survey Licence 0100031673.		Description: East Grain, upstream tributary of Priesthope Burn. Tributary contained within steep valley. Note; this sampling point does not indicate the location of where proposed infrastructure intersects the watercourse.
Water depth: dry Bankfull width: 0.5 m Bankfull height: 0.3-0.6 m Flooded bankfull width: 6.0 m Flooded bankfull height: 1.0 m	Existing Crossing: No Valley Form: Shallow vee Channel type: Incised Channel Gradient: Moderate	Bed material: Rounded pebbles, course gravel, fine sand/silt Bank condition: Stable Flow condition: Dry

WX2 (NT 36194 41264)		
		Riparian corridor: Moorland
Crossing Photographs		
Upstream	Downstream	Across

Source: Natural Power

Again, the steeper topography of the Walker Burn catchment is evident in the photographs presented in Table 14.5.

14.5.3. Flood risk

A qualitative flood risk assessment has been undertaken in line with the requirements of Scottish Planning Policy where the risks of flooding have considered all sources. The assessment has considered the risk to the proposed development as well as the increase in flooding downstream caused by the proposed development.

Fluvial & Pluvial Flooding

A review of the SEPA flood risk map indicates that a small isolated patch of the Walker Burn and small scattered sections of the Gatehopeknowe Burn are at high likelihood (1 in 10 year) of pluvial (surface water) flooding.

The stretch of the Walker Burn positioned downstream of Priesthope is indicated at high likelihood of fluvial (watercourse) flooding. Small patches of the Gatehopeknowe Burn are indicated at high likelihood of fluvial (watercourse) flooding. However, these areas remain constrained to the channel. No other areas of the site are indicated as at risk from flooding.

Downstream of the proposed development, the River Tweed, which is separated from the site by the A72 is highlighted as high likelihood of fluvial flooding with scattered pockets of high likelihood pluvial flooding which are largely constrained to the channel area.

Question 19: A watercourse crossing assessment will be undertaken for completion of the EIAR to survey the locations where the proposed track intersects watercourse features.

Do the consultees agree with this approach?

Consideration should be given to the cumulative impacts of potentially increased run-off rates from the proposed infrastructure which could result in a decreased lag time and therefore have a potential to contribute to fluvial flooding.

Tidal Flood Sources

The proposed development is located >65 km to the nearest coast. The lower reaches of the River Tweed are tidal but given the distance to the coast along with the topographical position of the proposed development it will not be affected by tidal flooding.

Groundwater Flood Sources

Flooding can also result from high groundwater levels if the water table rises above the surface level. Groundwater flooding can occur in a variety of geological settings including river valleys with thick deposits of alluvium and river gravels. Groundwater flooding happens in response to a combination of already high groundwater levels (usually during mid or late winter) and intense or unusually lengthy storm events. Such flooding also often lasts much longer than flooding caused by a river overflowing its banks.

Groundwater flooding is difficult to predict as it rarely follows a consistent pattern. The response time between rainfall and groundwater flooding is also relatively long.

No areas of the site are indicated at risk of groundwater flooding on the SEPA flood risk map.

Flooding from Artificial Drainage

Although not recorded during the baseline field survey, consideration should be given to the presence of artificial drainage within the site given the historic nature of the land use within the area. If present, there is the potential that this could cause some localised flooding by increasing runoff rates to the main watercourses within the catchments. However, given that none were noted during the site visit, the influence of these ditches is assumed to be minimal.

Question 20. Based on the information provided above, no further detailed assessments are required to confirm if the proposed development is at risk of flooding. Measures will be included within the EIAR that outline how to manage runoff and prevent surface water flooding as a result of the proposed development so the impacts of increasing flood risk downstream will also be appropriately addressed.

Do the consultees agree with this approach?

14.5.4. Soils and peat

The distribution of soils across the proposed development is dependent upon land use, geology, topography and hydrological regime of the area. The types of soil present on site as indicated on the National Soil Map of Scotland are presented in Table 14.6.

Table 14.6: summary of site soil types

Major soil group	Major soil subgroup	Component soils
Podzols	Peaty gleyed podzols	Peaty gleyed podzols with brown earths
Brown soils	Brown earths	Brown earths
Podzols	Humus-iron podzols	Humus-iron podzols
Blanket peats	Dystrophic blanket peat	Dystrophic blanket peat

Source: Natural Power

Brown soils dominate the site with the remaining areas covered by freely draining podzols and areas of blanket peat. The brown soils are located in the central section of the site and are characteristic of hills, valleys sides and strong slopes. Brown soils are well drained, moderately acid soils with brown mineral topsoils and brown or yellowish subsoils. The ridges to the east and west comprise of humus-iron podzols. The area of dystrophic blanket peat is located to the north of the site on Bareback Knowe and Windlestraw Law. The area to the west of Maiden Law and to the west of Bareback Knowe is highlighted as peaty gleyed podzols.

The minimum depth for the classification of deep peaty soil in Scotland is a depth of at least 0.5 metres and containing more than 60 % of organic matter[30]. In August 2019 an initial site investigation was undertaken whereby peat depths were recorded on a 100 m grid spacing, within a 300 m buffer of the proposed turbines. The buffer was created due to the steep topography of the site and the difficulty of the surveyors to safely traverse the area. The proposed track was surveyed at 100 m intervals with an offset survey point also taken 50 m either side of the centre line. Again, this option was selected due to the exclusion of proposed infrastructure within the southern boundary and the difficulty in surveying the area due to the steepness of the site.

Table 14.7 provides a summary of the 694 peat depths collected across the survey area, with an interpolation of the peat depths illustrated in the interpolated peat depth figure (Figure 14.2, Appendix A). Note that one peat depth measurement was omitted (point 716 at National Grid Reference (NGR) NT 38574 37709) as it was within a private garden of a cottage. Most depths recorded were within the range of 0 to 0.5. meters (94.5 % of total surveyed points). The maximum peat depth of 1.85 m was recorded at sampling location 114 at NT 36001 41773 located at the north western extent of the site at an elevation of ~640 m. This coincides with the area of deeper peat identified on the eastern slopes of Glede Knowe which is noted to be in proximity to the site boundary. The surveyed area predominately sits within an area where the soil depths are noted to be less than 0.5 meters. This is consistent with the National Soil Map of Scotland which indicates that the site is underlain predominantly by brown soils rather than peat Areas of infrastructure appear to largely have avoided areas of deeper peat, it is noted that a small section of track on the eastern section of the site infringes on an area of deeper peat (point 656 at NT 37237 42625, depth 0.9 m and point 360 at NT 37287 42632, depth of 0.6 m). However, the depths immediately surrounding this point were all recorded as <0.4 m.

Table 14.7: Summary of recorded peat depths

Peat Depth Range (m)	Results	% of Points
<=0.5	655	94.5
>0.5-1	22	3.2
>1-1.5	14	2.0
>1.5-2	2	0.3

Source: Natural Power

Areas of deepest peat have been avoided in the siting of infrastructure for the proposed development. The area of deeper peat to the north of the site has been avoided. Proposed turbines are not located on peat.

Question 21. The proposed development is predominantly located on soils which are less than <0.5 m, therefore, it is proposed that carrying out additional fieldwork to collect detailed probing results is scoped out of the EIAR. This includes scoping out the requirement for a peat stability risk assessment and peat management plan.

Do the consultees agree with this approach?

[30] Scotland's Environment, Peatland restoration (2019) https://soils.environment.gov.scot/resources/peatland-restoration/, accessed 23/09/2019

14.5.5. Geology

According to the 1:50,000 scale British Geological Society (BGS) data set, the majority of the proposed development is underlain by a solid geology comprising Gala Unit 7 - Wacke. Described as a sedimentary bedrock that formed approximately 439 to 441 million years ago in the Silurian Period. These sedimentary rocks are marine in origin. They are detrital and comprise coarse- to fine-grained slurries of debris from the continental shelf flowing into a deep-sea environment, forming distinctively graded beds.

There are also small areas comprised of Unnamed Igneous Intrusions, Microgranite. Igneous Bedrock formed approximately 393 to 427 million years ago in the Devonian and Silurian Periods. The local environment was previously dominated by intrusions of silica-rich magma. These igneous rocks are magmatic (intrusive) in origin. Rich in silica, they form intruded batholiths, plutons, dykes and sills.

According to the 1:50,000 scale British Geological Society (BGS) data set, the majority of the proposed development has no mapped superficial deposits. Where present, these are in proximity to the river channels, comprising of sedimentary deposits of till and alluvium (sand, silt and gravel). Bareback Knowe has an area mapped as peat. The East and West Grain tributaries have areas mapped as hummocky glacial deposits comprised of sedimentary deposits of diamicton, sand and gravel.

Question 22. It is noted that no specific geological feature of interest has been identified within the proposed development. Understanding the underlying bedrock and superficial geology is pivotal for the effectiveness of the construction design of the proposed development, however, specific mitigation to protect the geodiversity during construction, operation and decommissioning are not required. Therefore, it is suggested that geology can be scoped out.

Do the consultees agree with this approach?

14.5.6. Hydrogeology

The presence of water within both the bedrock and the superficial deposits below the proposed development is closely controlled by the hydrogeological characteristics of the hosting lithology. The site is classified as a low productivity aquifer with flow virtually all through fractures and other discontinuities. The BGS[31] summarise the aquifer as highly indurated greywackes with limited groundwater in near surface weathered zone and secondary fractures.

