Environmental Impact Assessment Scoping Report

Mid Hill Wind Farm

Invenergy

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Basis of Report

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Table of Contents

Tables in Text

Figures in Text

Appendices

1.0 Introduction

1.1 Overview

1. Invenergy, henceforth referred to as 'the Applicant', is planning to seek consent from Scottish Ministers under Section 36 of The Electricity Act 1989 (as amended) (the 'Application') to construct and operate a wind farm and energy storage system (the 'Proposed Development') on land centred approximately 11fkm southwest of Hawick in the Scottish Borders, as shown on **Figure 1.1**, hereinafter referred to as 'the Site'. The Proposed Development will have an export capacity in excess of 50MW. The Applicant will also be seeking a direction that planning permission be deemed to be granted pursuant to s57(2) of the Town and Country Planning (Scotland) Act 1997.

2. It is anticipated that, dependant on the final chosen design layout, the Proposed Development would comprise of up to 42 wind turbines with associated works and infrastructure including: crane hardstand; access tracks; cabling; borrow pits; a temporary construction compound; a single substation including control building, a battery energy storage system and a permanent anemometry mast. It is proposed that the maximum height to blade tip of the turbines would be 200m. An indicative turbine layout is presented on **Figure 1.2.** This is a preliminary turbine layout for the purposes of scoping, which considers the currently known ecological, ornithological, topographical, hydrological, hydrogeological and landscape constraints at this early stage in the Environmental Impact Assessment (EIA) process. This indicative layout will be refined further during the EIA process.

3. The final proposed capacity, turbine size and layout will be based on environmental and technical considerations identified and evaluated during the scoping and EIA stage, along with public consultation. The Proposed Development would generate renewable, carbon-free electricity for supply to the national electrical transmission grid and would eliminate carbon dioxide emissions through the displacement of conventional fossil-fuel electricity generation and contribute to the additional electrical capacity required for the decarbonisation of heating and transport systems.

4. The Proposed Development will constitute a Schedule 2 development as provided for by the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (the EIA Regulations 2017) and the Applicant has committed to undertaking an EIA to investigate the potential for significant environmental effects, the outcome of which will be an EIA Report which would accompany the Application.

5. This EIA Scoping Request seeks information from the Energy Consents Unit (ECU) in the form of an EIA Scoping Opinion to inform the preparation of the EIA Report. The EIA Scoping Opinion, consultation responses and the findings of the EIA process will be used to inform the final design of the Proposed Development and assess its predicted environmental effects, with a focus on the likely significant effects from the development and how and where they are proposed to be mitigated.

1.2 The Applicant

6. Invenergy's name is synonymous with innovation in an industry undergoing transformation. As the world's leading privately held developer and operator of clean energy solutions, Invenergy works with leading utilities, global brands and public sector partners to take energy infrastructure projects from drawing board to reality. Invenergy's 2,500+ employees are united by a vision to be innovators building a sustainable world. Headquartered in Chicago, Illinois, the Company has successfully

developed over 32 gigawatts of power projects across the Americas, Europe and Asia.

1.3 SLR Consulting

7. SLR Consulting Limited (SLR) has been appointed to undertake an EIA Scoping study and prepare this EIA Scoping Report to accompany a request to Scottish Borders Council (SBC) to adopt an EIA Scoping Opinion.

8. SLR is a Registered Environmental Impact Assessor and Member of the Institute of Environmental Management and Assessment (IEMA) and holder of the EIA Quality Mark (http://www.iema.net/qmark). SLR is also a Registered Organisation validated by the Institute for Archaeologists (IfA), a member of the Association of Geotechnical and Geoenvironmental Specialists, and a Landscape Institute (LI) Registered Practice.

9. The company has significant experience and expertise in the preparation of planning and electricity act applications and undertaking EIA for a wide variety of projects. SLR's environmental specialists along with specialist consultants from MVGLA, MacArthur Green, BiGGAR Economics and Aviatica have the skills and relevant competency, expertise and qualifications to undertake EIA for the Proposed Development.

10. Further information on SLR can be found on its corporate website at www.slrconsulting.com.

1.4 Purpose of The EIA Scoping Report

1.4.1 Introduction

11. The Section 36 application will be supported by an EIA Report. The EIA will be undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ("the EIA Regulations"), the best practice guidelines of the Institute of Environmental Management and Assessment (Guidelines for Environmental Impact Assessment) published in 2004; and the Scottish Natural Heritage (SNH) (now NatureScot) handbook on EIA 2018.

12. The purpose of the EIA process is to assess, in a systematic manner, the potential significant environmental effects of the Proposed Development. The results of the EIA process will be used in an iterative manner to influence the design of the Proposed Development, in order that any significant, adverse environmental effects can be designed out (embedded mitigation), minimised or negated completely through design and mitigation.

13. The Proposed Development will constitute a 'Schedule 2 development' as provided for by the EIA Regulations 2017. Specifically, the Proposed Development comprises an *'installation for the harnessing of wind power for energy production (wind farms)'*. It exceeds the applicable threshold by including more than two wind turbines with hub heights of more than fifteen metres. The Applicant has committed to undertaking an EIA to investigate the potential for significant environmental effects. As such, no Screening Opinion has been sought from the Scottish Ministers.

14. Undertaking an EIA scoping study is regarded as good practice and is considered to be an important step in EIA as it allows stakeholders to agree on key environmental issues relevant to the Proposed Development and the methodology for their assessment. The scoping stage helps to engage the planning authority (in this case Scottish Borders Council ('SBC)') and other stakeholders, at an early stage in the

planning process; and ensures that key opinions, based on local understanding, are identified.

15. The specific aims of this EIA Scoping Report are to:

- identify the technical subject areas that may be subject to significant environmental effects as a result of the Proposed Development proceeding and therefore require further study;
- identify the technical subject areas that are unlikely to be subject to significant environmental effects and can be scoped out from further study;
- provide a basis for a consultation process to agree the scope and content of the EIA;
- provide a basis for agreeing methodologies for undertaking required studies, based upon currently available baseline data, site characteristics and best practice in individual technical disciplines; and
- provide all statutory consultees and stakeholders with an opportunity to comment on the Proposed Development and its potential environmental effects at an early stage.

16. Upon receipt of the EIA scoping opinion from the Scottish Ministers, the Applicant will continue the EIA process that will lead to the preparation of an EIA Report, taking cognisance to the findings and responses received.

1.4.2 Approach to Scoping

17. This EIA Scoping Report has been based on a combination of desk based and site survey investigations. This has been complemented by the use of Geographic Information System (GIS) technology to collate and identify potential environmental receptors and environmental designations that may be affected by the Proposed Development. The GIS datasets comprise details of ecologically important sites, sites of archaeological and/or cultural heritage importance, landscape designations and other important receptors (watercourses etc.). The potential receptors and designated sites that have been identified are shown on **Figure 4.4, Figure 5.2, Figure 6.1, Figure 7.1 and Figure 7.2**.

18. The findings of the desk-based work and the GIS work have been augmented by some site reconnaissance and survey work, as well as discussion with consultees. Site work undertaken to date has included ornithological surveys starting in the breeding season of 2023.

1.4.3 Potential Environmental Effects

19. The EIA Regulations (Regulation 4 (2), (3) and (4)) specify that the EIA must:

"(2)…identify, describe and assess in an appropriate manner, in light of the circumstances relating to the Proposed Development, the direct and indirect significant effects of the Proposed Development (including, where the Proposed Development will have operational effects, such operational effects) on the factors specified in paragraph (3) and the interaction between those factors.

(3) The factors are —

(a) population and human health;

(b) biodiversity, and in particular species and habitats protected under any law that implemented Council Directive 92/43/EEC on the conservation of natural habitats and of wild

fauna and flora and Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds;

(c) land, soil, water, air and climate; and

(d) material assets, cultural heritage and the landscape.

(4) The effects to be identified, described and assessed under paragraph (2) include the expected effects deriving from the vulnerability of the development to risks, so far as relevant to the development, of major accidents and disasters."

20. Previous experience of other wind farm development sites, combined with the EIA requirements, the knowledge of the Site and possible effects of the Proposed Development, has led to the identification of the following topics for consideration in the EIA. A summary of known baseline conditions of relevance, predicted effects, any outline mitigation measures that can be recommended at this stage and the proposed scope for the EIA is provided for each of the following topic areas in **Sections 4.0 to 13.0**:

    - Landscape and Visual.
    - Ornithology.
    - Ecology.
    - Archaeology and Cultural Heritage.
    - Traffic and Transport.
    - Noise and Vibration
    - Geology, Hydrology, Hydrogeology and Peat.
    - Climate and Carbon Balance.
    - Socio-economics, Tourism, Recreation and Land Use.
    - Telecommunications.
    - Other Considerations including Aviation and Radar.

21. For each topic that is identified as requiring further study, a detailed technical assessment will be carried out in accordance with the scope and methodology agreed with relevant consultees. Each technical assessment will be carried out by an appropriately qualified consultant to prevailing technical and professional standards and reported in a dedicated EIA Report Chapter.

22. The technical assessments will provide a detailed assessment of potential impacts with a focus on significant effects, identification of mitigation measures and description of the significance of residual effects (those remaining after the mitigation measures have been implemented). The EIA will identify direct and indirect effects, beneficial (positive) and adverse (negative) effects, cumulative effects and seek to identify, as far as possible, the duration of such effects, whether short term, long term, permanent, temporary, periodic, etc. during the construction, operational and decommissioning phases of the Proposed Development. The results of each technical assessment will be reported in the EIA Report structured as follows:

    - Volume 1 – Non-Technical Summary (NTS)
    - Volume 2 – Written Statement.
    - Volume 3 – Figures and Visualisations.
    - Volume 4 – Technical Appendices.

- Volume 5 – Confidential Information (if required).

1.4.4 Scoping Consultation

23. This EIA Scoping Report is issued to Scottish Ministers via the Energy Consents Unit (ECU). ECU will then consult with key consultees and stakeholders before adopting an EIA Scoping Opinion on behalf of the Scottish Ministers. It is anticipated that the agencies and bodies to be consulted will include those listed in **Appendix 01**; this list is not exhaustive and other agencies will be consulted during the EIA as and when required.

24. The aim of the scoping process is to identify the key environmental issues at an early stage, in order to ensure that the scope of the EIA Report is sufficient to assess the elements which have the potential to cause significant environmental effects. The scoping process is also intended to ensure that the EIA is proportionate and seeks to confirm the aspects that can be scoped out of the EIA report.

1.4.5 Public Consultation

25. The Applicant is committed to undertaking meaningful consultation with the local community and stakeholders. Albeit not a requirement for applications under Section 36 of the Electricity Act 1989, the Applicant aims to apply the principles of the consultation process recommended for 'major' planning applications as set out in The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 and Circular 3:2022 - Development Management Procedures. This enables the local community and all those with an interest in the proposals to have a clear opportunity to view the proposals, and importantly provide comment and feedback.

26. A project website has been developed (www.midhillwind.invenergy.com), with at least two rounds of in-person public exhibitions taking place. These events will be advertised locally, with a phone number, email and postal address established to receive comment and feedback. It is also anticipated that meetings will take place with the neighbouring community councils, local residents and interested parties.

27. Consideration will be given to ensure that engagement methods reflect varying levels of access to technology.

28. The Applicant will contact local community councils, detailed on the consultee list in **Appendix 1.2**, to introduce them to the project and to request the opportunity to meet with them, should they wish. Following this, it is anticipated that the first round of in-person public exhibitions will be held in Q4 2024. This will be an opportunity for the public to learn about the Proposed Development directly from the project team in attendance and through information panels and visualisations present at the public exhibition venues. Feedback on the Proposed Development will be encouraged; and where received, will be taken into account in development of the design and EIA.

29. The second round of public exhibitions which is proposed to be held in advance of the submission of the Application will provide the public with an update on progress and provide further details about the proposed conceptual design of the Proposed Development, an update on the EIA, and further information on community benefits and submission timescales.

1.4.6 Baseline Conditions

30. The 2017 EIA Regulations require that aspects of the environment which are likely to be significantly affected by the Proposed Development are clearly defined within the EIA Report. To achieve this, it is necessary to gather environmental information on

the current and existing status of each topic proposed for consideration as part of the EIA, i.e., 'baseline conditions'. The EIA Report will describe:

- the key receptors that have been identified;
- a brief description of those receptors;
- the sensitivity attributed to each receptor; and
- where further details can be found within the relevant technical appendices.

31. Details on the existing conditions of the Site and the surveys which have been undertaken for each topic are given in Chapters 2 to 13 below.

32. Baseline conditions are not static, and it may be necessary to update them with further baseline surveys to ensure that the data upon which the EIA is based is up to date and accurately reflects the current situation of the receiving environment.

1.4.7 Type of Effects

33. The 2017 EIA Regulations require consideration of a variety of types of effect, namely direct/indirect, secondary, cumulative, transboundary, positive/negative, short/medium/long-term and permanent/temporary. For each topic that is identified as requiring further study in the EIA Report, effects would be considered in terms of how they arise, their nature (i.e. whether they are beneficial or adverse) and their duration.

1.4.8 Assessment of Effects

34. For each topic that is identified as requiring further study, a detailed assessment will be carried out in line with the scope and methodology agreed upon with relevant consultees. The methodology for predicting nature and magnitude of any potential environmental effects varies according to the technical subject area. Individual technical assessment will be undertaken by a competent and appropriately qualified expert in which technical standards and relevant guidance will be adhered to. A range of relevant and appropriate methodologies will be employed to assess the potential effects associated with the Proposed Development. These assessments will take both the construction and operational phases of the Proposed Development into account and will be carried out in relation to the Site and surrounding area.

1.4.9 Significance of Effect

35. The 2017 EIA Regulations do not define significance and it is, therefore, necessary to define this for the Proposed Development. The significance of an effect is derived from an analysis of:

- the sensitivity of receptors to change; and
- the amount and type of change, or magnitude of impact which includes the timing, scale, size, likelihood and duration of the change.