The SEPA groundwater classification for the Tweed basin district, of which the site is part of is 'Good'. The site is also part of the Peebles, Galashiels and Hawick Scottish Government's Drinking Water Protected Area for groundwater.

In general, the bedrock and superficial aquifers at the proposed development are likely to be of very low resource potential with the discontinuous nature of the permeable superficial deposits and dominance of fracture flow within the bedrock extremely limiting yield volumes. Closer to burns and valley basins, superficial

Question 23. The EIAR will be prepared with cognisance of the habitat and NVC assessments completed as part of the Ecology assessment to confirm the presence or absence of groundwater dependant terrestrial ecosystems (GWDTE).

Do the consultees agree with this approach?

[31] British Geological Survey, Aquifer Classification, https://map.environment.gov.scot/sewebmap/, accessed 12/02/2020

deposits may contribute to the base flow of rivers. Overland flow and near surface soil storage will also contribute to the base flow of rivers.

14.5.7. Fisheries and recreation

The River Tweed is a catchment of importance for recreational uses, including salmon fishing. It straddles the national and administrative border between English Northumberland and the Scottish Borders. The fishing is reported to make a significant contribution to the local economy. For further information on fisheries refer to Section 12: Ecology.

Question 24. Based on the information provided in Section 12, Ecology, the impacts of the proposed development on fisheries are intrinsically linked with the consideration of impacts on site hydrology, specifically water quality and quantity. This can be managed as part of the embedded mitigation for Hydrology. Specific fisheries mitigation will be included within the Ecology section of the EIAR.

Do the consultees agree with this approach?

14.5.8. Water resources

Scottish Borders Council have been consulted and have provided an information on private water abstractions, both domestic and commercial use within 3 km of the site. See Appendix C for the summary table and accompanying figure to display the 46 PWS sources indicated within 3 km of the site.

It is likely that the hydrogeological catchments are constrained by the same topographic controls as the surface water catchments. Therefore, any properties not located within the catchments occupied by the proposed wind farm infrastructure will not be considered further.

It can be seen from the table presented in Appendix C.1 that there are nine sources that could potentially be impacted by the proposed development. Reasons for inclusion include potential hydrological connectivity, positioning downgradient of proposed development infrastructure and/or uncertainty in the source catchment. This information would be validated upon consultation with property residents at the EIAR stage.

It is proposed that those properties which have no hydrologically connectivity are scoped out at this stage. Seven sources would be carried forward to EIAR stage.

Furthermore, a request will be made to Scottish Water for information on any abstractions and/or discharges within 3 km of the site boundary. The impacts of the proposed development will therefore be considered as part of the EIAR.

Question 25. Further investigation into private water supply sources identified as potentially hydrologically connected will be required due to potential impacts on supply quality, quantity and continuity and will be included in the EIAR.

Do the consultees agree with this approach?

14.6. Summary of likely impacts on baseline receptors

The potential impacts of construction and operation of the proposed development on the identified baseline receptors have been outlined in Table 14.8 below.

Table 14.8: Summary of Impacts on Baseline Receptors

Baseline	Potential Impact during construction and operation	Suggested Mitigation (in addition to Embedded Mitigation)	Significance of Impact taking into account Embedded and additional Mitigation	Scoped In or Out	Reason
Designated Areas	Degradation of quality of site watercourses through increased mobilisation of silt, as well as presence of pollutants such as fuels and oils	Specific mitigation to be outlined in CEMP	Likely to be low This will be confirmed as part of the works undertaken as part of the EIA	Scoped in	River Tweed of which streams on site drain into is classified as a SAC and SSSI. Areas of site within a drinking water protected area
Site Hydrology	Disruption of flow regime or degradation of water quality or quantity	Area specific mitigation outlined in CEMP and monitored throughout all stages of development Implementation of site specific hydrological monitoring plan	Likely to be low to not significant This will be confirmed as part of the works undertaken as part of the EIA	Scoped in	The site hydrology will need assessed and mapped to ensure sensitivity and appropriate mitigation and monitoring can be put in place to demonstrate low to negligible impact.
Flood Risk	Increase in impermeable area within the site catchments causing increased runoff rates and reducing filtration	Specific mitigation not required. Flood risk will be managed through embedded mitigation	Negligible	Scoped out	The embedded mitigation will manage drainage and runoff associated with the proposed development

Baseline	Potential Impact during construction and operation	Suggested Mitigation (in addition to Embedded Mitigation)	Significance of Impact taking into account Embedded and additional Mitigation	Scoped In or Out	Reason
Soils and peat	Loss of peat through inappropriate site design	Site design has avoided areas of identified peat	Negligible	Scoped out	Peat is not a material consideration on site and where peat is indicated, infrastructure has avoided placement on these areas
Geology	Loss of geology through disturbance and excavation	Specific mitigation not required as geological features are not considered to be a valued receptor. No geological features of interest are noted within the proposed development.	Negligible	Scoped out	Construction will have no significant impact on solid geology due to the uniformity underlying the site. No specific geological features have been identified
Hydrogeology	Temporary or permanent disruption of subsurface flows as a result of construction Contamination of groundwater via the release of pollutants from construction activities	Groundwater Dependent Terrestrial Ecosystem Assessment to establish if site habitats are dependent on groundwater. Private Water Supplies might be dependent on site hydrogeology and will require additional assessment	Likely to be low This will be confirmed as part of the works undertaken as part of the EIA	Scoped in	Section 12: Ecology indicates that there are habitats on site that have the potential to be groundwater dependent. Assessment will be required to confirm presence of GWDTE on site
Fisheries and Recreation	Decrease in water quality affecting fisheries interests or amenities	Not Required. Mitigation outlined as part of the site specific CEMP will	Negligible	Scoped out	This will be covered in the Ecology Section and water quality will be assessed and

Baseline	Potential Impact during construction and operation	Suggested Mitigation (in addition to Embedded Mitigation)	Significance of Impact taking into account Embedded and additional Mitigation	Scoped In or Out	Reason
		support the protection of fisheries and recreational interests			protected will in turn will protect fisheries and recreation interests
Water Resources	Degradation in water quality or quantity serving PWS, public water assets as well as other licensed abstraction and discharges Degradation in water quality to public water supply assets	Dependent upon completion of further investigations, there is the potential for the completion of a Private Water Supply Risk Assessment and Monitoring Plan. Drainage mitigation to be outlined in CEMP will support the protection of water resource receptors	Likely to be low to not significant This will be confirmed as part of the works undertaken as part of the EIA	Scoped in	A response for PWS properties, abstractions and discharges is still to be received therefore water resources cannot be scoped out.
Water Quality	Potential Impact during construction and operation	Suggested Mitigation (in addition to Embedded Mitigation)	Significance of Impact taking into account Embedded and additional Mitigation		

Source: Natural Power

Question 26: Do consultees agree with the rationale included within this section for scoping out the indicated receptors?

15. Population and human health

A requirement of the new EIA Regulations is to consider potential effects upon population and human health. These have typically been assessed in the past but under different headings and are now brought together under the same umbrella. Issues considered under this topic include:

- Noise;
- Shadow Flicker;
- Ice Throw;
- Lightning;
- Private Water Supplies;
- Socio-economics.

15.1. Noise

Noise and vibration will occur during the construction, operation and de-commissioning of the proposed wind farm. The extent to which this is significant depends on the noise sources, in each case, and the distance of each of the noise sources to potential receptors.

During the construction and de-commissioning phases, the effects can be divided into noise and vibration from on-site activities and from construction traffic accessing the site. During operation, noise is generated by the turbines as they rotate with noise output depending on wind speed.

For on-site construction noise, and operational noise at different wind speeds, the levels received at residential properties will depend on wind direction. Vibration from on-site construction activities and during operation will not be perceptible at residential properties. 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 not be significant.

The site location is rural and remote and residential properties around the site are likely to be free of any noise of human origin except for occasional traffic and the operation of farm machinery. Such other noise as there is, is likely to be from animals and birds and from wind around trees and foliage, depending on wind speed.

15.1.1. Legislation and guidance

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[32], Assessment of Noise, lists BS 5228, Noise and Vibration Control on Construction and Open Sites as being applicable for Environmental Impact Assessment (EIA) and planning purposes. In respect of operational noise from wind farms, PAN 1/2011 refers to 'web based planning advice' on renewables technologies[33] 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 Good Practice Guide to the Application of ETSU-R-97 for the

32 http://www.gov.scot/Publications/2011/03/02104659/12 (last updated 2 March 2011)

33 http://www.gov.scot/Resource/0045/00451413.pdf (last updated 28 May 2014)

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.

The ETSU-R-97 methodology sets noise limits for the day and night-time periods by carrying out measurements of baseline/background noise and wind speed and deriving 'prevailing'[34] background noise levels from the results, with limits set at 5 dB above this subject to lower limiting values which are different for day and night periods or where properties are deemed to be 'financially involved' with the development.

15.1.2. Assessment methodology

Construction Noise

Due to the significant separation distance between the development and nearby noise receptors (approximately 2.5km from the closest proposed turbine to the closest non-financially involved receptor), it is proposed to **scope out construction noise** from the assessment. Construction noise will be limited in duration and confined to working hours as specified by the Council which can be adequately controlled through planning condition.

Operational Noise

To assist with the scoping assessment, a noise assessment of all properties within 3km of turbines was undertaken. Potential receptors in this case are considered to be residential properties Table 15.1 below highlights the results calculated using WindFarmer 5.3.38.0 and the complex (ISO9613) general noise model.

Table 15.1: Receptor locations considered and resulting noise levels

Receptor	Easting	Northing	Scenario 1 Noise db(A)
1	333653	638846	26.9
2	333466	639522	27.7
3	334897	638244	27.8
4	333258	641545	28.8
5	334398	644056	28.6
6	333061	641488	28.1
7	333311	641552	29.0
8	333900	643089	29.4
9	337737	640862	39.2
10	335460	643307	34.2
11	340064	641058	28.3

Source: Natural Power

[34] The results of a polynomial regression line through a plot of individual 10 minute measurements of noise against wind speed.

As receptor 9 is financially involved with the proposed development, whilst further review of receptor 10 indicates that there is no suitable dwelling at this location. It is therefore proposed to **scope out operational noise** from the assessment.

Question 27: Do consultees agree with scoping out construction and operational noise from the EIAR.

15.2. Shadow flicker

Standard guidance[35] states that shadow flicker occurs within ten rotor diameters of the turbine, and that effects only occur within 130 degrees either side of north relative to the turbines. Beyond these limits it is considered that potential impacts associated with shadow flicker will not be significant.

As there are currently no residential properties identified within 10 rotor diameters of the nearest turbines we propose to **scope out** the need for a shadow flicker assessment from the EIAR.

15.3. Ice throw

Ice throw is the process of ice falling or being launched from the blades of a turbine. The turbines will have sensors on them to detect the build-up of ice and automatically prevent the turbines spinning when ice has developed on them, thus preventing the ice being thrown. Scottish Government's Onshore Wind Farm Advice Sheet states that danger to human or animal life from falling parts or ice is rare and has not been a significant issue. It is therefore proposed to **scope out Ice throw** from the assessment.

15.4. Lightning

As stated in Scottish Government's Onshore Wind Farm Advice Sheet, the danger to human or animal life from lightning strike via a turbine is rare since lightning is directed down the turbine to the earth and all modern turbines have lightning conductors. Maintenance of the turbines would not be undertaken during high lightning risk weather conditions. It is therefore proposed to **scope out Lightning** from the assessment.

15.5. Private water supplies

Question 28: Do consultees agree with scoping out shadow flicker, ice throw and lightning from the EIAR?

Section 14.5.8 of this scoping report discusses private water supplies and the Hydrology chapter of the EIAR will present the relevant hydrological assessment. Private Water supplies will also be the subject of a brief section in the Population and Human Health chapter of the EIAR.

15.6. Socio-economic context

15.6.1. Introduction

The demonstration of socio-economic and community impacts has become a more prominent issue for the onshore wind sector in recent years. We therefore consider it an essential that this EIAR includes a section on

[35] http://www.scotland.gov.uk/Resource/0040/00405870.pdf

socio-economic context associated with the proposed Scawd Law Wind Farm development. This will socio economic context of the proposed development.

Following the completion of the BiGGAR Economics study on the relationship between onshore wind and the tourism sector. The findings from this study indicated that there is no relationship between the development of onshore wind and tourism employment at local authority level nor in areas immediately surrounding the wind farm development. It is intended to **scope out tourism** from the assessment.

The potential impacts arising from the proposed development are assessed relative to the baseline conditions and benchmarked against regional and national standards where appropriate. The key indicators and measures of the following areas will be established:

- An overview of the Scottish Borders economy;
- The Scottish Borders labour market;
- Population and deprivation;
- Community facilities and infrastructure; and
- Land use

15.6.2. Scope of the Assessment

The proposed development is expected to generate a range of socioeconomic effects, some of which would be temporary, whilst other would be permanent. Within the EIAR, due consideration will be given to the proposed development in terms of the following:

- Temporary employment and associated indirect effects during the construction phase;
- Potential impacts on the nearby receptors during both the construction and operational phases including consideration of environmental impacts from the visual, noise, traffic and air quality assessment on users;
- Creation of long-term employment opportunities once the proposed development is operational including consideration of any existing employment use on-site;
- The change of land use within the site and any direct effects that could occur due to this.

The socioeconomic assessment will review the relevant policy at the local, regional and national levels to identify the key issues of relevance to the proposed development. This will include the Scottish Borders Local Development Plan, any relevant strategies, such as the Scottish Borders Economic Strategy.

A baseline assessment will be undertaken as part of the socio-economic chapter and will use a range of sources to provide a description of the socioeconomic conditions within the local area, including employment and the economy. This will be done using established, publicly available statistical sources. such as Census data and National Records for Scotland:

An assessment of effects will be undertaken to assess the impact of the proposed development on the baseline socioeconomic conditions. The methodology for assessing socioeconomic impact will entail:

- Consideration of local policy, plans and development constraints;
- Review of baseline conditions in the vicinity of the proposed development
- Assessment of the likely scale, permanence and significance of effects associated with socioeconomic receptors.

The assessment of potential socioeconomic effects uses policy thresholds and expert judgment to assess the scale and nature of the effects of the proposed development against baseline conditions. For socioeconomics there is no accepted definition of what constitutes a significant (or not significant) socio-economic effect. It is

however recognised that 'significance' reflects the relationship between the scale of effect and the sensitivity (or value) of the affected resource or receptor

As such the socioeconomic effects will be assessed on the basis of:

- Consideration of sensitivity to effects: specific values in terms of sensitivity are not attributed to socio-economic resources/receptors due to their diverse nature and scale, however the assessment takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate);
- Scale of effect: this entails consideration of the size of the effect on people or business in the context of the area in which effects will be experienced; and
- Scope for adjustment or mitigation: the socioeconomic study is concerned in part with economies. These adjust themselves continually to changes in supply and demand, and the scope for the changes brought about by the project to be accommodated by market adjustment will therefore be a criterion in assessing significance.

The assessment aims to be objective and quantifies effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Duration of effect is considered, with more weight given to permanent changes than to temporary ones. Temporary effects are considered to be those associated with the construction works. Permanent effects are generally those associated with the completed development. For the purposes of this assessment, short term effects are considered to be of one year or less, medium term effects of one to four years and long-term effects for five or more years.

Question 29: Do consultees agree with scoping out the assessment of tourism from the EIAR?

16. Cultural Heritage

1.1. Introduction

This section sets out the proposed scope and methodology for a combined cultural heritage approach including above ground (archaeology) for the proposed development. To assist with the scoping assessment, a study area of the inner boundary of the site development site and an outer study area 10km around the development site have been assessed in order to gain an understanding of the nature of the existing archaeological landscape.

There are no World Heritage sites or registered battlefields located within the inner or outer study areas. Within the inner study area there are the following designations:

- 5 listed buildings ranging from category B to C.

Table 16.1: Listed buildings within Inner study area

Listed Building	Category
Holylee Farm, Old Holylee	B
Holylee Farm, Holylee Cottages	B
Holylee, Walled Garden	C
Holylee Including Terrace Wall	B
Holylee, Lodge	C

Source: Natural Power

The falling designations have been identified within the 10km study area:

- 254 listed buildings ranging from category A to C;
- 48 scheduled monuments; and
- 4 Garden and Designated Landscapes.

Cultural heritage resources include assets with both statutory and non-statutory designations and other non-designated assets as described in Scottish Planning Policy (SPP) and Historic Environment Scotland Policy Statement (HESPS). Those relevant in the context of the proposed development (excluding World Heritage Sites and marine assets) are:

- Scheduled Monuments and other archaeological features;
- Listed Buildings and other buildings of historic or architectural importance;
- Conservation Areas and other important historic townscapes;
- Gardens and Designed Landscapes and other important historic landscapes; and,
- Historic Battlefields.

The assessment will be undertaken by a professionally recognised and appropriately experienced archaeological organisation in accordance with the Chartered Institute for Archaeologists' code of conduct and relevant standards and guidance.

1.2. Methodology

As part of the EIA, a Cultural Heritage Assessment will be undertaken. A preliminary assessment of the proposed development suggests that there will be limited direct impacts on small number of cultural heritage assets within the development site area, as such, it is proposed **to scope out direct impacts on cultural heritage assets**. The location of the proposed turbines also suggests that the impact on the settings of heritage assets in the wider landscape will also be limited.

The objectives of the indirect impact assessment will be to:

- Assess the proposed study area and environs in terms of its archaeological potential;
- Identify archaeological sites and monuments present within the study area and environs through desk-based assessment and site visits where appropriate;
- Consider the potential effect of the construction and operation of the proposed wind farm on the cultural heritage resource; and
- Propose measures, where appropriate, to mitigate any adverse effects.
- Desktop baseline surveys of all relevant documentation, maps, historical references with particular reference to industrial heritage, national monument records etc.;
- Review of planning guidance and best practice documentation including PAN42;
- Summary of the historical use of the site, if appropriate;
- Assessment of national, regional or local importance and therefore sensitivity of each site;
- Walk-over reconnaissance field survey to record the locations of known heritage assets and identify any other, hitherto unrecorded assets;
- Identification of on-site constraints and provision of recommendations for design mitigation;
- Assessment of magnitude and significance of effects of the development on any identified site;
- The assessment will include a description of mitigation measures, if required; and
- Recommendations for post consent works including further field survey of all elements of the wind farm, if required.

Cumulative impacts will be assessed in the EIAR. Potential viewpoint locations will be taken from key heritage assets in the area and will be agreed with Historic Scotland and relevant Council Archaeology Services.