36. Where relative significance is reported, the assessment will identify the threshold for significant effects.

37. The methods for predicting the nature and magnitude of any potential effects vary according to the topic assessed. Quantitative methods of assessment can predict values that can be compared against published thresholds and indicative criteria in Government guidance and standards. However, it is not always possible to ascribe values to environmental assessments and thus qualitative assessments are also used. Such assessments rely on previous experience and professional judgement.

The methodologies used for assessing each topic area will be further described within the individual chapters of the EIA Report.

1.4.10 Sensitivity of Receptors

38. The sensitivity of receptors will be defined according to the relative sensitivity of existing environmental features on or in the vicinity of the Site, or by the sensitivity of receptors which would potentially be affected by the Proposed Development, including their capacity to accommodate the kinds of changes the Proposed Development may bring about.

39. Criteria for the determination of sensitivity or importance will be established based on prescribed guidance, legislation, statutory designation and/or professional judgement.

1.4.11 Magnitude of Impact

40. The magnitude of impact (degree of change) relative to environmental baseline conditions will be identified through detailed consideration of the Proposed Development, taking account of the following factors:

- the degree to which the environment is affected, e.g. whether the quality is enhanced or impaired;
- the scale or degree of change from the baseline situation; and
- whether the effect is temporary or permanent, indirect or direct, short term, medium term or long term.

41. In some cases the likelihood of effect occurrence may also be relevant, and where this is a determining feature of the assessment this will be clearly stated.

1.4.12 Cumulative Effects

42. For each technical discipline, an assessment will be made of the likely cumulative effects of the Proposed Development in combination with any other similar developments in proximity to the Site which are reasonably defined and understood; these would comprise projects that:

- are the subject of valid applications or appeals but not yet determined;
- consented; or
- are under construction.

43. Projects that are already constructed and operational are considered to form part of the baseline conditions.

44. Cumulative effects can also arise from the combined impact of effects attributable to the Proposed Development in respect of a particular receptor, such as the combined effect of noise and visual amenity on a residential dwelling.

45. If SBC or other stakeholders are aware of any proposals that they consider will need to be assessed in terms of potential cumulative effects, it is requested that are identified as part of the EIA Scoping Opinion.

1.4.13 Mitigation

46. Part 7 of Schedule 4 of the EIA Regulations notes that the EIA Report should include details of proposed mitigation measures to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, set out monitoring measures which will be put in place.

47. Where significant adverse environmental effects are predicted in the EIA process, the EIA Report will provide additional measures (bespoke mitigation) to eliminate or reduce the effects to acceptable levels.

48. Mitigation is considered an integral part of the overall design strategy for the Proposed Development. Design principles and environmental measures that form an integral part of the project design will be taken into account in the assessment of environmental effects. Where necessary, additional mitigation measures will be identified to reduce the significance of potential effects, and these will be set out in detail in the EIA Report where relevant.

49. A Schedule of Mitigation will be included within the Summary of Mitigation Chapter. The Schedule will summarise the mitigation and enhancement measures proposed in the preceding chapters of the EIA Report to avoid, prevent, reduce or offset the adverse effects of the Proposed Development on the environment.

1.4.14 Residual Effects

50. Any remaining effects of the Proposed Development, following implementation of any bespoke mitigation measures, are referred to as ‘residual effects.’ The EIA will assess each residual effect and identify a significance level. Residual effects may be adverse or beneficial, short, medium or long-term, direct or indirect, permanent or temporary, and reversible or irreversible.

1.4.15 Assumption and Limitations

51. Any assumptions and limitations made for the assessments will be identified in the relevant EIA Report chapters.

2.0 Proposed Development

2.1 Site Description

2.1.1 Site Location

52. The Site, centred on NGR NT4115309552 is located in a rolling upland landscape between the A7 and B711 roads in the Scottish Borders. The nearest urban area, Hawick, is located approximately 11km to the northeast of the centre point of the Site. The Site is entirely within the administrative boundary of the Scottish Borders Council (SBC) (**Figure 1.1).** The Site measures approximately 4,750 hectares (ha). Elevations on the Site range from around 170m above ordnance datum (AOD) along the A7 valley corridor, up to a high point of 351m AOD on Dryden Fell. Other hilltops across the Site include Lodge Hill (342m), High Seat (347m), Swainstead Hill (333m) and Hott Hill (312m).

53. The predominant land use within the Site is rough grazing, with some small areas of woodland dotted around the Site, along with a number of watercourses and small lochs.

2.1.2 Surrounding Area and Designated Sites

54. The immediate surrounding area of the Site is rural in nature, and is characterised by the Borders upland farming community, presenting a settled landscape with extensive forestry and upland grazing cover. The village of Teviothead, which is on the A7, lies about 1 km to the southwest of the site. Hawick is the largest local settlement to the Proposed Development, located approximately 11km to the northeast of the Site (from its approximate centre point), with a population of approximately 13,620.

55. Within the Site boundary are the following ecological designations:

- River Tweed SAC and SSSI;
- Whitlaw and Branxholme SAC;
- Branxholme Wester Loch SSSI; and
- Slaidhills Moss SSSI.

56. Other nearby natural heritage designations designated for ecological (non-avian) qualifying interests are present within 5km of the Site as set out on **Figure 6.1**. These sites are:

- Branxholme Wester Loch, SSSI;
- Branxholme Easter Loch SSSI;
- Braidhills Moss SSSI;
- Allan Head, Hill Head SSSI;
- Alemoor West Loch and Meadow SSSI;
- River Tweed SAC, SSSI;

57. Further afield, the Langholm – Newcastleton Hills SPA, SSSI designation for ornithological features lies within 20km of the Proposed Development as set out on **Figure 5.2.**

58. No designated cultural heritage assets are found within the Site, but a number of designated cultural heritage assets are found in close proximity outwith the Site and

in the wider area, including *Whitcastle Hill and Todshaw Hill, Forts, Earthworks, Linear Earthworks,* located approximately 2km to the east of the Site. All designated heritage assets within 10km are depicted on **Figure 7.1.**

59. There are also a number of known non-designated heritage assets recorded within the Site, shown of **Figure 7.2.**

60. The landscape of the Site is characterised under NatureScot's nationwide assessment as Landscape Character Type ('LCT') 94, 'Rolling Moorland', LCT 101, 'Rocky Upland Fringe' and LCT 117 'Pastoral Upland Fringe Valley' as shown in **Figure 4.3**. The proposed turbines are located within LCT 94 and LCT101.

61. The existing, baseline wind farm context is shown on **Figure 4.1**. The nearest wind farms within 25km that are operational/under construction relative to the Proposed Development are shown in **Table 2-1.**

Table 2-1: Nearby Operational / Under Construction Wind Farms within 25km

Wind Farm Name	Location	Development Description
Langhope Rig	Approximately 9km north of the Site.	10 turbines
Pines Burn	Approximately 16km east of the Site.	11 turbines, up to 149.9m
Windy Edge	Approximately 12km southeast of the Site.	9 turbines
Hopsrig	Approximately 20km southwest of the Site.	12 turbines, up to 200m to blade tip
Craig Phase 1 & 2	Approximately 22km southwest of the Site.	5 turbines
Ewe Hill	Approximately 22km southwest of the Site.	4 turbines, up to 125m to blade tip
Ewe Hill Six	Approximately 22km southwest of the Site.	6 turbines, up to 125m to blade tip.

62. Other wind farms nearby that are still within the planning system but have not had a decision made at the time of writing include Teviot Wind Farm, Millmoor Rig Wind Farm and Loganhead Wind Farm.

2.1.3 Site Planning History

63. The Site has not been subject to any previous applications for renewable development.

2.2 Proposed Development Description

64. The Proposed Development is being designed to maximise the production of renewable energy generation, whilst balancing the Applicant's desire to minimise environmental effects. This is in the context of the Scottish Government's declaration of a 'climate emergency' in May 2019 and the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019, which commits Scotland to a target of net zero emissions of all greenhouse gases by 2045, with interim targets to reduce emissions by 56% by 2020, 70% by 2030 and 90% by 2040. SBC declared a climate emergency in September 2020, and in 2021 published its Climate Change Route Map, which sets out SBCs approach to addressing the climate emergency and

contributing towards the Scottish Governments legally binding target to become net zero by 2045.

65. Initial feasibility and design work indicates that the Site has the potential to accommodate up to 42 turbines of up to 200m to blade tip height. An indicative layout (**Figure 1.2**) has been prepared to illustrate how this number and scale of turbines could potentially be accommodated onsite. In addition to the turbines, the associated infrastructure would include the following components:

- permanent foundations supporting each turbine;
- new onsite access tracks providing access from the public road and to all turbine locations;
- crane hardstand adjacent to each turbine;
- underground cabling linking each turbine with the substation control building;
- a substation compound including a control building;
- an energy storage facility;
- temporary borrow pit search areas for the extraction of construction aggregates onsite;
- a permanent anemometer mast; and
- a temporary site construction compound.

66. At the scale set out in this EIA Scoping Request, the Proposed Development is expected to exceed 50MW and contribute significantly to the Scottish Government's renewable energy targets and would require consent under Section 36 of the Electricity Act 1989.

67. The EIA Report will provide a chapter detailing the design process followed and the reasonable alternatives considered in developing the wind farm layout and setting the physical parameters of the proposed turbines.

2.2.1 Wind Turbines

68. At this stage it is anticipated that the turbine tip height will measure up to 200m. However, it should be noted that turbine selection for the Proposed Development has not been finalised. Details of the turbine rotor diameter and hub height will be confirmed/refined as the EIA progresses.

69. Regardless of model, the specification of the turbine would be a typical horizontal axis design, comprising of three rotor blades, a hub and a nacelle. The tower would be tubular and tapered in design and finished in a light grey semi-matt colour. The blades will be made from fibre-reinforced epoxy and the tower will be constructed from steel.

70. An indicative layout of 42 turbines is shown on **Figure 1.2.** Each wind turbine would be served by its own external, electrical transformer. The transformers would be located close to the base of each wind turbine.

71. Grid co-ordinates of the proposed turbines as set out in the indicative layout on **Figure 1.2** are listed in **Table 2-2**.

Table 2-2: Turbine Grid Coordinates

Turbine Number	Easting	Northing
T1	337566	607637
T2	337840	607252
T3	338462	607502
T4	338287	607923
T5	337929	608200
T6	338269	608840
T7	338567	608509
T8	338926	608223
T9	339149	607806
T10	339639	607750
T11	338877	609028
T12	339656	608606
T13	339998	608318
T14	339885	609195
T15	339545	609421
T16	339356	609827
T17	339954	610139
T18	340165	609760
T19	340268	608919
T20	340531	609494
T21	340618	608669
T22	340393	608084
T23	340995	608175
T24	340946	609263
T25	342150	609684
T26	341583	609615
T27	341191	609881
T28	340903	610168
T29	340867	610689
T30	341480	610999
T31	341504	610514
T32	341758	610175
T33	342556	609525
T34	342331	610289
T35	341733	609110
T36	342806	610135
T37	340000	607514
T38	340597	607650

Turbine Number	Easting	Northing
T39	341185	608768
T40	342265	610737
T41	342958	610688
T42	343439	610541

2.2.2 Substation

72. The Proposed Development would include a new onsite substation and control building as a single storey building with a pitched roof. The building would also house switchgear, metering, protection and control equipment.

2.2.3 Electrical Layout

73. Underground cables would link the turbine transformers to the onsite substation. Detailed construction and trenching specifications would depend on ground conditions at the Site.

2.2.4 Anemometry Masts

74. At least one permanent anemometry mast would be required to provide key wind climatology statistics including mean wind speed, wind direction, exceedance values, air density, wind shear and turbulence intensity. These masts typically reflect turbine hub height, which on the basis of the Scoping layout would be up to 119m.

2.2.5 Access

75. The turbine components would be delivered to the Site using the existing public road network. Investigations are ongoing to establish the preferred port of entry of turbine components and the preferred route to the Site from the public road network.

2.2.6 Site Tracks

76. Each turbine would require access via a site track for construction and operational purposes. The construction of the track would depend upon local ground conditions: where the ground is firm, or where gradients are steep, the track would be of cut and fill type construction; where the ground is soft, i.e., in areas of deep peat, the track would have a floating construction. The Site tracks would have a running width of 5.5m wide, with an additional 1m on either side to accommodate drainage and other services. Site tracks would widen at corners and passing places as required. Stone would be required for various purposes, primarily track construction, and this is likely to be sourced from onsite borrow pit(s).

2.2.7 Borrow Pits

77. It is anticipated that temporary borrow pit search areas would be included as part of the Proposed Development.

78. A review of the suitability of materials on the Site will be undertaken and borrow pit search areas will be identified as part of the Borrow Pit Assessment. If appropriate areas are identified, a description of likely materials, estimated borrow pit size and the ability to supply appropriate materials for the construction of the Proposed Development will be included. Final detailed design of the borrow pits would be provided through planning conditions after geotechnical investigation prior to construction.

79. Material for the construction of onsite access tracks would, where possible, be won onsite either derived from existing borrow pits, from excavations as tracks are constructed or from new borrow pits. This approach would minimise transportation movements of stone to site. The location and design of borrow pits will be defined as part of the EIA process and site design.

2.2.8 Grid Connection

80. An application has been made by the Applicant to the Transmission Owner (TO) for connection to the national grid to export the electricity generated. This application is separate from the application for consent to develop the Proposed Development. The TO will then undertake a separate process for consent to develop the grid connection. A high-level assessment of the proposed grid connection will be provided in the EIA Report, although the grid connection will be subject to a separate consent under Section 37 of the Electricity Act 1989.

2.2.9 Battery Storage

81. Energy storage including battery infrastructure are being considered for inclusion as part of the Proposed Development. The energy storage would store power generated by the Proposed Development and release the power on to the grid as agreed with National Grid.