16.1.1. Study area

A Wider Study Area: extending 10km from the outermost finalised proposed turbine locations will be used for the assessment. Within this area, heritage assets with statutory and non-statutory designations will be assessed for potential effects on their settings (including cumulative effects).

Question 30: What cultural heritage assets do you think need to be taken into consideration in relation to the proposed Scawd Law Wind Farm?

Question 31: Do you consider that the cultural heritage survey and methodology proposed are suitable?

17. Traffic and transport

17.1. Introduction

The objective of the Traffic and Transport Assessment is to assess the impact of the proposed development on the public road network, including impact on existing traffic levels through a Traffic Impact Assessment (TIA) and management of construction phase and operational phase traffic through a preliminary Traffic Management Plan (TMP).

The primary impacts of the proposed development will be due to the temporary increased heavy goods vehicles (HGVs) and light goods vehicles (LGVs) associated with the construction of the wind farm and the Abnormal Indivisible Loads (AILs) associated with the transport of the wind turbine generator components during the construction phase.

The main potential effects are considered to be during the construction and consist of:

- Temporary increase in traffic (HGVs and LGVs) on the construction access routes;
- Delay related to the movement of abnormal loads on the AIL route;
- Effects on sensitive receptors, principally residents and communities on the A72 road;
- Road widening/improvements to accommodate AILs.

The objective of the Traffic and Transport Assessment is to assess the impact of the proposed wind farm development on the public road network, including physical constraints through an access route assessment; management of construction phase traffic through a preliminary Traffic Management Plan (TMP); and impact on existing traffic levels through a Traffic Impact Assessment (TIA).

17.2. Study Area

The proposed wind farm would likely be accessed from the A72 to the east of the village of Walkerburn. The A72 is a local authority-maintained road that runs east-west from the Nest Roundabout with the A707 in the east and Peebles in the west.

Given the road network arrangement and location of the site it is considered there are several route options from likely material supply centres that would eventually convey onto the A72 at either Peebles or the Nest

Roundabout depending on their origin. From these points the traffic would remain on the A72 to the site. Beyond these points the traffic would be dispersed via multiple routes and resultant increases in traffic volumes minimised.

Therefore, it is proposed the study area for construction traffic (not including AILs) considers the A72 from Peebles to the Nest Roundabout. The EIAR would consider the impact of AILs along the entirety of the proposed route, detailed within the Abnormal Load Access Route Assessment, and as discussed below.

17.3. Proposed Assessment Methodology

An assessment of the traffic impact will be undertaken for the scheme using specific project information; the methodology of which would comply with all relevant guidance, including the Guidelines for the Environmental Assessment of Road Traffic (IEMA) and Transport Assessment Guidance (Transport Scotland). The IEMA guidelines suggests that two rules can be used as a screening process to delimit the scale and extent of the assessment:

- *Rule 1 – Include highway links where traffic flows would increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) would increase by more than 30%);*
- *Rule 2 – Include any other specifically sensitive areas where traffic flows would increase by 10% or more. (IEA Guidelines Paragraph 3.20 defines sensitive area as including "accident blackspots, conservation areas, hospitals, links with pedestrian flows etc.").*

Where the predicted increase in traffic flow is lower than these thresholds, the significance of the effects will be stated to be low or insignificant, and further detailed assessments will not be warranted. Where the predicted increase in traffic flow results in a high significance then further mitigation will be required in order to minimise the potential impact.

The volume of traffic generated during the operational phase of the wind farm is considered to be negligible as this would be limited to operational staff in 4x4 vehicles inspecting the site and undertaking ad-hoc maintenance and servicing. It is assumed that traffic movement associated with inspection and maintenance will be occasional and limited in number to a level which would not exceed 10% of average daily flows along any part of the network. As such it is proposed to **scope out operational and maintenance impacts** from this assessment.

Decommissioning will include for removal of the wind turbines and associated infrastructure. Typically, buried infrastructure such as cabling and turbine foundations (less the top 1m) would remain in-situ following decommissioning. Similarly, access tracks may be left in-situ in whole or in part depending on planning conditions and any landowner arrangements. Hence, the vehicle movements associated with the decommissioning phase is considered to be significantly less than that during the construction phase.

Furthermore, decommissioning of the wind farm is unlikely to take place before the end of its life and as such a minimum period of 35 years is assumed before decommissioning takes place. Due to the changes in the baseline situation which may have occurred by the time that the wind farm is decommissioned it is considered impractical to assess the likely environmental effects.

Given the uncertainty in the baseline conditions in around 35 years and the expected reduction in traffic volumes associated with decommissioning it is therefore proposed to **scope out decommissioning impacts** from this assessment. However decommissioning impacts will be considered within the decommissioning plan which will be submitted 6 months prior to decommissioning should the project be consented.

Baseline traffic data will be used to measure the impact on existing traffic levels, considering the increase in HGV's and LGV's during construction of the wind farm which will be derived from detailed project information and professional judgement.

Peak traffic flows will be identified to assess the worst-case scenario. Traffic generation will take into account the import of construction materials and the movement of equipment, construction plant and labour required during each phase of the construction process.

Consultations will be undertaken with the relevant highway's authorities and emergency services (the Local Authority, Transport Scotland, Police, etc) to identify constraints.

Route inspections, including detailed observations at communities potentially affected by the proposed development within the study area, will be undertaken to inform the assessment.

The assessment would consider:

- delay effects on other road users (by consideration of percentage changes in traffic composition and volume);
- Road Infrastructure (dilapidation);
- safety effects on other road users and adjacent properties;
- safety effects on pedestrians and cyclists (e.g. on routes passing through towns).

Mitigation will be identified for any potentially significant construction impacts. Mitigation will be primarily in the form of a draft Traffic Management Plan (TMP) which will set out the agreed routing, timing, signing, access locations and access routes.

In addition to the aforementioned guidance the chapter will take into account the following statutory guidance documents published by the Scottish Government:

- SPP;
- PAN 75 – Planning for Transport;
- Scottish Government Planning Specific Advice Sheet for Onshore Wind Turbines (May 2018).

17.4. Access Route Assessment

An access route assessment, from the most likely port of entry (or nearest major link road) to the proposed wind farm site entrance, will be undertaken to identify the preferred route for AILs and determine any upgrade requirements associated with the proposed turbines.

The access route assessment will be supplemented with Swept Path Analysis (SPA), based on typical component dimensions associated with the proposed turbine size, to ensure that any potential constraints and required upgrade areas have been suitably assessed.

17.5. Preliminary Traffic Management Plan

As part of the traffic and transport assessment, and in line with any pre-application responses from consultees, a TMP will be prepared to include the construction of the wind farm. This would outline the detail of the works and the associated traffic. It will include aspects such as the mitigation for impacts associated with the works, and traffic management measures to control the traffic on the public road and the access track to ensure there are no impediments on the public highway or safety issues.

17.6. Traffic and Transport Chapter

A Traffic and Transport chapter will be produced as part of the EIAR and include the following information:

- Traffic Impact Assessment (TIA);
- Access Route Report including Swept Path Analysis (appended);
- Preliminary Traffic Management Plan (appended).

Question 32: Do the consultees agree with the proposed scope of the Traffic and Transport section?

18. Aviation and existing infrastructure

This section of the EIAR will assess the potential impact on any existing infrastructure in the vicinity of the proposed development. The approach to the assessment will be to consult with statutory stakeholders and other relevant organisations to ascertain if the proposed development will have an impact on their operational assets. The EIA will consider:

- Civil aviation;
- Military aviation;
- Water, gas and power;
- Existing paths including Public Rights of Way (PRoW);
- Microwave fixed links;
- Telecoms.

18.1. Aviation

18.1.1. Overview

The EIA assessment of the proposed development will address potential effects on air traffic control radars, military low flying and the provision of obstruction lighting.

18.1.2. Baseline Conditions

The development site is located in uncontrolled airspace from ground level to 5,500 feet above sea level. Above that level is the Class D controlled airspace of the Scottish Terminal Control Area (TMA), within which air traffic services are provided by the NATS En Route (NERL) Prestwick Centre. Radars used to provide these services include those at Great Dun Fell (Cumbria) and Lowther Hill (South Lanarkshire).

Turbines on the Scawd Law site are potentially within line of sight of the Deadwater Fell radar at RAF Spadeadam. However the site is not within RAF Spadeadam's Area of Operational Responsibility.

The site is located within Low Flying Area (LFA) 16, where military aircraft are permitted to fly as low as 250 feet above ground level. However the development site is wholly located within a part of LFA 16 which has been designated by the Ministry of Defence (MoD) as a "low priority military low flying area less likely to raise concerns".

There are no air defence or meteorological radars within range and line of sight of turbines up to 200m tip height on the site. There are also no airfields, airstrips, gliding or other aviation sites within 20km of the site.

The development site is approximately 37km from the Eskdalemuir seismic array and is therefore inside the 50km zone around that facility within which a cumulative noise budget from wind turbine developments applies.

18.1.3. Potentially Significant Effects

Wind turbines with a tip height of 180 metres above ground level have the potential to be within line of sight of the NERL primary surveillance radars at Great Dun Fell in Cumbria and Lowther Hill in South Lanarkshire. This could lead to false targets being displayed on the radars, which may have an adverse effect on the provision of air traffic services by controllers at the NERL Prestwick Centre. Initial review indicates that there is potential for turbines on the Scawd Law site to be within line of sight of both the Great Dun Fell and Lowther Hill radars.

Wind turbines with a tip height of 180 metres above ground level are likely to be within line of sight of the Deadwater Fell primary surveillance radar at RAF Spadeadam. This could lead to false targets being displayed on the radar, which may have an adverse effect on the provision of air traffic services by range controllers at Spadeadam.

Wind turbines on the Scawd Law site have the potential to pose an obstruction hazard to low flying military aircraft.

Wind turbines with blade tip heights of 150m or more will be subject to the obstruction lighting provisions of Article 222 of the Air Navigation Order.

18.1.4. Issues Scoped Out of the Assessment

Effects on air defence or meteorological radars; airfields, airstrips, gliding or other aviation sites; and aeronautical radio navigation aids have been scoped out since there are no such facilities within a range that could result in effects from wind turbines on the site.

18.1.5. Additional Baseline Information Collection

No further baseline information is required.

18.1.6. Effects Evaluation

Radar line of sight assessments will be carried out to establish the extent of visibility of wind turbines on the site to the Great Dun Fell, Lowther Hill and Deadwater Fell radars. In the event of radar line of sight being found to exist, an operational impact assessment will be conducted to determine the effects of radar visibility on the provision of air traffic radar services using the affected radar.

An assessment will be conducted of the cumulative impact on military low flying of the proposed turbines with existing and consented adjacent developments, taking account of topographical and avoidance area constraints on low flying military aircraft.

Turbines 150m or more in height are required by the Air Navigation Order to be fitted with lighting. An aeronautical study will be carried out as part of the EIA assessment to explore the potential for reducing the lighting in order to maintain air safety while minimising the night time visual impacts of the turbines. The proposed lighting scheme will be submitted to the CAA for approval prior to submission of any forthcoming application.

18.1.7. Mitigation

For any radars found to be adversely affected by the development, an assessment will be conducted of the potential means of mitigating those adverse effects.

18.1.8. Consultation

Consultations will be carried out with all relevant aviation stakeholders, including the MoD, NATS and civilian users of the night low level airspace in the area surrounding Scawd Law.

19. Climate Impact Assessment

A wind farm has the potential to make savings on greenhouse gas emissions compared to electricity generation which involves the burning of fossil fuels. The EIAR will consider the current electricity generation mix and assess the level of CO_2 savings that could potentially be saved depending on the source of electricity generation the wind farm is displacing at any given time. The assessment will be undertaken in accordance with Scottish Government recommended methodology.

Where peat or carbon-rich soils are present, Scottish Environment Protection Assessment (SEPA) requires planning applications for onshore wind farms to include a systematic assessment of the likely effects to these features. This requirement aligns with the - EIA Directive 2014/52/EU (as amended) which sets out that direct and indirect effects of development projects on climate (Article 3) and climatic factors (Annex IV) are considered.

Accordingly, the Climate Impact Assessment will be undertaken in accordance with Schedule IV of the EIA Regulations 3 which transpose the EIA Directive into Scottish law and states that;

(4) A description of the factors specified in Article 3(1) likely to be significantly affected by the project, including climate (for example greenhouse gas emissions, impacts relevant to adaptation).

(5) A description of the likely significant effects of the project on the environment resulting from, inter alia …

(f) The impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change.

The assessment will also consider relevant Scottish policy on climate change and adaption and will also consider the climate change targets of the Scottish Borders Council as set out in the Low Carbon Economic Strategy 2023 document.

The climate impact assessment (CIA) approach will consider the likely magnitude of greenhouse gas (GHG) emissions of the Proposed Development in comparison to the baseline scenario with no development (where no emissions are produced as no construction takes place).

19.1. Carbon balance

Current best practice will include undertaking a carbon balance assessment which assesses effects with reference to the magnitude of emissions released by the development and the period of time it takes to payback for those carbon emissions, the context of those emissions (e.g. national, regional and local emissions reduction targets) and professional judgement. This assessment will be based on the proposed information regarding the scale and nature of the Proposed Development. Where data is unavailable, worst-case reasonable assumptions will be used.

A carbon balance assessment will be produced to give an indication of the proposed development's impact on the existing peat on site and to assess the potential effects in terms of carbon dioxide (CO_2) emissions against the total potential carbon savings attributed to the proposed development. The assessment will quantify the gains over the life of the project against the release of CO_2 during construction, including loss of peat bog and construction of roads/tracks and other infrastructure. The latest version of the Carbon Calculator that is available before the application is submitted will be used. It is not expected for there to be any requirement for the Carbon Balance assessment to be amended post submission following any further update of the Carbon Calculator that may occur

20. Residual, Synergist Effects & Mitigation and conclusions

This section will summarise the residual effects regarding all of the proposed work in relation to the construction, operation and decommissioning of the proposed development. It will identify all mitigation, including the mitigation by design that will be undertaken to reduce any such effects, should the development be consented.

We will also give consideration here to any synergistic effects anticipated

21. EIAR accompanying documents

21.1. Non-technical summary (NTS)

The NTS details the main components of the proposed development and summarises the main findings of the environmental studies carried out to build and operate the proposed development. It is designed to be an easily readable document that will communicate the main elements of the EIA to any interested party without the need for the reader to have specialist background knowledge. It will also contain maps that show the extent and geographical location of the development.

21.2. Planning, design and access statement (PDAS)

Although not a statutory requirement for S36 applications, the PDAS will seek to highlight the design principles and concepts behind the proposed development. It will detail how the developer has applied these principles to the proposed development in tandem with input from consultation activities and will review how successful the proposed development has been in realising the design strategy.

The PDAS will also provide a commentary of the EIA findings and assess the proposed development accounting for residual effects (both positive and negative) against national policy and legislation, the Development Plan and other material planning considerations relevant to the proposed development.

21.3. Pre-application consultation (PAC) report

Although not a statutory requirement for applications submitted under Section 36 of the Electricity Act 1989, the applicant intends to submit a PAC Report to accompany the application.

It is proposed that the legislation and best practice guidance in relation to public consultation for Major Developments will be broadly followed as contained in PAN 3/2010 - Community Engagement - Planning with People.

The PAC report will include:

- outline the scope of the consultation programme including when and who has been consulted;
- confirm how the consultation programme meets the best practice standards;
- set out how the applicant has responded to the comments made, including whether and the extent to which the proposals have changed as a result of PAC;
- provide documentary evidence that the planned consultation programme has taken place e.g. copies of advertisements of the public events and reference to display materials and records of response from such events;
- demonstrate that steps were taken to explain the nature of PAC i.e. that it does not replace the application process whereby representations can be made to the planning authority; and
- make an assessment of the success of the Pre-application Consultation activities

Question 34: Do the consultees have any comments regarding the proposed documentation that will accompany the application?

22. Summary of all the questions for consultees

Question 1: Do the consultees agree with the have any comments about the proposed approach to scoping and the purpose of the scoping report?

Question 2: Do consultees agree with the approach to the Environmental Impact Assessment and the associated mitigation and monitoring? We intend to focus the EIAR on the significant effects and will therefore propose to scope out non-significant effects.

Question 3: Do consultees agree with the proposed approach set out for community consultation?

Question 4: Do consultees agree with the proposed chapters to be included in the EIAR?

Question 5: Do consultees agree that a Rochdale envelope would assist in assessing the application?

Question 6: Do the consultees agree with the LVIA and CLVIA methodologies proposed?

Question 7: Do consultees agree with the suggested viewpoint locations and visualisations detailed in Table 11.2?

Question 8: Do consultees agree with the approach suggested for aviation lighting?

Question 9: Do consultees agree with the proposed RVAA study area of 2 km and the general RVAA methodology outlined above?

Question 10: Do consultees agree with the approach to the sequential assessment?

Question 11: Could consultees provide a list of cumulative sites within 45 km of the proposed development?

Question 12: Do consultees have comments regarding the cumulative baseline?

Question 13: Do consultees have comment regarding a reasonable end date of three months prior to submission of the LVIA and CLVIA after which point any additional sites will not be assessed with the application?

Question 14: Do consultees agree with the EcIA only concentrating on those receptors which may be subject to significant effects from the proposed development (either directly or indirectly)?

Question 15: Table 12.7 above notes the receptors and potential impact proposed to be included within the EcIA. Do consultees agree that this sufficiently covers the potential impacts on features from the proposed development and what is proposed to be scoped out?

Question 16: Do consultees agree with the EcIA only concentrating on those receptors which may be subject to significant effects from the proposed development (either directly or indirectly)?

Question 17: Table 13.10 above notes the receptors and potential impact proposed to be included within the EcIA. Do consultees agree that this sufficiently covers the potential impacts on features from the proposed development and what is proposed to be scoped out?

Question 18: Based on the information provided above, further assessments are required to confirm if the proposed development will have an impact on the River Tweed SAC and SSSI given its hydrological connectivity with the proposed development.

Do the consultees agree with this approach?

Question 19: A watercourse crossing assessment will be undertaken for completion of the EIAR to survey the locations where the proposed track intersects watercourse features.

Do the consultees agree with this approach?

Question 20. Based on the information provided above, no further detailed assessments are required to confirm if the proposed development is at risk of flooding. Measures will be included within the EIAR that outline how to manage runoff and prevent surface water flooding as a result of the proposed development so the impacts of increasing flood risk downstream will also be appropriately addressed.

Do the consultees agree with this approach?

Question 21. The proposed development is predominantly located on soils which are less than <0.5 m, therefore, it is proposed that carrying out additional fieldwork to collect detailed probing results is scoped out of the EIAR. This includes scoping out the requirement for a peat stability risk assessment and peat management plan.