82. The energy storage would comprise a number of units with ancillary equipment such as inverters, which would be located next to the proposed substation. The battery infrastructure would store excess power generated by the Proposed Development and release the power to the grid during periods of demand and when the output from the Proposed Development falls due to decreased wind speed.

83. The Applicant will consider the prospective long-term use of the energy produced, in order to accommodate the requirements of a decarbonised energy provision. The Application will include detail on how the development is likely to contribute to the Scottish Government Energy Efficient Scotland roadmap, including providing clean and secure electricity.

2.2.10 Micro-siting

84. Micro-siting refers to the accurate locating of wind farm infrastructure, after the detailed ground investigations that would be carried out prior to construction. It allows the location of infrastructure to be revised within a specified distance to mitigate potential geoenvironmental and geotechnical constraints which may only be identified at this stage. For example, it would reduce the volume of peat excavated; avoid sensitive habitats and currently undetected archaeological remains; and potentially avoid the need for foundation piling. It is proposed that a micro-siting allowance of 100m is permitted for the wind turbine and met mast locations and 100m from the extremities of all other infrastructure (access tracks, substation etc). These micro-siting distances will be taken into account within the technical assessments.

2.3 Construction Works

85. The duration for the construction works is expected to be approximately 24 to 30 months. Typical construction activities and work methods will be set out in the EIA Report in accordance with the ‘Good Practice during Wind Farm Construction’ guidance (NatureScot, 2019). Information will also be provided on an indicative construction programme, construction traffic generation and construction phasing. The EIA Report will also contain details of appropriate environmental management measures, including pollution prevention measures (in line with Scottish Environment

Protection Agency (SEPA)'s Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs)), and waste minimisation and management measures.

2.4 Wind Farm Lifecycle and Decommissioning

86. Once constructed it is anticipated that the Proposed Development would have an operational life of up to 40 years.

87. At the end of the operational life, the Proposed Development would be decommissioned, or an application may be submitted to extend the life or repower the Proposed Development. The decommissioning period would take up to one year. Decommissioning effects would likely be similar to or less than those be assessed during construction.

88. The final decommissioning approach would be agreed with SBC and other appropriate regulatory authorities in line with best practice guidance and requirements of the time. This would be done through the preparation and agreement of a Decommissioning and Restoration Plan (DRP). Should the project gain consent, it is common for the financial provision for decommissioning to be in place before construction commences.

89. Over the period of operation of the wind farm it is recognised that there are likely to be changes in legislation and guidance, environmental designations, the status/condition of sensitive environmental receptors and stakeholder objectives that may affect decommissioning and restoration methodologies. The detailed DRP would reflect the scientific ideas and best practice current at the time of decommissioning and restoration.

90. A high-level assessment of the decommissioning of the Proposed Development will be undertaken as part of the EIA, as at this stage the future baseline conditions cannot be predicted accurately and both the proposals for repowering/decommissioning and the future regulatory context are unknown. As decommissioning is in essence a reversal of the construction process, for a shorter period, the effects of decommissioning can in general be anticipated to be no greater than those arising from construction.

3.0 Planning and Energy Policy Context

91. This Section presents a summary of the relevant policy and guidance documents that will be taken into consideration to inform the rationale for and design of the Proposed Development.

92. The EIA Report will provide an overview of the relevant legislative and planning policy context within each topic chapter. The assessment will have regard to national and local policy documents, where relevant. However, it is not proposed to include a dedicated chapter on Planning Policy Context in the EIA Report.

93. Instead, it is proposed that a separate Planning Statement will be submitted with the Section 36 application. The Planning Statement will provide an assessment of the Proposed Development in relation to relevant material considerations, before weighing up the planning case for the proposals and providing a conclusion on the overall acceptability of the Proposed Development.

    Whilst the Planning Statement will not form part of the EIA Report, it will be informed by the conclusions of the EIA Report in assessing the Proposed Development against the provisions of the Development Plan and other relevant material considerations.

3.1 Electricity Act 1989

94. The Proposed Development will be considered under Section 36 of the Electricity Act 1989. As part of the Section 36 application process, the Applicant will request that the Scottish Ministers issue a Direction under s.57(2) of the Town and Country Planning (Scotland) Act 1997 ("the 1997 Act") that deemed planning permission be granted for the Proposed Development.

95. Paragraph (3)(1) of Schedule 9 of the Electricity Act 1989 sets out the duties that are relevant to the Applicant in formulating any relevant proposals. Paragraph (3)(2) sets out the duties that are relevant to the Secretary of State in considering any relevant proposal for which consent is required. Sub Paragraph 1 states:

"In formulating any relevant proposals, a licence holder or a person authorised by exemption to generate, transmit, distribute, supply or participate in the transmission of electricity--

(a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and

(b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects."

Sub-paragraph 2 applies to all applicants and refers to sub paragraph 1. Sub-paragraph 2 states:

"In considering any relevant proposals for which his consent is required under section 36 or 37 of this Act, the Secretary of State shall have regard to —

(a) the desirability of the matters mentioned in paragraph (a) of sub-paragraph (1) above; and

(b) the extent to which the person by whom the proposals were formulated has complied with his duty under paragraph (b) of that sub-paragraph."

96. Paragraph (3)(3) of Schedule 9 to the Electricity Act sets out the requirement for both the Applicant and Secretary of State to avoid as far as possible, causing injuries to

the stock of fish in any waters in exercising any relevant functions referred to in sub paragraphs (1) and (2).

3.2 Project Need and The Renewable Energy Policy Framework

97. The framework of international agreements, legally binding targets and climate change global advisory reports is the foundation upon which national (UK and Scottish) renewable energy policy is based.

98. Onshore wind remains vital to Scotland's future energy mix, and current energy policy supports development to meet Scotland's legally binding net zero target. The Scottish Government remain committed to onshore wind as the lowest-cost new-build electricity generation in the UK.

99. On 28 February 2018 the Scottish Government outlined a target of reducing greenhouse gas emissions by 66% by 2032 with the publication of the Climate Change Plan, third report: proposals and policies 2018-2032. This plan set out the path to a low carbon economy while helping to deliver sustainable economic growth and secure the wider benefits to a greener, fairer and healthier Scotland in 2032. The Plan sits alongside the Scottish Energy Strategy 2017 which put forward the Scottish Government's vision for the future energy system in Scotland, for the period to 2050, setting out domestic and international climate change targets with a 2030 'all-energy' target for the equivalent of 50% of Scotland's heat, transport and electricity consumption to be supplied from renewable sources. It was published alongside the Onshore Wind Policy Statement (December 2017).

100. In 2019, this was all updated by The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, which amends the Climate Change (Scotland) Act 2009 and sets targets to reduce Scotland's emissions of all greenhouse gases to net-zero by 2045 at the latest, with interim targets for reductions of at least 75% by 2030, 90% by 2040. To help ensure delivery of the long-term targets, Scotland's climate change legislation also includes annual targets for every year to 2045. These targets require a doubling of effort which will be challenging to meet.

101. The Scottish Government declared a climate emergency on 14 May 2019. The declaration of an 'emergency' is a reflection of both the seriousness of climate change and its potential effects and the need for urgent action to cut carbon dioxide emissions.

102. A large increase in the deployment of this renewable energy technology is supported through a number of UK level policy documents including the latest UK Energy White Paper (2020) and Net Zero Strategy (2021). Scottish Government policy commitments are also clear – most recently expressed in the Onshore Wind Policy Statement (OWPS) and in the adopted National Planning Framework 4 (NPF4) which will be material to the energy and national planning policy positions to be considered for the determination of the application.

103. The key points which can be drawn from the OWPS include:

- The central requirement for a rapid transition to net zero and the crucial role of further onshore wind development in achieving legally binding targets, especially through the 2020s.
- Unequivocal Scottish Government policy support for the future role of onshore wind.
- The urgency of the Climate Emergency and the scale of the necessary ambition – there is express recognition in the OWPS of the need for ''decisive and meaningful action'', ''further and faster'' delivery and that continued

deployment of onshore wind will be key to ensuring our 2030 targets are met. The OWPS sets out a new ambition for the deployment of onshore wind in Scotland of ‘’A minimum installed capacity of 20 GW….by 2030.’’

- ‘’This ambition will help support the rapid decarbonisation of our energy system, and the sectors which depend upon it, as well as aligning with a just transition to net zero whilst other technologies reach maturity.’’
- The OWPS is clear that rapid transformation is required across all sectors of our economy and society in order to meet climate targets. ‘’Meeting the ambition of a minimum installed capacity of 20 GW of onshore wind in Scotland by 2030 will require taller and more efficient turbines. This will change the landscape.’’

3.3 National Planning Policy and Guidance

104. NPF4 was adopted by the Scottish Government on 13 February 2023 and now forms part of the statutory Development Plan. NPF4 replaces Scottish Planning Policy (SPP) and National Planning Framework 3 (NPF3) in their entirety and is a key material decision in the determination of the planning application for the Proposed Development. Section 13(3) of the Planning (Scotland) Act 2019 means that, as the most recent part of the development plan, NPF4 will take precedence over the adopted Scottish Borders Local Development Plan (or LDP 2) in the event of any incompatibility between the two.

105. The global climate emergency and the nature crises are the key focus for NPF4. All of the national planning policies within the plan are underpinned by **Policy 1: Tackling the Climate and Nature Crisis**, an overarching policy which states that *“when considering all development proposals significant weight will be given to the global climate and nature crises”*. This represents a fundamental shift in planning policy response to climate change compared to previous planning policy. It provides clarity to decision makers on the amount of weight that should be applied to these crucial topics when determining planning applications and this policy also recognises the inter-related nature of these twin issues.

106. In order to tackle climate change and achieve net zero emissions by 2045, there is now a clear expectation in NPF4 on the role that planning must play in delivering the expansion of renewable energy. NPF4 now includes ‘Strategic Renewable Energy Generation and Transmission Infrastructure’ as a **National Development 3**. Annex A of NPF4 states that National Development status *“means that the principle of development does not need to be agreed in later consenting processes.”* **Policy 2: Climate mitigation and adaption** also seeks to facilitate developments such as renewable energy developments that minimise greenhouse gas emissions.

107. **Policy 11: Energy** part (a) makes clear that all types of renewable energy are supported in principle, with part (b) identifying the only exception to this policy support is wind farm developments in National Parks and National Scenic Areas. Part (c) identifies that renewable energy proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits. Part (e) sets out the impacts to be addressed through project design and mitigation assessment, with specific consideration to be given to the following criteria:

- Impacts on communities and individual dwellings;
- Significant landscape and visual impacts;
- Public access,
- Aviation and defence interests;

- Impacts on telecommunications and broadcasting installations;
- Impacts on road traffic and trunk roads;
- Impacts on the historic environment;
- Effects on hydrology, the water environment and flood risk;
- Biodiversity;
- Impacts on trees, woods and forests;
- Proposals for decommissioning;
- Site restoration; and
- Cumulative impacts.

108. In terms of landscape and visual impacts, Policy 11 recognises that significant landscape and visual impacts are to be expected for onshore wind energy developments and states that *"where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable."*

109. In accordance with Policy 1, Policy 11 part (e) provides that when considering impacts upon the above considerations that *"significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets."* Other relevant policies within NPF4 include:

- Policy 3: Biodiversity;
- Policy 4: Natural places;
- Policy 5: Soils;
- Policy 6: Forestry, woodland and trees;
- Policy 7: Historic assets and places
- Policy 13: Sustainable Transport
- Policy 14: Design, quality and place
- Policy 20: Blue and green infrastructure;
- Policy 22: Flood risk and water management;
- Policy 23: Health and safety;
- Policy 25: Community wealth building; and
- Policy 33: Minerals.

3.4 Local Development Plan

110. In addition to NPF4, the Development Plan for the Site also includes the Scottish Borders Local Development Plan (LDP) (adopted May 2016) and its associated statutory Supplementary Guidance including Renewable Energy Supplementary Guidance' (amended 2018) (RESG).

111. The LDP was adopted on 12 May 2016 and sets out the Authority's policies on development and land use within the region. The LDP is focussed on a number of 'Key Outcomes' which are specifically identified to assist in meeting the associated challenges in the region.

112. Key Outcome 10 seeks to support the *"development of the area's full potential for electricity and heat from renewables sources, in line with national climate change targets, giving due regard to relevant environmental, community and cumulative impact considerations"* (p14).

113. Policy ED9, 'Renewable Energy Development' also seeks to *"support proposals for both large scale and community scale renewable energy development including commercial wind farms…where they can be accommodated without unacceptable significant adverse impacts or effects, giving due regard to relevant environmental, community and cumulative impact considerations"*.

114. Policy ED9 specifically refers to the associated Scottish Planning Policy (SPP) Spatial Framework for onshore wind developments which is now replaced by NPF 4. There is also a list of environmental and land use effects criteria within the Policy which will be used to consider wind energy proposals.

115. Policy ED9 is supported by a spatial framework for Renewable Energy which is established in the Renewable Energy Supplementary Guidance (July 2018). The Site Boundary is identified as an 'Area for potential windfarm development' in this Guidance.

116. In addition to the policy principles discussed above, there are a number of further primary policy provisions within the LDP which will be considered as part of the EIA process and design development. These include:

- Policy PMD1, Sustainability;
- Policy PMD2, Quality Standards;
- Policy PMD4, Development Outwith Development Boundaries;
- Policy ED10, Protection of Prime Quality Agricultural Land and Carbon Rich Soils;
- Policy EP2, National Nature Conservation and Protected Species;
- Policy EP3, Local Biodiversity;
- Policy EP8, Archaeology;
- Policy EP13, Trees, Woodlands and Hedgerows;
- Policy IS5, Protection of Access Routes; and,
- Policy IS8, Flooding.

3.4.1 The Emerging Local Development Plan

117. The Proposed LDP 2 which sets out land use proposals and planning policies which are intended to guide development and inform planning decisions within the Scottish Borders over the next ten years was submitted to Scottish Ministers on 14 July 2022.