Do the consultees agree with this approach?

Question 22. It is noted that no specific geological feature of interest has been identified within the proposed development. Understanding the underlying bedrock and superficial geology is pivotal for the effectiveness of the construction design of the proposed development, however, specific mitigation to protect the geodiversity during construction, operation and decommissioning are not required. Therefore, it is suggested that geology can be scoped out.

Do the consultees agree with this approach?

Question 23. The EIAR will be prepared with cognisance of the habitat and NVC assessments completed as part of the Ecology assessment to confirm the presence or absence of groundwater dependant terrestrial ecosystems (GWDTE).

Do the consultees agree with this approach?

Question 24. Based on the information provided in Section 12, Ecology, the impacts of the proposed development on fisheries are intrinsically linked with the consideration of impacts on site hydrology, specifically water quality and quantity. This can be managed as part of the embedded mitigation for Hydrology. Specific fisheries mitigation will be included within the Ecology section of the EIAR.

Do the consultees agree with this approach?

Question 25. Further investigation into private water supply sources identified as potentially hydrologically connected will be required due to potential impacts on supply quality, quantity and continuity and will be included in the EIAR.

Do the consultees agree with this approach?

Question 26: Do consultees agree with the rationale included within this section for scoping out the indicated receptors?

Question 27: Do consultees agree with scoping out construction and operational noise from the EIAR.

Question 28: Do consultees agree with scoping out shadow flicker, ice throw and lightning from the EIAR?

Question 29: Do consultees agree with scoping out the assessment of tourism from the EIAR?

Question 30: What cultural heritage assets do you think need to be taken into consideration in relation to the proposed Scawd Law Wind Farm?

Question 31: Do you consider that the cultural heritage survey and methodology proposed are suitable?

Question 32: Do the consultees agree with the proposed scope of the Traffic and Transport section?

Question 33: Do consultees agree to the proposed scope in relation the potential impact on aviation interests and existing infrastructure and the proposal to scope out an assessment of the impact on TV and radio reception?

Question 34: Do the consultees have any comments regarding the proposed documentation that will accompany the application?

23. Responding to scoping report

This document has been prepared by Natural Power on behalf of FORL in anticipation of an application under Section 36 of the Electricity Act 1989 for Scawd Law Wind Farm in Scottish Borders Council.

The Scoping Report has identified the baseline resource at the site for different topics and presented where any effects to these may be experienced from the development (either indirectly or directly).

For each topic area questions have been provided. The questions focus on the methodologies, baseline data and likely impacts caused by the development. Information has been provided on the proposed development and the known environmental receptors. Presenting this level of information at this stage will ensure that the EIAR will only focus on those features or receptors that are likely to experience a significant effect.

The responses provided by consultees will ensure that they too are in agreement, with the baseline and likely impact assessment so that the EIAR is focussed. Where features or receptors are deemed to have a possible significant effect the methodologies to assess the impact have been provided for comment. Responses on these would help ensure that the detailed methodology, survey and assessment are carried out with consideration to all statutory consultees and key stakeholders. This approach is in line with good practice in the planning system and an emphasis being communicated at a national level to focus the content of the EIA and EIAR on key elements identified at the scoping stage.

Responses to this scoping report should be sent to planning@naturalpower.com

Appendices

A. Figures

Figure 3.1: Indicative Site Layout

Figure 3.2: Regional Context

Figure 11.1: Zone of Theoretical Visibility (ZTV) at hub height

Figure 11.2: Zone of Theoretical Visibility (ZTV) at tip height

Figure 11.3: Cumulative sites

Figure 12.1: Static detector locations

Figure 12.2: Bat Roost Survey Results

Figure 12.3: Protected mammal survey results

Figure 14.1: Private Water Supply Sources~~,~~

Figure 14.2: Interpolated Peat Depths~~,~~

B. Landscape and Visual

Table B1: Landscape character type

LCT No.	Landscape Character Type (LCT)	Distance	Theoretical Visibility	Included in LVIA
90	Dissected Plateau Moorland	Within	Yes – proposed Development would be located within this LCT.	Yes
116	Upland Valley with Woodland	Within	Yes – associated infrastructure of the proposed Development would be located within this LCT.	Yes
103	Undulating Upland Fringe	880 m	Yes -	Yes
93	Southern Uplands with Scattered Forest - Borders	1.2 km	Yes -	Yes
114	Pastoral Upland Valley	4.2 km	Yes -	Yes
91	Plateau Grassland - Borders	6.1 km	Yes -	Yes
113	Upland Valley with Pastoral Floor	7.2 km	Yes -	Yes
118	Settled Upland Fringe Valley	7.3 km	Yes -	Yes
266	Plateau Moorland - Lothians	7.4 km	Yes -	Yes
95	Southern Uplands - Borders	9.8 km	Yes -	Yes
269	Upland Fringes - Lothians	10.7 km	Yes -	Yes
92	Plateau Outliers	11.4 km	Yes -	Yes
102	Upland Fringe with Prominent Hills	11.5 km	Yes -	Yes
94	Rolling Moorland	12.4 km	Yes -	Yes
115	Upland Valley with Mixed Farmland	12.4 km	Yes -	Yes
104	Upland Fringe Rough Grassland	13.2 km	No -	No
267	Plateau Grassland – Lothians	13.5 km	Yes -	Yes
270	Lowland River Valleys – Lothians	14.8 km	Yes -	Yes
117	Pastoral Upland Fringe Valley	15.2 km	Yes -	

LCT No.	Landscape Character Type (LCT)	Distance	Theoretical Visibility	Included in LVIA
120	Lowland Valley with Farmland	15.5 km	Yes -	
119	Wooded Upland Fringe Valley	16.0 km	Yes -	
272	Lowland Hills and Ridges – Lothians	16.2 km	Yes -	
99	Rolling Farmland – Borders	16.2 km	Yes -	
109	Lowland Margin with Hills	17.0 km	Yes -	
275	Lowland Farmed Plain – Lothians	18.8 km	Yes -	
101	Rocky Upland Fringe	20.3 km	Yes -	
108	Lowland Margin	20.6 km	Yes -	
96	Southern Uplands with Forest – Borders	22.1 km	Yes -	
210	Undulating Farmland and Hills	23.6 km	Yes -	
268	Upland Hills – Lothians	23.8 km	Yes -	
279	Settled Coastal Farmland	26.4 km	Yes -	
201	Plateau Farmland – Glasgow & Clyde Valley	26.5 km	Yes -	
212	Moorland Hills – Glasgow & Clyde Valley	26.8 km	Yes -	
166	Upland Glens – Dumfries & Galloway	27.3 km	Yes -	
177	Southern Uplands – Dumfries & Galloway	27.8 km	Yes -	
208	Broad Valley Upland	28.3 km	Yes -	
105	Upland Fringe Moorland with Hills	28.7 km	Yes -	

LCT No.	Landscape Character Type (LCT)	Distance	Theoretical Visibility	Included in LVIA
274	Lowland Plain	29.7 km	No -	No
217	Southern Uplands – Glasgow & Clyde Valley	30.1 km	Yes -	No
106	Lowland with Drumlins	30.5 km	Yes -	No
178	Southern Uplands with Forest – Dumfries & Galloway	31.4 km	Yes -	No
209	Upland Glen – Glasgow & Clyde Valley	31.7 km	Yes -	No
278	Coastal Terrace – Lothians	31.9 km	Yes -	No
107	Rolling Lowland Margin	31.9 km	Yes -	No
98	Rolling Foothills	33.9 km	Yes -	No
271	Lowland River Corridors – Lothians	34.1 km	No -	No
160	Narrow Wooded River Valley - Dumfries & Galloway	35.1 km	No -	No
200	Rolling Farmland – Glasgow & Clyde Valley	35.4 km	Yes -	No
218	Rounded Landmark Hills	37.0 km	Yes -	No
273	Lowland Plateaux – Lothians	37.1 km	No -	No
280	Coastal Farmland – Lothians	37.7 km	No -	No
213	Plateau Moorlands – Glasgow & Clyde Valley	38.2 km	Yes -	No
176	Foothills with Forest – Dumfries & Galloway	39.1 km	No -	No

LCT No.	Landscape Character Type (LCT)	Distance	Theoretical Visibility	Included in LVIA
100	Plateau Farmland - Borders	40.8 km	Yes -	No
97	Rugged Uplands - Borders	41.1 km	Yes -	No
163	Middle Dale - Dumfries & Galloway	41.8 km	No -	No
276	Lowland Hill Fringes - Lothians	41.9 km	No -	No
175	Foothills - Dumfries & Galloway	43.9 km	No -	No
192	Coastal Hills - Fife	43.9 km	Yes -	No
110	Coastal Farmland - Borders	44.3 km	No -	No
196	Coastal Flats - Fife	44.3 km	Yes -	No
204	Incised River Valleys	44.7 km	Yes -	No
207	Upland River Valley - Glasgow & Clyde Valley	44.9 km	No -	No