118. The examination of the Proposed Plan is progressing and the Ministers target date to conclude the examination was May 2023. SBC responded to the Examination Reports recommendations in later 2023, although it is noted a recent letter from Scottish Ministers to SBC in March 2024 directed SBC to make further changes. The timetable for adoption of Proposed LDP 2 is therefore uncertain at this time.

119. However, it should be recognised that for proposed LDPs prepared prior to the adoption and publication of NPF 4, it is possible that identified inconsistencies with NPF4 may be addressed through the examination process. This may cause delay to adoption of the Proposed Plan.

120. Policy ED9 of the Proposed Plan relating to Renewable Energy remains largely unchanged from the currently adopted Policy. Overall, it is recognised that as the Proposed Plan draws closer to adoption, it will gain material weight in the decision-making process and as such it will be considered as part of the EIA process and associated design approach.

3.5 Questions to Consultees

Q3.1 Do consultees agree that the identified policies are relevant to the proposed application?

Q3.2 Are there any additional planning and energy documents and policies that consultees believe should be taken into consideration in respect of the Proposed Development?

Q3.3 Are consultees in agreement that national policy considerations and development plan policy be identified and assessed in the Planning Statement and that there is consequently no need to include a dedicated chapter on Planning Policy Context in the EIA Report?

4.0 Landscape and Visual

4.1 Introduction

121. The Landscape and Visual Amenity Chapter of the EIA Report will consider the potential effects of the Proposed Development on landscape and visual receptors during construction and operation and evaluate whether these effects are likely to be significant. This chapter sets out the proposed methodology for the landscape and visual assessment (LVIA) which will include an assessment of cumulative effects. The LVIA Scoping chapter will focus on likely significant effects and will identify effects that can be scoped out of the assessment.

4.1.1 Consultation

122. As part of the on-going work to inform the landscape and visual assessment, a consultation exercise to obtain additional data and the views of statutory consultees on the selection of viewpoints and scope of the cumulative assessment will be undertaken with NatureScot, Scottish Borders Council and Dumfries and Galloway Council. Given the limited visibility within England, it is not proposed to consult with English local authorities further with regard to the scope of the LVIA.

4.2 Environmental Baseline

4.2.1 Data Sources to Inform the EIA Baseline Characterisation

123. The key sources of information to inform the characterisation of baseline landscape and visual conditions of the Site and its surroundings are:

- Ordnance Survey and other leisure maps;
- Landscape Character Type descriptions; and
- citations for designated landscapes including National Scenic Areas (NSAs), Local Landscape Areas, and Gardens and Designed Landscapes.

4.2.2 Surveys to Inform the EIA Baseline Characterisation

124. Desk studies will be carried out to identify key landscape and visual receptors, and to identify the likely visibility of the Proposed Development based on ZTV mapping and 3D modelling. Computer generated 3D models will be used to prepare draft wireline images to illustrate theoretical visibility and to assist fieldwork, and for detailed visualisation modelling though the production of wirelines and photomontages.

125. Fieldwork will be carried out including visits to the Site, all viewpoints, and the wider area more generally to assess potential effects on landscape character areas and designated landscapes. Photography will be undertaken for viewpoint locations, including photography at dusk for locations for which night-time photomontages are required to illustrate the effects of aviation lighting.

4.2.3 Study Area

126. The initial study area for the LVIA will be 45km from the outermost turbines of the Proposed Development, as advised by NatureScot guidance[1], but it will be reduced to focus on likely significant effects to those landscape and visual receptors. Effects

[1] Scottish Natural Heritage (2017) Visual Representation of Windfarms, Version 2.2.

on landscape character will be considered briefly for the wider study area (45km), but the EIA Report will focus on a more localised area of approximately 15km radius where significant effects will be more likely. Visual effects will be considered for locations across the wider study area, but those reported on in detail are likely to be within an area of approximately 25km radius for viewpoints and routes, and approximately 10km radius for settlements. A number of more distant viewpoints will be included to illustrate visibility of the Proposed Development, even though they will not be assessed in detail.

127. A Zone of Theoretical Visibility (ZTV) to 45km from the Proposed Development is shown in **Figure 4.**1 showing the potential theoretical visibility of the turbine tips of the Proposed Development based on bare-ground landform and topography. The ZTV will be used to enable a focussed assessment that considers potential significant landscape and visual effects. **Figure 4.2** shows the ZTV on a 1:100,000 scale background map for additional detail.

128. Following identification of the study areas, a preliminary review of the baseline conditions has been undertaken and the findings are reported below.

4.2.4 Site Context

4.2.4.1 The Site

129. The Site is located in the south of Scotland, within the Scottish Borders, with the Site centre point located approximately 11km southwest of Hawick. The Site is on higher ground, approximately 1.5km to the northwest of the A7 and the River Teviot. In the northwest it slopes down towards Borthwick Water and southeast into the River Teviot, the watershed roughly corresponding with the southwest-northeast axis of The Site. To the west, the Site borders on Craik Forest. Apart from Mid Hill there are six named hills (partly) within the site, all 300-400m high. The small waterbody Broadlee Loch is located within the site.

130. Key landscape and visual receptors will be people living, visiting, or travelling in the area, particularly those along the A7 which is the main public road connecting Langholm in the south and Hawick in the northeast, as well as along the B711 running west from Hawick to connect with the B709/B7009 near Crosslee.

4.2.4.2 The Surrounding Landscape

131. The 45km initial study area runs from north of Lauder, south to Annan and Gretna, and from the Scottish Border near Cheviot to the east, to Abington in the west. The 45km Study Area extends into England, to close to Otterburn and Bellingham in the southeast, and to Hadrian's Wall in the south. The ZTV in **Figure 4.1**, illustrates that theoretical visibility will not cover all of this area, particularly beyond hills towards the southeast, southwest and northwest. As discussed above, the assessment will focus on a smaller study area where significant landscape and visual effects may occur. The area of approximately 25km radius extends from Melrose in the north to Langholm in the south. In the east it includes Jedburgh, to the west Moffat lies a little outside this area.

132. There are a number of existing wind farms within 15-20km of the Site, as shown on **Figure 4.1**: Langhope Rig, Ewe Hill, Ewe Hill Six, and Craig (Phases 1&2). Pines Burn is under construction, and Hopsrig has been consented. Consideration of the relationship between the Proposed Development and these wind farms will be a key aspect for both design of the scheme and assessment of landscape and visual effects. There are also a number of other consented and proposed wind farm

developments in the study area, which will be considered in the cumulative assessment.

4.2.5 Zone of Theoretical Visibility (ZTV) Overview

133. The ZTV illustrates the very varied topography across the study area, with interlocking hills and valleys of the Southern Upland hill range. Views out from valleys are naturally contained, and views from hill tops more open. In reflection of this, visibility of the Proposed Development will be limited within valleys except the closest, but it will be visible from higher ground. The ZTV (**Figure 4.1** and **Figure 4.2**) indicates that the Proposed Development will be visible from much of the local area within 5-6km, including from within the Teviot and Borthwick valleys. Beyond this distance, visibility from within valleys is limited to occasional views along valleys aligned with the Site.

134. Visibility from high ground will be from hill tops and high slopes facing towards the site, becoming more limited with distance and intervening elevated land. Visibility becomes very limited beyond 10km to the south-east to south-west (beyond Greatmoor Hill, Cauldcleuch Head, Wisp Hill, and the Craik Forest hills), with occasional visibility from the highest hills. Westwards there will be visibility from high east-facing slopes of successive hill ridges, out to 25-28km, with distant views from Black Hill, Hart Fell and Broad Law. Northwards visibility is limited to successive hill ridges becoming very limited beyond 15km. To the north-east there is more theoretical visibility as this direction is downstream and the Teviot valley runs away from the Site. Lowland valley landscapes tend to be more wooded, such that actual visibility is likely to be more limited. The LVIA will explore likely (both theoretical and actual) visibility of the Proposed Development in detail.

4.2.6 Landscape Character

135. The landscape character types within the Site and study area (15km) are described in the 2019 NatureScot review of the landscape character of Scotland[2], and illustrated on **Figure 4.3**. As significant changes to character of landscape as a result of development do not normally occur beyond approximately 10-15km away, at which distance wind farms form a more distant feature in the backdrop to local landscapes, it is proposed that the assessment of landscape effects will focus on potential likely significant effects on landscape character within approximately 15km from the Proposed Development.

136. The NatureScot Landscape Character Assessment (SNH, 2019) identifies the Site as being largely of the Rolling Moorland Landscape Character Type (LCT) (LCT94); an upland area characterised by large-scale, rolling, heather and grassland covered ground. On the hills the landscape is open and exposed and views from high ground are distant and panoramic. The road network is sparse, and settlement consists mainly of scattered farmsteads and cottages.

137. The westernmost part of the Site is identified as Rocky Upland Fringe (LCT101). This type is defined as a strongly undulating upland fringe landscape characterized by angular pasture-covered hills with rugged knolls and rock outcrops. A narrow zone to the southwest of the Site is identified as Southern Uplands Forest – Borders (LCT96), which is a variant of the Southern Uplands landscape type, dominated by forest cover.

[2] NatureScot landscape character assessment found at: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions.

138. Cutting through the Rocky Upland Fringe are Pastoral Upland Fringe Valleys (LCT117); a diverse valley type of medium scale with broadleaf woodlands and scrub on bluff slopes, and scattered trees along riverbanks. This LCT is found in the very north of the Site, as well as in the very south and southeast.

139. Another widespread LCT in the surrounding area is Southern Uplands with Scattered Forest (LCT93). This upland landscape is characterised by large-scale, rolling, heather and grassland covered hills. Similar to the Rolling Moorland LCT94, it is open and exposed on the hills, and views from high ground are distant and panoramic.

4.2.7 Designated Landscapes

140. Designated Landscapes are illustrated on **Figure 4.4** and set out in **Table 4-1**. No part of the Site is located within a designated landscape. Teviot Valleys, a Local Landscape Area as identified in the Local Development Plan[3] is the closest designated landscape to the Site, its western border is approximately 10km away.

Table 4-1 Designated Landscapes within approximately 25 km

Designated Landscape[4]	Approximate distance at nearest point	ZTV coverage and notes on inclusion in assessment
Eildon and Leaderfoot NSA	22.5km to the northeast	Limited visibility at over 22km away, unlikely to have significant effects on Special Qualities – will not be considered further.
Upper Tweeddale NSA	27km to the northwest	No theoretical visibility – not be considered further.
Teviot Valleys LLA	10km to the northeast	Visibility from west-facing slopes looking towards the Site. To be considered in the LVIA.
Tweed, Ettrick and Yarrow Confluences LLA	14km to the north	Limited visibility from south-facing slopes over 15km away, unlikely to have significant effects on key qualities – will not be considered further.
Tweedsmuir Uplands LLA	16km to the northwest	Limited visibility from high slopes generally over 20km away, unlikely to have significant effects on key qualities – will not be considered further.
Tweed Valley LLA	20.5km to the north	Limited visibility at over 20km away, unlikely to have significant effects on key qualities – will not be considered further.
Cheviot Foothills LLA	23.5km to the east	Limited visibility at over 23km away, unlikely to have significant effects on key qualities – will not be considered further.
Bowhill, Inventory listed Garden Designed Landscape (GDL)	14km to the north	Limited visibility from the upper parts of the GDL within woodland at over 14km away, and not affecting the house and its immediate setting. Unlikely to have significant effects on key qualities visibility – will not be considered further.
The Haining GDL	16km to the north	No theoretical visibility – will not be considered further.

[3] Scottish Borders Council (2016) Scottish Borders Local Development Plan.

[4] Note that Figure 4.4 also shows some designated landscapes beyond 25km which are not listed in Table 4.1.

Designated Landscape[4]	Approximate distance at nearest point	ZTV coverage and notes on inclusion in assessment
Fairnilee GDL	21km to the north	No theoretical visibility – will not be considered further.
Abbotsford GDL	22km to the north	No theoretical visibility – will not be considered further.
The Glen GDL	22km to the north	No theoretical visibility – will not be considered further.
Monteviot GDL	23km to the northeast	Limited theoretical visibility at over 23km away, and a well wooded landscape. Unlikely to have significant effects on key qualities – will not be considered further.
The Glen	24km to the northwest	No theoretical visibility – will not be considered further.

141. In addition to the designated landscapes listed above, NatureScot has identified Wild Land Areas (WLAs) across Scotland. Talla - Hart fell (WLA02) is situated approximately 18km northwest of the Site. Following National Planning Framework 4[5], assessment of effects on WLAs is not required as the Proposed Development is not within Wild Land.

4.2.8 Visual Receptors and Visual Amenity

4.2.8.1 Visual Receptors

142. Settlement is limited to the valleys across the study area. The closest small settlements to the site include Teviothead, Craik, Roberton. Hawick is further northeast, the south-eastern edge of which is approximately 11km from the Site centre point. The ZTV shown in **Figure 4.1** and **Figure 4.2** indicates theoretical visibility from each of these settlements. Other larger settlements across the study area, including Selkirk, Galashiels, Melrose, Innerleithen, Peebles, Jedburgh, Langholm and Moffat will not be considered in the LVIA as they will have only distant views or are not within the ZTV.

143. Residential properties within 2-2.5km of the Proposed Development are found in the Teviot valley, along or set back from the A7, and within the Borthwick Valley to the west and northwest. The closest properties are those that are on the lower slopes below the site, although it is likely to be properties that are on the opposite sides of these valleys that have most open views of the Proposed Development.

144. Roads within the study area are concentrated mainly in the northeast and southwest, corresponding to lower land where a network of roads has formed. The A7 crosses north through the southern half of the study area, coming in from Carlisle and Langholm. It turns northeast just south of the Site, along the Teviot Valley towards Hawick, and north again to Galashiels. At Hawick the A698 continues down the River Teviot to Kelso in the northeast and the A6088 branches off towards the southeast. The A68 passes through Jedburgh 25km from the Site, in roughly north to southeast direction. Northeast from Hawick minor roads become more frequent, especially around Jedburgh, St Boswells, and Kelso.

[5] Scottish Government (2023) National Planning Framework 4, Adopted February 2023.

145. To the southwest of the study area is the A74(M) and railway corridor, passing Lockerbie and Moffat. The A708 runs from Moffat and passes 16km north of the Site to connect to the A7 at Selkirk. The A72, A701 and A703 cross the northwestern part of the study area. Of these routes, the A7, A698, A6088 and A6088 have notable ZTV coverage, and will be considered in detail in the LVIA.

146. Local smaller roads that have some theoretical visibility and will also be considered in the LVIA include:

- the B711 from Hawick to Roberton and on to towards the Ettrick Valley;
- the minor road from Branxholm to Burnfoot via Chapelhill past the site to the north-east;
- the minor road up the Borthwick Water from Roberton to Craik;
- the minor road from Roberton north to Ashkirk, and
- the minor roads east of the Teviot Valley south of Hawick.

147. Other roads not listed above have limited or no visibility and will not be considered further.

148. Recreational routes tend not to be limited to valleys. A number of long distance walks cross the study area and will be considered in the LVIA:

- The Romans and Reivers Route passes through the Site, coming from Moffat through Eskdalemuir forest to Criak before climbing up into the Site past Broadlee Loch and north to Chisholme, Roberton and past Hawick;
- The circular Borders Abbeys Way is entirely within the study area and passes through Hawick at a distance of approximately 7.5km from the Site; This route coincides with the Cross Borders Drove Road as it passes near Hawick.
- The Southern Upland Way enters the study area from the west, through Moffat and runs north-eastwards to St Mary's Loch and Innerleithen, passing within 15km northwest of the Site in the Ettrick Valley. East of Innerleithen it runs over the hills north-east of Selkirk to Galashiels;
- Core paths and rights of way within 5km of the Site will be considered in the LVIA and include:
- core path 196: a section of the Romans and Reivers route from Ae Forest in Dumfries and Galloway to Hawick;
- core path 126: a short section passing south of Chapel Hill and Branxholme Easter Loch. This section is part of a 12km walk from Teviothead via Dryden Fell and High Seat to Newmill;
- a path from Teviothead to Newmill that runs up into the Site past Dryden Fell and Broadlee Loch;
- Other paths concentrated around Hawick.

4.2.8.2 Visual Amenity

149. Effects on views and visual amenity occur when the Proposed Development changes or influences the view or visual amenity as experienced by people. Visual amenity may be described as the overall visual experience from a given location, whilst a 'view' reflects a specific direction. People may engage in different activities or have different perspectives and in recognition of these differences, it is common practice to refer to 'visual receptors'. These include:

- residents within settlements and of individual properties;
- people who travel through the area with potential views of the Proposed Development; and
- people engaged in recreational activities including walkers on hills or core paths and visitors to tourist destinations where the visual experience is likely to include a focus on the surrounding landscape.

4.2.9 Viewpoint Selection

150. Viewpoints proposed for the assessment of visual effects will be discussed with NatureScot and the Councils. An initial list of locations has been identified in **Table 4-2** below, and the locations are shown on **Figure 4.5**. These include locations to represent:

- viewpoints representing different view directions or viewing experiences;
- views from settled areas close to the Proposed Development;
- views from routes including those listed above;
- views from key visitor locations within the surrounding landscape (e.g., from Hawick);
- views that can be used to represent views from designated landscapes;
- views from hill tops that are popular with walkers, such as Penchrise Pen and Bonchester Hill;
- longer distant views from key locations at the edges of the study area, for reference rather than because significant effects are likely: such as the Three Brethren (which is also on the Southern Upland Way).

151. All viewpoints can be used in the cumulative assessment.

Table 4-2 Proposed Viewpoints

Viewpoint Title		Grid Reference		Approx. Distance (km)	Reason for Selection and Representativeness	Proposed Visualisations
1	Hawick, Miller's Knowe	350930	614650	8.5	Public park within settlement of Hawick, with more open views from much of the settlement but representative.	photomontage
2	Hawick Cemetery	351075	615765	9.3	Cemetery within settlement of Hawick, with relatively open views, representative.	photomontage
3	A7 Branxholme Braes	345920	610930	2.5	On the A7 south of Hawick representing views from key route past Site.	photomontage plus dusk visualisation
4	A7 Teviothead	340820	605690	2.0	On the A7 within settlement of Teviothead.	photomontage plus dusk visualisation
5	A7 Linhope	340640	601730	5.8	On the A7, representing first views when travelling northbound	photomontage

Viewpoint Title		Grid Reference		Approx. Distance (km)	Reason for Selection and Representativeness	Proposed Visualisations
6	Todshaw Hill Fort	344743	612598	2.4	On higher ground north-east of the Site, representing views from the minor road from Branxholm to Burnfoot as well as views from the forts in this location.	photomontage
7	Burnfoot	341185	612850	1.9	Within the Borthwick Water valley representing local views from the north.	photomontage plus dusk visualisation
8	B711 Firestane Edge	340780	614445	3.5	On the B711 representing views when traveling eastbound.	photomontage
9	Drinkstone Hill	348290	618590	9.4	A low hill to the north of Hawick over which several long distance routes pass, including the Borders and Reivers Route, the Cross Borders Drove Road, and the Borders Abbey Way.	photomontage
10	Craik	335000	608050	2.6	Representing views from the nearby settlement and the Romans and Reivers Route	photomontage
11	Craik Cross Hill	330417	604764	7.7	Representing views from the Romans and Reivers Route within Craig Forest (forest cover will be reviewed on site to select a location with an open view)	photomontage
12	Arkleton Hill	340490	592200	15.3	One of the higher hills to the south of the Site, representing hill views from the south.	photomontage
13	Penchrise Pen	349075	606225	7.1	A hill with a fort and settlement south of Stobs Castle, representing views from the fort and from other hills to the east of the Site.	photomontage
14	B6399 Cogsmill	352495	608720	9.2	On the B6399 south of Hawick, at a point where there will be a brief view of the Proposed Development for northbound road users.	photomontage
15	Bonchester Hill	359480	611770	16.1	A hill with a fort and settlement east of Bonchester Bridge, representing views from the fort and from other more distant hills to the east of the Site.	photomontage
16	A6088 west of Carter Bar	367725	607260	24.5	Distant view from the east representing longer distance views.	wireline
17	Three Brethren	343286	631932	21.0	On the Southern Upland Way West of Galashiels, representing	wireline

Viewpoint Title		Grid Reference		Approx. Distance (km)	Reason for Selection and Representativeness	Proposed Visualisations
					longer distance viewpoints and views from this route.	
18	Broad Law	314650	623550	27.8	Hill summit to the west, representing longer distance views.	wireline

4.2.10 Potential Visual Effects of Turbine Lighting

152. In the interests of aviation safety, CAA policy[6] states that turbines over 150m to tip height are required to incorporate visible lighting. An assessment of the visual effects of aviation lighting on the proposed wind turbines will be carried out as part of the LVIA and included within the assessment.

153. The night-time context at viewpoint locations will be described, with the related sensitivity and magnitude of change arising from the proposed aviation lighting drawn upon, to assess the likely visual effects of aviation lighting and to provide general comment on the likely effects across the wider area, to approximately 20km, beyond which distance attenuation and atmospheric conditions (even in clear weather) will reduce the brightness of the lights to very low, to the point of not being visible to most people.

4.2.11 Cumulative Wind Farms

154. As noted above, there are existing wind farms within and around the study area, which will be considered as part of the baseline for the LVIA. With respect to potential cumulative landscape and visual effects with other proposed wind farms, there are a number of developments at various stages in the planning process. Given the ever-changing situation, cumulative data (beyond existing and consented schemes) is not collated exhaustively at this time but will be prepared during the LVIA. Local authority planning portals and the Energy Consents Unit website will be used to identify proposed wind farms, and the final list will be agreed with statutory consultees to give as up-to-date a picture as possible.

4.3 Potential Sources of Impact

155. Likely significant effects during the phases of the Proposed Development are set out below.

- Construction
  - Temporary effects on landscape character, primarily as a result of wind turbine installation, with direct effects on the fabric on the landscape and on the character of the Site landscape relating to ground level structures, and indirect effects on the perceived effects on the character of the surrounding character areas; and
  - Temporary visual effects on views, primarily as a result of visibility of ground level activity and structures following wind turbine installation during construction, experienced by people (visual receptors).

[6] Civil Aviation Authority (2017) DAP Policy 124. Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150 m Above Ground Level.

- Operation
  - Long-term effects on landscape character, as a result of wind turbine operation and ground level structures, either affecting the pattern of elements that define the character or affecting the visual/perceptual characteristics of landscape character areas;
  - Long-term visual effects as a result of the Proposed Development on views and visual amenity, experienced by people at places with visibility of different elements of the Proposed Development. This includes effects of aviation safety lighting after dark and effects on the visual aspects of residential amenity for residential properties close to the Site;
  - Cumulative effects of the Proposed Development in combination with consented and proposed wind farm schemes across the wider area, including combined, successive and sequential visibility; and
  - Effects on the landscape and visual resource identified in or affecting designated landscapes, which may affect their special qualities and reasons for designation.
- Decommissioning
  - The effects of the Proposed Development during decommissioning will be less than those identified during construction as structures will gradually be removed and no ground disturbance is proposed. Effects will reduce as decommissioning proceeds.

4.3.1 Key Sensitivities

156. Key sensitivities for the Proposed Development in this location is likely to be views and visibility from valley locations including settlements and routes. Most people will experience the Proposed Development from roads around the study area, which tend to run along valleys or over hill passes. Settlements too, are located within valleys. Other key sensitivities will include views from long distance routes that do not keep to valley routes but pass over hills and ridges.

4.3.2 Mitigation

157. Mitigation will be considered from the outset and embedded within the layout design in order to minimise potential effects on the landscape and visual resource. This process will be undertaken in the design iterations which will strike a balance between minimising effects from sensitive landscape and visual receptors whilst taking account of other constraints.

4.4 Method of Assessment and Reporting

4.4.1 Assessment Methodology

4.4.1.1 Proposed Assessment Methodology

158. The landscape and visual assessment will identify likely significant effects of the Proposed Development on the landscape resource and visual amenity, in accordance with *Guidelines for Landscape and Visual Impact Assessment* (GLVIA3[7]). Other sources of guidance and references used in the assessment will be

[7] Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition.

industry standards. The documents used will be set out in more detail in the EIA Report. Local planning policy and guidance will also be reviewed in the EIA Report.

159. All maps and visualisations will be produced in accordance with NatureScot guidance[8].

160. The most widely visible elements of the Proposed Development will be the wind turbines. Much of the LVIA will therefore, necessarily, consider primarily the visibility and effects of the turbines. However, the assessment of effects will consider all other elements of the Proposed Development throughout (i.e. tracks, BESS, substation, electrical infrastructure, etc).

4.4.1.2 Desk Study and Field Surveys

161. Desk studies and fieldwork will be carried out as set out above.

4.4.1.3 Assessment of Landscape Effects

162. Effects on landscape character will be considered in detail for LCTs within approximately 15km of the Site, with ZTV mapping used as a means of identifying which LCTs require assessment. Predicted changes in both the physical landscape and landscape character will be identified. The assessment will identify the magnitude and type of change to the landscape, with reference to its key characteristics as set out in the NatureScot LCT descriptions[9].

163. The sensitivity of the landscape will also be taken into account, and value placed on the landscape through designation, key or unique characteristics, as well as the presence of other consented and operational wind farms. The magnitude of the effect will be assessed in terms of the size and scale, geographical extent, duration, and reversibility of the effect. These aspects will all be considered, to form a judgement regarding the overall effect and whether this is judged to be significant.

164. Significance of landscape effects, considering receptor sensitivity and the magnitude of change as set out above, will identify the level of effect using four categories: major, moderate, minor and negligible. Major and moderate effects will be considered to be significant in the context of the EIA Regulations.

4.4.1.4 Assessment of Visual Effects

165. Visual effects are experienced by people at different locations around the study area, at static locations (for example from settlements or from selected viewpoints) and sequentially when travelling along routes. It is usually considered that grouping people related to ‘status’ (e.g. residents, visitors/tourists/motorist) or the ‘activity’ they are engaged in (sport, informal recreation, commuting) will help the assessment of sensitivity and lead to findings which can be considered representative. Assessment of the visual effects of the Proposed Development on receptors will be based on analysis of the ZTVs, field studies and assessment of representative viewpoints. Proposed viewpoints have been listed in Error! Reference source not found..

166. GLVIA3 states that the nature of visual receptors, commonly referred to as their ‘sensitivity’, should be assessed in terms of the susceptibility of the receptor to change in views/visual amenity and the value attached to particular views. The magnitude of the effect will be assessed in terms of the size and scale, geographical

[8] Scottish Natural Heritage (2017) Visual Representation of Wind Farms Guidance Version 2.2.

[9] Scottish Natural Heritage (2019) Digital map-based national Landscape Character Assessment: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions.

extent, duration and reversibility of the effect. These aspects will all be considered in forming a judgement regarding the overall effect and whether this is judged to be significant.

167. Significance of visual effects, considering receptor sensitivity and the magnitude of change as set out above, will identify the level of effect using four categories: major, moderate, minor, and negligible. Major and moderate effects will be considered to be significant in the context of the EIA Regulations.

4.4.1.5 Visualisations

168. Visualisations and graphics used to support the assessment will include:

- ZTV maps analysing visibility of the proposed wind turbines to tip and hub heights as well as combined ZTV maps with other wind farms;
- photographs of existing views from the selected viewpoints;
- wireline images to illustrate theoretical visibility of the Proposed Development;
- photomontages to illustrate the predicted changes to views; and
- night-time photomontages for two to three viewpoints to illustrate the appearance of aviation lighting after dark.