Source: Natural Power

Table B2: Landscape designation

Landscape Designations	Distance	Theoretical Visibility of the Proposed Development	Included in LVIA
Edinburgh Castle World Heritage Site (WHS)	31.8 km	Yes -	No
Upper Tweeddale National Scenic Area (NSA)	10.9 km	Yes -	Yes
Eildon & Leaderfoot NSA	13.3 km	Yes -	Yes
Talla-Hart Fell Wild and Area	20.8 km	Yes -	No
Traquair House Historic Garden & Designed Landscape (HGDL)	3.7 km	Yes	Yes
Bowland HGDL	3.8 km	Yes -	Yes
Kailzie HGDL	5.9 km	Yes -	Yes
Fairnilee HGDL	7.0 km	Yes -	Yes
The Glen HGDL	7.3 km	Yes -	Yes
Bowhill HGDL	7.7 km	Yes -	
Abbotsford HGDL	11.0 km	Yes -	
The Haining HGDL	11.5 km	Yes -	
Portmore HGDL	11.8 km	No	No
Thirlestane Castle HGDL	15.0 km	Yes -	
Carolside And Leadervale HGDL	15.6 km	Yes -	
Arniston HGDL	16.4 km	No	No
Stobo Castle HGDL	16.7 km	Yes -	
Dawyck HGDL	17.3 km	Yes	
Bemersyde HGDL	19.2 km	Yes -	
Dryburgh Abbey HGDL	19.7 km	Yes -	
Penicuik HGDL	20.8 km	Yes -	
Roslin Glen & Hawthornden Castle HGDL	21.6 km	Yes -	
Oxenfoord Castle HGDL	21.6 km	Yes -	
Newbattle Abbey HGDL	21.8 km	Yes -	
Mertoun HGDL	21.9 km	Yes -	
Prestonhall HGDL	22.0 km	Yes -	
Mellerstain HGDL	22.1 km	Yes -	
Newhall HGDL	22.2 km	Yes -	
Mavisbank HGDL	23.2 km	Yes -	
Melville Castle HGDL	24.0 km	Yes -	
Dalkeith House (Palace) HGDL	24.6 km	Yes -	
Saltoun Hall HGDL	25.4 km	Yes -	
Carberry Tower HGDL	25.8 km	Yes -	
The Drum HGDL	26.2 km	Yes -	

Landscape Designations	Distance	Theoretical Visibility of the Proposed Development	Included in LVIA
Winton House HGDL	26.3 km	Yes -	
Monteviot HGDL	26.7 km	Yes -	
Yester House HGDL	27.3 km	No	No
Pilmuir HGDL	28.4 km	No	No
Craigmillar Castle HGDL	28.5 km	Yes -	
Inveresk Lodge Garden HGDL	28.5 km	No	No
Floors Castle HGDL	29.1 km	Yes -	
Newton Don HGDL	29.3 km	Yes -	
Pinkie House HGDL	29.3 km	No	No
Newhailes HGDL	29.4 km	Yes -	
Duddingston House HGDL	29.9 km	Yes -	
Prestonfield House (Priestfield) HGDL	30.0 km	Yes -	
Palace of Holyroodhouse HGDL	30.0 km	Yes -	
Little Sparta (Stonypath) HGDL	30.6 km	Yes -	
Malleny (Wester Lymphoy) HGDL	31.0 km	No	No
Lennoxlove (Lethington) HGDL	31.1 km	Yes -	
Seton House (Palace) HGDL	32.0 km	No	No
The New Town Gardens HGDL	32.5 km	Yes -	
Cockenzie House HGDL	32.5 km	No	No
Hendersyde Park HGDL	33.4 km	Yes -	
Dean Cemetery HGDL	33.5 km	No	No
St Mary's Pleasance (Haddington Garden) HGDL	33.7 km	Yes -	
Gosford House HGDL	34.0 km	Yes -	
Royal Botanic Garden, Edinburgh HGDL	34.2 km	No	No
Marchmont HGDL	34.5 km	No	No
Millburn Tower HGDL	34.5 km	No	No
Hatton House HGDL	34.7 km	No	No
Stevenson House HGDL	35.6 km	Yes	
Harburn House HGDL	35.9 km	No	No
Whittingehame HGDL	36.1 km	No	No
Cammo HGDL	36.4 km	No	No
Lauriston Castle HGDL	36.6 km	Yes	
Craigiehall HGDL	37.4 km	No	No
Dalmeny HGDL	37.7 km	No	No
Luffness HGDL	37.9 km	Yes	
Newliston HGDL	39.0 km	No	No

Landscape Designations	Distance	Theoretical Visibility of the Proposed Development	Included in LVIA
Duns Castle HGDL	39.2 km	No	No
Biel HGDL	40.5 km	No	No
Dundas Castle HGDL	40.7 km	No	No
The Hirsel HGDL	41.4 km	Yes	
Grey Walls (High Walls) HGDL	41.9 km	Yes	
Wedderburn HGDL	42.3 km	No	No
Tyninghame HGDL	42.7 km	Yes	
Balgone House HGDL	42.8 km	Yes	
Kimmerghame HGDL	42.8 km	No	No
Dirleton Castle HGDL	43.1 km	Yes	
Manderston HGDL	43.2 km	No	No
Hopetoun House HGDL	43.8 km	No	No
Leuchie HGDL	44.3 km	Yes	
St Colme HGDL	44.4 km	Yes	
Tweed Valley Special Landscape Area (SLA)	0 km	Yes -	
Tweed, Ettrick and Yarrow Confluences SLA	2.0 km	Yes -	
Tweedsmuir Uplands SLA	4.7 km	Yes -	
Gladhouse Rervoir & Moorfoot Scarp SLA	7.5 km	Yes -	
Fala Moor SLA	13.5 km	Yes -	
South Esk Valley & Carrington Farmland SLA	14.1 km	Yes -	
Tyne Valley SLA	15.2 km	Yes -	
Lammermuir Hills SLA	16.1 km	Yes -	
Fala Rolling Farmland & Policies SLA	18.1 km	Yes -	
Pentland Hills SLA	18.2 km	Yes -	
Humbie Head and Waters SLA	18.4 km	Yes -	
Tweed Lowlands SLA	20.2 km	Yes -	
North Esk Valley SLA	20.7 km	Yes -	
Teviot Valleys SLA	21.7 km	Yes -	
Lammer Law, Hopes to Yester SLA	22.5 km	Yes -	
Lammermuir Moorland SLA	22.6 km	Yes -	
Ormiston Yew and Fountainhall SLA	24.1 km	Yes -	
Pentlands SLA	25.0 km	Yes -	
Elphinstone Ridge SLA	25.7 km	Yes -	
River Esk SLA	26.0 km	Yes -	
The Drum SLA	26.1 km	Yes -	

Landscape Designations	Distance	Theoretical Visibility of the Proposed Development	Included in LVIA
Braids, Liberton, Mortonhall SLA	26.3 km	Yes -	
Edmonstone House SLA	27.2 km	Yes -	
Winton Walks SLA	27.7 km	Yes -	
Upper Clyde Valley SLA	28.0 km	Yes -	
Craigmillar Castle SLA	28.5 km	Yes -	
Samuelston SLA	29.3 km	Yes -	
Bolton SLA	29.5 km	Yes -	
Holyrood, Duddingston and Prestonfield SLA	29.7 km	Yes -	
Prestonpans Coast SLA	29.8 km	Yes -	
Fisherrow Sands SLA	30.0 km	Yes -	
Water of Leith – West SLA	30.1 km	No -	No
Craiglockhart SLA	30.1 km	Yes -	
Clerkington and Tyne SLA	30.6 km	Yes -	
Danskine to Whitecastle SLA	30.6 km	Yes -	
Linplum SLA	30.8 km	No -	No
Garden County Farmland SLA	31.4 km	Yes -	
Whiteadder SLA	31.5 km	Yes -	
Castle Rock SLA	32.4 km	Yes -	
Port Seton to North Berwick Coast SLA	32.6 km	Yes -	
Princes Street Gardens SLA	32.6 km	Yes -	
Calton Hill SLA	32.7 km	Yes -	
Gogar SLA	33.1 km	No -	No
Water of Leith, New Town SLA	33.2 km	No -	No
Corstorphine Hill SLA	33.7 km	Yes -	
Garleton Hills SLA	34.2 km	Yes -	
Inverleith SLA	34.2 km	No -	No
Morham SLA	34.2 km	No -	No
Ratho Hills SLA	34.7 km	No -	No
Whitteneghame to Woodhall SLA	34.8 km	Yes -	
Traprain SLA	34.9 km	Yes -	
Cammo SLA	36.4 km	No -	No
Southern Forth Coast SLA	36.6 km	Yes -	
Lower Almond SLA	37.3 km	No -	No
Upper Almond SLA	37.6 km	No -	No
Halls to Bransly Hill	38.2 km	No -	No
Craigie Hill SLA	38.6 km	No -	No

Landscape Designations	Distance	Theoretical Visibility of the Proposed Development	Included in LVIA
Cheviot Foothills SLA	39.4 km	Yes -	
Monynut to Blackcastle SLA	39.6 km	Yes -	
Biel and Bielton SLA	40.5 km	No -	No
Dundas SLA	40.7 km	No -	No
Doonhill to Chesters SLA	40.8 km	No -	No
Balgone and Whitekirk Outcrops SLA	41.1 km	Yes -	
Tantallon Coast SLA	41.3 km	No -	No
Kingston SLA	42.0 km	Yes -	
North Berwick Law SLA	43.6 km	Yes -	
Clyde Valley SLA	43.8 km	Yes -	
Belhaven Bay SLA	44.4 km	No -	No
Moffat Hills Regional Scenic Area (RSA)	27.5 km	Yes -	
Langholm Hills RSA	37.4 km	Yes -	

Source: <Insert Source text here>

C. Private Water Supply Sources

C.1. Private water supply sources within 3 km buffer of site.

ID	SUPPLY NAME	Source Description	Number of Properties Supplied	Purpose	Grid Reference Easting	Grid Reference Northing	Potential for Hydrological Connectivity to Proposed Development
1	ASHIESTIEL	Groundwater - Spring(s)	7	Domestic	343046	635141	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
2	ASHIESTIEL (HILL HOUSE)	Surface - Watercourse	1	Domestic	342338	635066	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
3	BLACKHAUGH	Groundwater - Spring(s)	7	Domestic	342330	638326	No. The Caddon Water is hydrologically unconnected to the development.
4	BLACKHOPEBYRES	Groundwater - Spring(s)	1	Domestic	334388	644038	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
5	BLACKHOPEBYRES STEADING	Groundwater - Borehole	1	Domestic	334540	644050	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
6	CADDON WATER & GLENTANNER BURN	Surface - Watercourse	6	Domestic	342400	639800	No. The Caddon Water is hydrologically unconnected to the development.
7	CADDONHEAD FARM	Surface - Watercourse	1	Domestic	340057	641042	No. The Caddon Water is hydrologically unconnected to the development.

ID	SUPPLY NAME	Source Description	Number of Properties Supplied	Purpose	Grid Reference Easting	Grid Reference Northing	Potential for Hydrological Connectivity to Proposed Development
8	CEDARWOOD	Groundwater - Borehole	1	Domestic	337960	637360	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
9	COLQUHAR FARM	Groundwater - Borehole	1	Domestic (Private Let)	333380	641415	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
10	CRAIGLATCH	Groundwater - Spring(s)	1	Domestic	343418	637330	No. The Caddon Water is hydrologically unconnected to the development.
11	DAMHEAD	Groundwater - Spring(s)	1	Domestic	332922	634061	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
12	ELIBANK	Groundwater - Spring(s)	4	3 x Domestic (Commercial Supply) 1 x Commercial / Public Activity (≤ 100 m3/day)	339381	636500	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
13	ELIBANK BOTHY	Groundwater - Borehole	1	Domestic	339838	636213	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
14	GLENORMISTON	Groundwater - Spring(s)	4	Domestic (owner/occupier)	331483	638098	No. Unconnected to development catchment and upstream of the development within the River Tweed catchment area.

ID	SUPPLY NAME	Source Description	Number of Properties Supplied	Purpose	Grid Reference Easting	Grid Reference Northing	Potential for Hydrological Connectivity to Proposed Development
	FARM COTTAGES						
15	GLENORMISTON FARMHOUSE	Groundwater - Spring(s)	7	6 x Domestic 1 x Commercial / Public Activity (≤ 100 m3/day)	330922	638116	No. Unconnected to development catchment and upstream of the development within the River Tweed catchment area.
16	GLENORMISTON STEADING	Groundwater - Borehole	13	11 x Domestic (Commercial Supply) 2 x Commercial / Public Activity (≤ 100 m3/day)	331581	638048	No. Unconnected to development catchment and upstream of the development within the River Tweed catchment area.
17	GLENORMISTON VELVETHALL	Groundwater - Spring(s)	5	Domestic	331540	637424	No. Unconnected to development catchment and upstream of the development within the River Tweed catchment area.
18	GLENTRESS	Groundwater - Spring(s)	1	Domestic (Private Let)	334260	643112	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
19	HAUGHHEAD (INNERLEITHEN)	Surface - Watercourse	1	Domestic	334198	636623	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
20	HOLYLEE HOUSE	Groundwater - Spring(s)	14	Domestic	338934	637619	Yes.

ID	SUPPLY NAME	Source Description	Number of Properties Supplied	Purpose	Grid Reference Easting	Grid Reference Northing	Potential for Hydrological Connectivity to Proposed Development
							Source could be within Gatehopeknowe Burn or Holylee Burn catchment (contained within the red line boundary). Source indicated ~500 m from proposed site entrance.
21	JUNIPER BANK	Surface - Watercourse	7	Domestic	337617	637392	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
22	KIRNIE COTTAGE	Groundwater - Spring(s)	1	Domestic	335019	637354	Yes. Catchment area indicated as an unnamed tributary of Kirnie Lane. Will look to confirm hydrologically unconnected source given property is located SE of development.
23	LAIDLAWSTIEL	Groundwater - Spring(s)	2	Domestic	342171	637111	No. The Caddon Water is hydrologically unconnected to the development.
24	LAIDLAWSTIEL FARM	Groundwater - Spring(s)	3	Domestic	342200	637467	No. The Caddon Water is hydrologically unconnected to the development.
25	LAIDLAWSTIEL HOUSE	Groundwater - Spring(s)	3	Domestic	342235	636890	No. The Caddon Water is hydrologically unconnected to the development.
26	LEE FARMHOUSE	Groundwater - Spring(s)	2	Domestic	332864	639706	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
27	LEITHEN LODGE	Surface – Watercourse	3	1 x Domestic 2 x Commercial / Public Activity (≤ 100 m3/day)	331832	642593	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.

ID	SUPPLY NAME	Source Description	Number of Properties Supplied	Purpose	Grid Reference Easting	Grid Reference Northing	Potential for Hydrological Connectivity to Proposed Development
28	LEITHEN LODGE COTTAGE	Groundwater - Spring(s)	1	Domestic (Private Let)	332059	642788	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
29	NEWHALL (CLOVENFORDS)	Groundwater - Spring(s)	1	Domestic	342682	637578	No. The Caddon Water is hydrologically unconnected to the development.
30	OLD CABERSTON	Surface – Watercourse	1	Domestic	336919	637708	Likely part of Caberston Burn catchment, which is upgradient and hydrologically unconnected to site. However, given located S of development would look to confirm source and include in risk assessment.
31	PEEBLES ROAD (WALKERBURN)	Groundwater - Well	1	Domestic	335000	637000	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
32	SCROGBANK COTTAGE	Surface – Watercourse	1	Domestic	338364	637479	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
33	ST RONANS WELLS	Groundwater - Spring(s)	1	Commercial / Public Activity (≤ 100 m3/day)	332750	637340	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
34	ST RONANS WORKS > REG 2	Groundwater – Well	1 (REG 2)	N/A	333140	636556	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.

ID	SUPPLY NAME	Source Description	Number of Properties Supplied	Purpose	Grid Reference Easting	Grid Reference Northing	Potential for Hydrological Connectivity to Proposed Development
	APPLIES (EXEMPT)						
35	STATION HOUSE (GALASHIELS)	Groundwater - Spring(s)	2	Domestic	341208	636176	Likely to be hydrologically unconnected to development and part of Caddon Water catchment. However, would look to confirm source given downgradient positioning from site entrance ~3 km.
36	THE COMMON	Groundwater - Spring(s)	2	Domestic (Private Let)	333700	639700	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
37	THE LEY	Groundwater - Spring(s)	1	Domestic	332943	639962	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.
38	THORNIELEE COTTAGE	Groundwater - Spring(s)	1	Domestic	340692	636374	Likely to be hydrologically unconnected to development and part of Caddon Water catchment. However, would look to confirm source given downgradient positioning from site entrance ~3 km.
39	THORNYLEE	Groundwater - Spring(s)	1	Domestic	341296	636370	Likely to be hydrologically unconnected to development and part of Caddon Water catchment. However, would look to confirm source given downgradient positioning from site entrance ~3 km.
40	THORNYLEE FARMHOUSE	Groundwater - Spring(s)	1-3	Domestic	341186	636416	Likely to be hydrologically unconnected to development and part of Caddon Water catchment. However, would look to confirm source given downgradient positioning from site entrance ~3 km.
41	THORNYLEE	Groundwater – Borehole	4	Domestic	341274	636340	Likely to be hydrologically unconnected to development and part of Caddon Water catchment. However, would

ID	SUPPLY NAME	Source Description	Number of Properties Supplied	Purpose	Grid Reference Easting	Grid Reference Northing	Potential for Hydrological Connectivity to Proposed Development
	ORCHARD HOUSE						look to confirm source given downgradient positioning from site entrance ~3 km.
42	THORNYLE E STATION HOUSE	Groundwater - Spring(s)	2	Domestic	341558	636429	Likely to be hydrologically unconnected to development and part of Caddon Water catchment. However, would look to confirm source given downgradient positioning from site entrance ~3 km.
43	TIGHNUILT HOUSE	Surface – Watercourse	1	Domestic	332212	636572	No. Unconnected to development catchment and upstream of the development within the River Tweed catchment area.
44	TRAQUAIR ESTATE	Groundwater - Spring(s)	2	1 x Domestic (Commercial Supply) 1 x Commercial / Public Activity (≤ 100 m3/day)	334250	635110	No. Property is separated from the site by the A72 and the River Tweed and is hydrologically unconnected to the development.
45	TROUSLY	Groundwater - Spring(s)	1	Domestic	338399	645931	No. Lugate Water is hydrologically unconnected to the development and source is indicated 3 km NE of site.
46	WHITEHOP E (INNERLEIT HEN)	Groundwater - Spring(s)	4	Domestic	332818	643018	No. The Leithen Water catchment is upgradient and hydrologically unconnected to the development.

Fred. Olsen Renewables

Fred. Olsen Renewables Ltd
2nd Floor 64-65 Vincent Square
London
SW1P 2NU
United Kingdom

Natural Power
The Greenhouse, Forrest Estate
Dalry, Castle Douglas
DG7 3XS
United Kingdom

sayhello@naturalpower.com