169. Visualisations will include cumulative schemes and will be produced in accordance with NatureScot guidance[10].

170. Night-time photomontages, using photographs taken shortly after dusk (with due consideration of safety of photographers), will be produced for two to three viewpoints to illustrate the potential appearance of aviation lights on turbines relative to the existing night-time baseline. The selection of viewpoints to be represented will be agreed with consultees, but may include:

- VP3 A7 Branxholme Braes – as a location on the A7 representing views from the that route from the northeast;
- VP4 A7 Teviothead – as views from the local settlement and the A7; and
- VP7 Burnfoot – representing views from the Borthwick Water valley to the north.It is not proposed to provide night-time visualisations from hills or remote off-road locations for Health and Safety reasons, and because there are less likely to be viewers in those locations after dark.

4.4.1.6 Assessment of Cumulative Effects

171. The LVIA will consider operational wind farms and those under construction as part of the existing baseline.

172. The cumulative assessment (CLVIA) will consider the pattern of wind farms across the wider landscape (to approximately 45km) but will focus on closer wind farms and the relationship that the Proposed Development will have with them. The CLVIA will assess the combined visual effects of the Proposed Development with other existing or reasonably foreseeable wind farms within approximately 15-20km. The CLVIA will consider schemes which have undetermined applications or appeals (as well as those that are existing or under construction). The CLVIA will seek to focus detailed assessment on the cumulative effects of the Proposed Development with

[10] Scottish Natural Heritage (2017) Visual Representation of Wind Farms Guidance Version 2.2.

developments most likely to have cumulative relationships with the Proposed Development that result in significant effects.

173. As noted above, the research to collect cumulative data will be undertaken using the Council's planning portal and ECU websites, and the scope of assessment and 'cumulative cut-off date' will be agreed with the Council and NatureScot to ensure the most up to date information available is included. Detailed cumulative data will be collected for all schemes within 25km of the Proposed Development. Schemes at scoping stage within 10-15km will be included in the CLVIA if sufficient data is available. More distant scoping proposals and schemes with turbines below 50m to blade tip height will not be included in the CLVIA.

174. The CLVIA will be carried out in accordance with the principles contained in NatureScot guidance on cumulative assessment[11]. This methodology assesses different development scenarios with increasing levels of 'uncertainty'. Cumulative scenarios will include:

- Existing Scenario: this assesses the effects with all operational developments and those under construction present in the baseline and thus represents the LVIA;
- Consented Scenario: this scenario assumes that consented developments are also present in the landscape;
- In-planning Scenario: this is a speculative scenario because it assumes all undetermined applications, as well as all developments included in the earlier scenarios, are present in the landscape and therefore considers the effect of adding the Proposed Development into this landscape; and
- Scoping Scenario: As this is a highly speculative scenario, consideration will be brief, noting key potential relationships.

175. The intervisibility of the Proposed Development with other developments in the surrounding area will be explored by overlaying the ZTVs of other developments with that of the Proposed Development. Paired or grouped ZTVs will be prepared to illustrate the key relationships between the Proposed Development and other developments. It is not proposed that exhaustive combined ZTVs will be produced, but rather that selected combinations will be used to illustrate key intervisibility relationships. Cumulative visual effects will be assessed through analysis of combined ZTVs, views from individual viewpoints, and sequential views from routes.

176. The magnitude of additional cumulative change to views or landscape character is the additional influence the Proposed Development has on the views or character of the landscape, assuming the other developments are already present.

177. The CLVIA will consider the in-combination effects of emerging wind energy development patterns, and how the Proposed Development relates to these patterns and trends.

4.4.1.7 Designated Landscapes

178. The LVIA will review the baseline description and citations of designated landscapes within the ZTV and within 20km of the Site. Following the assessment of landscape, visual and cumulative effects, there will be a review of the identified effects for landscape and visual receptors within those designated areas, and how the identified

[11] NatureScot (2021). Guidance-Assessing the cumulative impact of onshore wind energy developments.

effects will affect the key qualities and reasons for designation. No separate assessment of effects on designated areas will be made, to avoid double counting.

4.4.1.8 Residential Visual Amenity Assessment

179. Visual amenity is a component of 'residential amenity', which includes noise, shadow flicker, etc., and is strictly a planning consideration relevant to residents at their properties. Changes in visual aspects of residential amenity will be considered in a 'Residential Visual Amenity Assessment', which typically considers effects on properties within approximately 2-2.5km of proposed turbine locations.

180. It is considered that a Residential Visual Amenity Assessment will be required as there are a number of residential properties near the Proposed Development. The Residential Visual Amenity Assessment will be carried out in accordance with the Landscape Institute guidance[12], considering properties individually or in groups where they have a similar location, setting and outlook.

4.4.1.9 Difficulties and Uncertainties

181. To ensure transparency within the EIA process, the following difficulties and uncertainties have been identified:

182. The reliance on bare-ground modelling for wireframes and ZTVs used in graphics, which does not take account of potential screening by buildings and vegetation. The theoretical visibility indicated by the bare-ground models is therefore an over-estimation of visibility. Actual visibility will be identified for receptors based on fieldwork, and will also be illustrated in photomontages. Photomontages will illustrate any forest removal as part of the Proposed Development.

183. It should be noted that illustrations and modelling cannot replace the need for site visits and can only be used to represent what people may see from the viewpoint. Whilst accuracy of modelling is essential, modelling can only be as accurate as the data used and cannot be used to replace field visits. It is noted also that the movement of the turbines may render them more noticeable in the view than static photographs/photomontages can portray.

184. Limitations to the cumulative assessment include the uncertainty of whether the proposed wind farms will be built in the future. This includes consented schemes that may or may not be built. The assessment will also rely on data available at the 'cut-off' date, and it should be noted that the locations and specifications of turbines may change for proposed and consented schemes before they are actually built, through redesign and/or micro-siting.

185. Any further assumptions and limitations encountered during the assessment process will be set out in the EIA Report.

4.5 Consultation

186. Consultation following scoping will include consultation with NatureScot and local authorities in relation to the selection of viewpoints and the inclusion of wind farms in the cumulative assessment.

[12] Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA). Technical Guidance Note 2/19.

4.6 Matters Scoped Out

187. To allow a focussed assessment, where receptors are unlikely to be affected by the Proposed Development, either through having little or no theoretical visibility, or being distant from the Proposed Development, they will be scoped out of the LVIA. The exception to this may be a few long-distance viewpoints specifically requested by consultees to provide evidence of likely visibility of the wind turbines from these locations, though effects are unlikely to be significant.

188. At this stage, it is proposed that the receptors set out in **Table 4-3** will not be included in the assessment, on the basis of the initial desk-based work undertaken.

Table 4-3 Landscape and Visual Receptors/ Effects to be Scoped Out

Receptor/ Effect	Main Phase	Justification
Receptors without theoretical visibility (except routes where visibility can be intermittent)	all	No theoretical visibility. Sections of routes without visibility will be included when considering views of the Proposed Development as part of the experience of the route.
LCTs beyond 15km radius	all	No likelihood of significant effects beyond this range.
Designated landscapes beyond 25km radius	all	No likelihood of significant effects beyond this range.
Viewpoints beyond approximately 25km	all	If more distant viewpoints are requested, wireline visualisations can be provided for illustration of more distant views, but these locations will not be assessed in detail as these are too distant for likely significant effects.
Settlements beyond 10km	all	No likelihood of significant effects beyond this range.
Routes beyond approximately 25km, local paths beyond 5km	all	No likelihood of significant effects beyond this range. More distant sections of route may be included when considering views of the Proposed Development as part of the experience of the route.
Residential properties beyond 2.5km	all	Guidance on Residential Visual Amenity Assessment indicates that assessment should include properties within approximately 2km of proposed turbine locations. Given the size of turbines currently proposed, this will be increased to 2.5km.
Wild Land	all	NPF4 sets out in policy 4g that "*Buffer zones around wild land will not be applied, and effects of development outwith wild land areas will not be a significant consideration*"(NPF4, 2023). As the Site is approximately 18km from the nearest Wild Land Area, a detailed assessment of effects on wild land is not required.

4.7 Questions for Consultees

Q4.1 Do consultees agree with the proposed approach?

Q4.2 Do consultees agree with the proposed study areas?

Q4.3 Do consultees agree with the proposed viewpoint list?

Q4.4 Do consultees agree with the matters scoped out?

Q4.5 Are there any additional guidance documents that should be taken into consideration in relation to landscape and visual matters?

4.8 References and Standard Guidance

- Civil Aviation Authority (2017) DAP Policy 124. Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150 m Above Ground Level.
- Landscape Institute (2019) Residential Visual Amenity Assessment (RVAA). Technical Guidance Note 2/19
- Landscape Institute (Sept 2019) Visual Representation of Development Proposals – Technical Guidance Note 06/19.
- Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition.
- NatureScot (2021). Guidance-Assessing the cumulative impact of onshore wind energy developments.
- Scottish Borders Council (2016) Scottish Borders Local Development Plan.
- Scottish Government (2023) National Planning Framework 4, Adopted February 2023.
- Scottish Natural Heritage (2017) Siting and Designing Windfarms in the Landscape, Version 3
- Scottish Natural Heritage (2017) Visual Representation of Wind Farms Guidance Version 2.2.
- Scottish Natural Heritage (2019) Digital map-based national Landscape Character Assessment: https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions .

5.0 Ornithology

5.1 Introduction

189. This section of the EIA Scoping Report details the approach to baseline ornithological information gathering, the proposed scope of assessment and assessment methodology of potentially significant effects upon Important Ornithological Features (IOFs) from the Proposed Development alone and in-combination with other relevant developments.

190. Potential impacts upon ornithological features will be considered throughout the design process for the Proposed Development, and where possible will either be avoided completely through scheme design or will be prevented/minimised via good practice embedded mitigation measures.

191. The EIA Report Ornithology chapter will detail all those measures required to avoid, minimise or offset any potentially significant adverse effects on IOFs and outline the opportunities to enhance baseline ornithological conditions that will be included as part of the Proposed Development.

5.2 Environmental Baseline

192. Baseline ornithological studies to inform the Proposed Development commenced in March 2023 and have comprised a desk-based review of existing ornithological information relevant to the Proposed Development and will involve two full consecutive years of ornithological field surveys in accordance with NatureScot guidance (SNH, 2017[13]).

193. This section provides a summary of baseline studies that have been completed to March 2024, over the 2023 breeding season and 2023/2024 non-breeding season and full details will be presented within the EIA Report.

5.2.1 Study Area

194. The study area for existing ornithological information has extended out to 20km from the Proposed Development for statutory designated sites with ornithological interests, 2km for species listed on Annex 1 of NatureScot guidance (SNH, 2018a[14]), and 6km for eagle species which is in accordance with NatureScot guidance (SNH, 2017[13]).

195. Field survey areas have been defined on the basis of the largest possible layout of turbines and ancillary infrastructure within the Site and species or species group-specific buffers as set out in NatureScot guidance (SNH, 2017[13]).

196. As per NatureScot guidance (SNH, 2018a[14]), for cumulative assessments the regional Natural Heritage Zone (NHZ) level is considered practical and appropriate for breeding species not connected to designated sites and where sufficient information is available. In this case, the cumulative assessment is proposed to be undertaken at the NHZ 16 Eastern Lowlands and NHZ 20 Border Hills level within which the Site is located.

[13] SNH (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage (SNH), Guidance.

[14] SNH (2018a) Assessing significance of impacts from onshore wind farms outwith designated areas [Online]. Available at: https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected [Accessed 23 July 2024];

5.2.2 Desk Study

197. The following key sources have been consulted for existing ornithological information within proximity to the Proposed Development:

- NatureScot Sitelink[15];
- Royal Society for the Protection of Birds (RSPB); and
- Lothian and Borders Raptor Study Group (LBRSG).

198. Consultation will also be undertaken with the South of Scotland Golden Eagle Partnership (SSGEP) to identify any records of historical or establishing golden eagle territories within or overlapping the study area.

199. Peer-reviewed literature will also be referred to where relevant and referenced within the EIA Report.

5.2.3 Ornithological Field Surveys

200. Target species for survey and recording were identified in accordance with NatureScot guidance (SNH, 2017[13] and 2018a[14]), existing field surveyor knowledge of bird-habitat associations at the locale and preliminary survey visits.

201. The following ornithological field surveys have been completed, or are otherwise proposed for completion between March 2023 and March 2025:

- Flight activity surveys (2023 and 2024 breeding seasons and 2023/2024 and 2023/2024 non-breeding seasons), from a total of five Vantage Points (VPs);
- Scarce breeding bird surveys[16] (2023 and 2024 breeding seasons);
- Black grouse surveys (2023 and 2024 breeding seasons);
- Breeding bird surveys (2023 and 2024 breeding seasons);
- Nightjar surveys (2023 and 2024 breeding seasons); and
- Winter walkover surveys (2023/2024 and 2024/2025 non-breeding seasons).

202. This will provide two full consecutive years of baseline ornithological surveys.

203. All field surveys have followed methodologies recommended by NatureScot (SNH, 2017[13]), including species-specific survey methodologies as set out in Hardey *et al*. (2013[17]) and Gilbert *et al*. (1998[18]). VPs and their associated viewsheds, together with distribution survey areas are illustrated on **Figure 5.1**.

204. Full details of ornithological survey methods and conditions will be presented within the EIA Report and associated Technical Appendices.

[15] Available at: https://sitelink.nature.scot/home

[16] Scarce breeding birds include those listed on Annex 1 of the European Directive 2009/147/EC, the 'Birds Directive' or Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and in the case of the Proposed Development consists of any raptor or owl species listed on either Annex 1 or Schedule 1.

[17] Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B., & Thompson, D. (2013) *Raptors: a field guide for surveys and monitoring (3rd edition)*. The Stationery Office, Edinburgh.

[18] Gilbert, G., Gibbons, D. W., & Evans, J. (1998) *Bird Monitoring Methods*. Royal Society for the Protection of Birds (RSPB), Sandy.

5.2.4 Established Baseline Conditions

205. A review of existing ornithological information (to be updated as necessary), together with ornithological field surveys completed and proposed, will provide a comprehensive understanding of the distribution and activity of ornithological species relative to the Site.

206. Such information will be reviewed over the course of the design of the Proposed Development in order to avoid the potential for significant effects upon IOF's in so far as is possible and provide context for subsequent assessment.

207. The following baseline ornithological conditions have been established to March 2024. Full details of baseline desk study and field survey results will be presented within the EIA Report.

208. Information pertaining to the locations, or potential locations of breeding sites of birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) where established will be restricted to a Confidential Volume of the EIA Report in accordance with NatureScot guidance (SNH, 2016b[19]). This Volume of the EIA Report will not be made publicly available but will be provided to NatureScot and RSPB Scotland to inform their own appraisal of the Proposed Development.

5.2.4.1 Designated Sites

209. The Site is located within 20 km of two statutory designated sites for nature conservation with ornithological qualifying interests, as summarised in **Table 5-1** and illustrated in **Figure 5.2**.

210. In review of the designations' qualifying interests, and on the basis of the core foraging range for breeding hen harrier (2 km, as per SNH, 2016a[20]), there is considered to be no potential for connectivity between the Proposed Development and the Langholm – Newcastleton SPA and its underpinning SSSI.

Table 5-1: Ornithological designated sites (20 km)

Designation	Distance	Qualifying Interests
Langholm – Newcastleton SPA	10.4km	Hen harrier (breeding)
Langholm – Newcastleton SSSI	10.4km	Hen harrier (breeding) Breeding bird assemblage
SPA – Special Protection Area; SSSI – Site of Special Scientific Interest.		

5.2.4.2 Flight Activity

211. Flight activity surveys completed between March 2023 and March 2024 have recorded relatively low levels of flight activity for a total of 14 target species comprising: barnacle goose, curlew, golden eagle, golden plover, goshawk, greylag goose, herring gull, lapwing, merlin, osprey, peregrine falcon, pink-footed goose, red kite, and whooper swan.

[19] SNH (2016b). Environmental Statements and Annexes of environmentally sensitive bird information: Guidance for developers, consultants and consultees [Online]. Available at: https://www.nature.scot/doc/environmental-statements-and-annexes-environmentally-sensitive-bird-information [Accessed 23 July 2024];

[20] SNH (2016a) Assessing connectivity with Special Protection Areas [Online]. Available at: https://www.nature.scot/doc/assessing-connectivity-special-protection-areas [Accessed 23 July 2024];

212. The potential for significant collision mortality risks to these species, and any additional species recorded over the 2024 breeding and 2024/2025 non-breeding seasons, will be assessed using the NatureScot collision risk model (SNH, 2000[21] and Band *et al*., 2007[22]), depending on the distribution of flight activity in relation to the final turbine layout.

5.2.4.3 Scarce Breeding Birds

213. In consultation with the LBRSG, existing breeding records of barn owl (two nest boxes) and goshawk (three known nesting sites) were identified within the study area. No records were from within the Site and the species are monitored annually by the LBRSG. An additional record of breeding osprey outside of the study area, to the north, was also obtained, together with additional records of goshawk and barn owl in the wider area.

214. The LBRSG advised there are no known peregrine, merlin or hen harrier breeding sites within the study area, although merlin and hen harrier have the potential to be present.

215. Scarce breeding bird surveys in 2023 together with information obtained from the RSPB[23] did not identify breeding evidence of any additional species of raptor or owl listed on Annex 1 of the Birds Directive or Schedule 1 of the Wildlife and Countryside Act 1981 within the survey area shown on **Figure 5.1**.

5.2.4.4 Moorland Breeding Birds

216. Breeding bird surveys undertaken in 2023 established a moorland breeding bird assemblage within the survey area comprising common sandpiper, curlew, oystercatcher and snipe.

217. Observations of golden plover and lapwing were also made over the course of survey visits however, no confirmed breeding evidence was recorded and birds were most likely on passage to more northerly breeding grounds.

5.2.4.5 Black Grouse

218. Surveys to identify areas of black grouse activity, locate lek locations and establish lek sizes were conducted in April and May 2023.

219. No lek sites were recorded although observations of both male and female birds, typically one or two birds, were made over the course of survey visits to the survey area shown on **Figure 5.1**, and incidentally during other ornithological survey visits.

220. No existing records of black grouse within 2km of the Site have been identified in consultation with key sources.

5.2.4.6 Nightjar

221. Surveys to identify areas of the presence or potential presence of breeding nightjar were conducted in June 2023. No observations or calls of nightjar were recorded

[21] SNH (2000) Windfarms and Birds: Calculating a theoretical collision risk assuming no avoiding action [Online]. Available at: https://www.nature.scot/doc/wind-farm-impacts-birds-calculating-theoretical-collision-risk-assuming-no-avoiding-action [Accessed 23 July 2024].

[22] Band, W., Madders, M., & Whitfield, D. P. (2007) Developing field and analytical methods to assess avian collision risk at wind farms. In G. Janss, M. de Lucas, & M. Ferrer (Eds.), Birds and Wind Farms. (Quercus, Madrid., pp. 259-275.

[23] In consultation RSPB confirmed that it held no existing ornithological records for the study area.

within the survey area shown on **Figure 5.1** and no existing records of the species have been identified within 2km of the Site in consultation with key sources.

5.2.4.7 Non-breeding birds

222. Winter walkovers were undertaken over the 2023/2024 non-breeding season to record any aggregations of target species, with reference to Annex 1 of NatureScot guidance (SNH, 2018a[14]) and the potential for Schedule 1 raptor winter roosts within the Site.

223. No evidence of winter raptor roost locations was recorded within the Site or wider survey area, and the habitats within the Site are considered unsuitable for foraging migratory swans and geese.

5.3 Key Sensitivities

224. The key ornithological sensitivities identified from completed baseline studies to date include breeding moorland waders, for which breeding territories have been recorded within the Site.

225. Scheme design will therefore seek to avoid existing suitable habitats for species including curlew in so far as is possible. Opportunities to provide positive management for breeding waders will also be identified within the Site and wider area as part of the Proposed Development, in consultation with relevant landowners and stakeholders as necessary.

226. Findings from ongoing ornithological surveys will be reviewed over the course of the design of the Proposed Development, with disturbance buffers from any subsequently identified breeding (lekking or roosting) sites of sensitive breeding species adopted for infrastructure siting in so far as is possible, with reference to Goodship and Furness (2020[24]).

5.4 Method of Assessment and Reporting

227. The assessment presented within the Ornithology Chapter of the EIA Report will be undertaken adopting an established approach to the assessment of onshore wind farm developments in Scotland, as recommended in NatureScot guidance (SNH, 2018a[14]) and impact assessment guidance published by the Chartered Institute of Environmental and Ecological Management (CIEEM, 2018[25].

228. The assessment will consider in detail only those impacts upon IOFs considered sensitive to wind farm developments, as set out in Annex 1 of NatureScot guidance (SNH, 2018a[14]), and upon which potentially significant effects may occur.

229. The assessment will consider the following three main potential impacts to birds:

- Direct displacement/habitat loss through wind farm construction;
- Morality through collision with operational turbines/other infrastructure; and

[24] Goodship, N. M., & Furness, R. W. (2022). Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283 [Online]. Available at: https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance [Accessed 23 July 2024].

[25] CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management (CIEEM), Winchester.

- Indirect displacement/habitat loss through the avoidance of operational wind farm infrastructure.

230. The assessment will be supported by technical appendices and figures as appropriate and will include the following stages:

- description of the ornithological baseline;
- scoping in/out of IOFs and associated impacts;
- identification and characterisation of potentially significant effects;
- outline of mitigating measures to avoid and reduce significant effects;
- assessment of the significance of any residual effects after such measures;
- identification of appropriate compensation measures to offset significant residual effects;
- identification of opportunities for enhancement; and
- where required, cumulative assessments.

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

232. Impacts upon IOFs will be assessed in relation to the species' relevant reference population, conservation status, range and distribution, based on best available evidence.

5.4.1 Potentially Significant Effects

233. The assessment presented within the Ornithology Chapter of the EIA Report will consider the potential for significant effects upon IOFs, during the construction, operation and decommissioning of the Proposed Development as set out below.

5.4.1.1 Construction

234. During construction of the Proposed Development, in the absence of specific mitigation, it is anticipated that potentially significant effects upon IOFs would most likely arise from:

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

235. Construction activities may be predicted to result in a temporary increase in noise, vibration and human presence within construction areas. This has the potential to displace breeding, foraging or roosting birds from the vicinity of construction areas for the duration of construction works.

236. Impacts would likely to be greatest during the breeding season (generally between March and August, depending upon the species), but are considerably variable between locations and species. The potential for disturbances to occur to breeding sites of specific species will therefore be assessed on the basis of best available species guidance, including Goodship and Furness (2022[24]) which will be referred to within the EIA Report.

237. Overall construction disturbance would be considered temporary and would occur only when construction activities are taking place. Furthermore, construction would

be not expected to take place across the whole of the Site at once, but phased within smaller defined working areas across the Site.

5.4.1.2 Operation

238. The operation of the Proposed Development, including maintenance activities, has the potential to cause disturbance and displacement of birds from nesting, lekking, roosting or foraging habitats throughout the Proposed Development's operational lifetime. The extent of displacement is, however, highly variable between species and species-group and therefore a species-specific assessment will take place on the basis of baseline studies.

239. The potential for disturbances to occur to specific species, will therefore be assessed on the basis of best available species guidance, including Goodship and Furness (2022[24]) and which will be referred to within the EIA Report.

240. The operation of the Proposed Development also has the potential to result in the risk of collisions with operational wind turbine blades or any other permanent infrastructure. Where the level of flight activity data justifies it, the NatureScot collision risk model (Band *et al.,* 2007[22]) will be used to provide an estimate of collision rates of target species.

5.4.1.3 Decommissioning

241. The potential for impacts upon IOFs resulting from the decommissioning, including the removal of infrastructure from the Site, are considered to be similar to those identified for the construction phase. Associated effects will therefore not be assessed exclusively within the EIA Report but assessed in conjunction with construction phase effects.

5.4.1.4 Cumulative Impacts

242. The assessment within the ornithology chapter of the EIA Report will include a cumulative impact assessment, in accordance with NatureScot guidance (SNH, 2018b[26]) concerning:

- operational collision mortality risks; and,
- operational displacement.

243. The cumulative impact assessment will consider the potential for cumulative effects at the regional Natural Heritage Zone (NHZ) scale, in accordance with NatureScot guidance (SNH, 2018b[26]).

The cumulative assessment will include consideration of:

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

[26] SNH (2018b). Assessing the cumulative impacts of onshore wind farms on birds. Scottish Natural Heritage [Online]. Available at: https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds [Accessed 15 July 2024].

5.5 Consultation

244. Further consultation is proposed with the SSGEP to identify golden eagle breeding records within proximity to the Proposed Development.

245. Prior to assessment, NatureScot will be consulted for its record of cumulative impacts to ornithological features arising from onshore wind farm proposals at the NHZ 16 and NHZ 20 levels.

246. Consultation with relevant and additional stakeholders will also be undertaken as required to identify appropriate biodiversity enhancement opportunities and prescriptions for such, which can be included within the Proposed Developments BEMP.

5.6 Approach to Mitigation

247. Significant effects on birds will be avoided/minimised where possible during the design process, based on the locations of any established nest, roost and lek sites, key foraging areas, likely sensitivities of species identified and the adoption of suitable bird disturbance distances, as set out in Goodship and Furness (2022[24]).

248. Good practice (SNH, 2016c[27]) during construction/decommissioning and operation of the Proposed Development will also be implemented (and the assessment undertaken on this basis). This will include the following:

- A Bird Disturbance Management Plan (BDMP) would be implemented as part of a Construction Environmental Management Plan (CEMP) or similar during the construction phase, to ensure that all reasonable precautions are taken to enable legislative compliance with regards the protection afforded to wild birds;
- Pre- and during- construction/decommissioning surveys carried out by an Ecological Clerk of Works (ECoW) or suitably qualified ornithologist would take place as part of the BDMP; and
- A Biodiversity Enhancement Management Plan (BEMP) will be developed for the operational phase and agreed in consultation with relevant consultees, to enhance baseline conditions for important ornithological features and to provide wider biodiversity improvements over the lifetime of the Proposed Development.

249. Where unmitigated potentially significant effects on IOFs are identified, additional measures to prevent, reduce and where possible offset these adverse effects will be proposed, in order to conclude a non-significant residual effect.

5.7 Matters Scoped Out

250. CIEEM (2018[25]) guidelines stipulate that it is not necessary to carry out a detailed assessment of impacts upon ornithological features that are sufficiently widespread, unthreatened and/or resilient to impacts of a development proposal.

251. NatureScot guidance (2018a[14] and 2024[28]) similarly advises that there are some species, which with standard mitigation measures, are unlikely to experience a

[27] SNH (2016c). Dealing with construction and birds [Online]. Available at: https://www.nature.scot/doc/dealing-construction-and-birds [Accessed 15 July 2024];

[28] NatureScot (2024) General pre-application and scoping advice for onshore wind farms [Online]. Available at: https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms [Accessed 23 July 2024].

significant environmental effect as a result of the construction and/or operation of onshore windfarms. This includes species that do not require surveys to inform the EIA but may require appropriate mitigation to ensure legislative compliance, such as breeding passerine species. As such, the assessment within the EIA Report will be restricted to consideration of the effects upon ornithological features which are considered 'important' (i.e., the IOFs) on the basis of relevant guidance and professional judgement.

252. Where ornithological features are unlikely to be so important in the context of the Proposed Development as to warrant a detailed assessment or where they would be unlikely to be significantly affected on the basis of established baseline information, it is proposed that these are 'scoped out' of the impact assessment process. Embedded and/or specific mitigation measures for such features may however, still be outlined as appropriate within the EIA Report, to reduce and/or avoid any potentially adverse effects, or to enable legislative compliance during construction/decommissioning or operational maintenance works.

253. It is therefore proposed that the following species will be 'scoped out' since significant effects are unlikely:

- Common and/or low conservation species not recognised in statute as requiring special conservation measures (i.e., not listed as Annex 1[29]/ Schedule 1[30] species);
- Common and/or low conservation species not included in non-statutory lists (i.e., not listed as a Red-listed BoCC species as per Stanbury *et al*., 2021[31]), showing birds whose populations are at some risk either generally or in parts of their range.
- Passerine species, not generally considered to be at risk from wind farm developments (SNH 2017[13]), unless being particularly rare or vulnerable at a national level.

254. Following the review of designated sites containing ornithological features within 20 km of the Site (Section 5.2), in the absence of connectivity between the Site and the Newcastleton – Langholm, due to spatial separation and the core foraging range of the designations breeding hen harrier interest (2km), there is considered to be no potential for likely significant effects upon the SPA (and its underpinning SSSI). Consideration of the potential for impacts upon hen harrier as a qualifying interest of this designated site will therefore be scoped out of assessment within the EIA Report, with any identified impacts upon the species considered as necessary against the species wider countryside populations (e.g. NHZ populations as per Wilson *et al*., 2015[32]).

255. A single observation of golden eagle has been recorded during baseline ornithological surveys to March 2024 and consultation with the SSGEP is proposed in relation to presence of any known breeding records for the species in the wider surrounding area. However, on the basis of the very low levels of species activity

[29] Listed on Annex 1 of the European Directive Directive 2009/147/EC, the 'Birds Directive'.

[30] Listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

[31] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., & Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, **114**, pp. 723-747.

[32] Wilson, M. W., Austin, G. E., Gillings S., & Wernham, C. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504. pp72.

recorded and review of known and predicted spatial use of golden eagles in this area of the Scottish Borders (Fielding *et al*., 2024[33]), the Site is not identified as being likely to form an important part of any potential future active range. The potential for significant impacts upon golden eagle is therefore proposed to be scoped out of assessment within the EIA Report.

256. Baseline studies have also not identified the importance of the Site for species susceptible to elevated risks to collisions with lit turbines (as per Naturescot, 2020[34]). Impacts upon ornithological features relating to turbine, or any other infrastructure lighting where this is proposed, will not be assessed within the EIA Report.

5.8 Questions to Consultees

Q5.1 Do consultees agree with the scope of baseline ornithological surveys completed and proposed?

Q5.2 Are consultees aware of any additional existing information that is or can be made available and that should be reviewed to inform the identification of IOFs and potential for impacts?

Q5.3 Do consultees agree with those features/issued that will be scoped out of assessment in respect to ornithology (and the justification provided)?

Q5.4 Do consultees agree that the cumulative assessment study area specified, is appropriate to provide a meaningful assessment?

Q5.5 Are there any specific non-wind developments that consultees believe should be considered in the cumulative assessment?

[33] Fielding, A.H., Anderson, D., Barlow, C., Benn, S., Reid, R., Tingay, R., Weston, E.D. and Whitfield, D.P. (2024) Golden Eagle Populations, Movements, and Landscape Barriers: Insights from Scotland. *Diversity*, **16**, p. 195.

[34] NatureScot (2020) The Effect of Aviation Obstruction Lighting on Birds at Wind Turbines, Communication Towers and Other Structures. NatureScot Information Note [Online]. Available at: https://www.nature.scot/doc/information-note-effect-aviation-obstruction-lighting-birds-wind-turbines-communication-towers-and [Accessed 23 July 2024].

6.0 Ecology

6.1 Introduction

257. This section defines the proposed methodology for the ecological assessment that will be included within the EIA Report. It also details the methods that will be used to establish the baseline conditions within the Site and its surroundings, and the process used to determine the sensitivity of the habitats and species' populations present.

258. The ways in which habitats or species might be affected (directly or indirectly) by the construction and operation of the Proposed Development will be assessed prior to and after any mitigation measures are considered. In addition, any relevant cumulative effects will be considered, taking together effects of other wind farm projects in the area, whether operational, consented or at application stage, along with the significance of any predicted effects associated with the Proposed Development.

259. Avian ecology is covered separately in **Chapter 5: Ornithology**.

6.2 Environmental Baseline

260. Baseline ecological conditions have been established from a desk study using the following sources:

- National Biodiversity Network (NBN) Atlas Scotland[35] on ecological records within 5km of the Site within the last 15 years (i.e. since 2009);
- Ancient Woodland Inventory (AWI)[36] for ancient woodland and NatureScot Sitelink[37] to confirm the location and qualifying features of designated sites within potential zones of influence of the Proposed Development;
- Carbon and Peatland Map 2016[38];
- Deer Distribution Survey by the British Deer Society[39];
- Saving Scotland's Red Squirrels website[40]; and
- any EIA Reports or technical reports from other developments or Proposed Developments in the local area.

[35] National Biodiversity Network Atlas Scotland (2024). Available at: https://scotland.nbnatlas.org/. Accessed: 17 May 2024.

[36] Ancient Woodland Inventory (Scotland). Available at: https://www.spatialdata.gov.scot/geonetwork/srv/api/records/A091F945-F744-4C8F-95B3-A09E6EF6AE33. Accessed: 17 May 2024.

[37] NatureScot Sitelink (2024). Available at: https://sitelink.nature.scot/home. Accessed: 17 May 2024.

[38] Scottish Government (2024). Scotland's Soils. Available at: https://map.environment.gov.scot/Soil_maps/?layer=10#. Accessed: 17 May 2024.

[39] British Deer Society (2023). Deer Distribution Survey. Available at: https://bds.org.uk/science-research/deer-surveys/deer-distribution-survey/ Accessed: 17 May 2024.

[40] Scottish Squirrels (2024). Sightings of Red and Grey Squirrels across Scotland. Available at: https://scottishsquirrels.org.uk/squirrel-sightings/ Accessed: 17 May 2024.

6.2.1 Desk Study

6.2.1.1 Designated Sites

261. There are three statutory ecologically (non-avian) designated sites located within the site boundary: Whitlaw and Branxholme Special Area of Conservation (SAC) lies within the east of the Site and also overlaps the site boundary in the northeast, each respectively concurrent with Slaidhills Moss Site of Special Scientific Interest (SSSI) and Branxholme Wester Loch SSSI (**Table 6.1** and **Figure 6.1**).

262. Separately, there are five statutory sites designated for ecological (non-avian) qualifying interests located within 5km of the site boundary and could therefore have potential connectivity with the Site: Branxholme Easter Loch SSSI; River Tweed SAC (concurrent with River Tweed SSSI); Allan Water, Hillhead SSSI; and Alemoor West Loch and Meadow SSSI (**Table 6-1** and **Figure 6.1**).

Table 6-1 Designated Sites with Ecological (Non-Avian) Qualifying Interests within 5km of the Site

Designated Site	Qualifying Ecological Features	Condition of Feature (and Date Monitored)	Distance from site boundary
Whitlaw and Branxholme SAC	Base-rich fens	Unfavourable Declining (14 September 2008)	Within and overlaps site boundary
	Slender green feather-moss (*Hamatocaulis vernicosus*)	Unfavourable Declining (22 October 2008)	
	Very wet mires often identified by an unstable 'quaking' surface	Unfavourable No change (5 October 2004)	
Slaidhills Moss SSSI	Bryophyte assemblage	Favourable Maintained (22 October 2008)	Within site boundary
Branxholme Wester Loch SSSI	Oligotrophic loch	Favourable Declining (4 September 2014)	Overlaps site boundary
	Open water transition fen	Unfavourable Declining (4 September 2014)	
River Tweed SAC	Atlantic salmon (*Salmo salar*)	Favourable Maintained (5 August 2011)	Overlaps site boundary
	Brook lamprey (*Lampetra planeri*)	Favourable Maintained (22 November 2018)	
	Otter (*Lutra lutra*)	Favourable Maintained (11 December 2011)	
	River lamprey (*Lampetra fluviatilis*)	Favourable Maintained (22 November 2018)	
Branxholme Easter Loch SSSI	Base-rich loch	Favourable Maintained (16 July 2009)	0.5km
River Tweed SSSI	Atlantic salmon	Favourable Maintained (5 August 2011)	0.7km
	Beetle assemblage	Unfavourable Recovering (1 January 1995)	

Designated Site	Qualifying Ecological Features	Condition of Feature (and Date Monitored)	Distance from site boundary
	Brook lamprey	Favourable Maintained (22 November 2018)	
	Fly assemblage	Favourable Maintained (28 August 2015)	
Allan Water, Hillhead SSSI	Lowland calcareous grassland	Favourable Maintained (23 August 2012)	1.8km
Alemoor West Loch and Meadow SSSI	Flood-plain fen	Favourable Maintained (22 July 2013)	2.4km
	Vascular plant assemblage	Favourable Maintained (22 July 2013)	

263. Whitlaw and Branxholme SAC (southern section) is located within the Site and overlaps (northern section) the site boundary, however, it is not proposed to develop within the Whitlaw and Branxholme SAC. From a desk-based review of the area surrounding the SAC, there is potential for any development west or northwest of the southern section of Whitlaw and Branxholme SAC to impact the SAC, as this area is within the catchment of the SAC. Similarly, development immediately east or south of the northern section of Whitlaw and Branxholme SAC would be within the catchment of the SAC. Consequently, there is considered to be connectivity between Whitlaw and Branxholme SAC and the Site.

264. The Site is situated between watercourses forming part of the River Tweed SAC, which run parallel to the Site north and south of the site boundary. Some areas of the site boundary in the north/northeast overlap the River Tweed SAC. The Site drains into the SAC, and as such the Site is hydrologically connected to the River Tweed SAC (and the River Tweed SSSI[41]).

265. Under the Habitats Regulations Appraisal[42] process, a likely significant effect on Whitlaw and Branxholme SAC and the River Tweed SAC cannot be discounted at this stage, and further assessment will be required to determine whether there may be an adverse effect on the integrity of each SAC (see **Section 6.2.2** below).

266. Any effects on River Tweed SSSI, Slaidhills Moss SSSI and Branxholme Wester Loch SSSI will be assessed as part of the EIA process.

267. Giving consideration to the distance, presence of hydrological barriers or breaks, and the respective qualifying features, the remaining designated sites within 5km of the site boundary (Branxholme Easter Loch SSSI, Allan Water, Hillhead SSSI and Alemoor West Loch and Meadow SSSI) (**Table 6.1**) are not considered to be connected to the Site.

[41] The River Tweed SSSI does not overlap with the site boundary however is still considered to be hydrologically connected to the Site.

[42] NatureScot (2021). European Site Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Available at: https://www.nature.scot/doc/european-site-casework-guidance-how-consider-plans-and-projects-affecting-special-areas-conservation. Accessed: 17 May 2024.

6.2.1.2 Ancient Woodland

268. The Ancient Woodland Inventory[36] shows no areas of ancient woodland within the Site (**Figure 6.1**). There are several patches of ancient woodland within 5km of the Site. These areas are south of the Site boundary, running along and south of the River Tweed. The closest area is southwest, approximately 1.2km from T37.

6.2.1.3 NBN Atlas

269. A search of the NBN Atlas[35] showed that the following protected or notable species were recorded within 5km of the Site since 2009, as shown in **Table 6-2**.

Table 6-2 National Biodiversity Network records (2009-2024) for Protected and Notable Species within 5km of the Site

Common Name	Scientific Name	Relevance	License	Rightsholder (Recorder)
Badger	*Meles meles*	Protected species	CC-BY-NC	Mammal Society (M. Mutch), The Road Lab UK, The Wildlife Information Centre
Brown hare	*Lepus europaeus*	Notable species	CC-BY-NC	Mammal Society (M. Mutch)
Common lizard	*Zootoca vivipara*	Notable species	CC-BY-NC, CC-BY	Amphibian and Reptile Groups of the UK, Amphibian and Reptile Conservation (M. Mutch)
Otter	*Lutra lutra*	Protected species	CC-BY-NC, OGL	Mammal Society (M. Mutch), NatureScot
Pine marten	*Martes martes*	Protected species	CC-BY-NC	Mammal Society (M. Mutch)
Red squirrel[43]	*Sciurus vulgaris*	Notable species	CC-BY, CC-BY-NC	Scottish Wildlife Trust (V. Chanin, N. Tipple, A. Seagrave, H. Traut, K. Ramoo), Mammal Society, M. Mutch, L. Preston)
Roe deer	*Capreolus capreolus*	Notable species	CC-BY-NC	Mammal Society (M. Mutch)

270. The following invasive non-native species (INNS) were also returned by these search parameters, shown in **Table 6-3**.

[43] Also shown on Saving Scotland's Red Squirrels map[40].

Table 6-3 National Biodiversity Network records (2009-2024) for INNS within 5km of the Site

Common Name	Scientific Name	Relevance	License	Rightsholder (Recorder)
Grey squirrel[43]	*Sciurus carolinensis*	INNS	CC-BY	The Scottish Squirrel Database (V. Chanin), Scottish Wildlife Trust
Himalayan Balsam	*Impatiens glandulifera*	INNS	CC-BY-NC	Botanical Society of Britain & Ireland (J. Waddell, S. Eno, P. Munro)
Japanese Knotweed	*Fallopia japonica*	INNS	CC-BY	Tweed Forum

6.2.1.4 Deer Distribution Survey

271. Every five years the British Deer Society undertakes a survey plotting the current distribution of the six species of wild deer in the United Kingdom. This is used to monitor and record changes from the previous survey to see if the range has changed or expanded. The results of the 2023 Deer Distribution Survey[39] indicate that the following deer species are present in the general area of the Site:

- Red deer (Cervus elaphus);
- Fallow deer (*Dama dama*);
- Roe deer; and
- Sika deer (*Cervus nippon*).

6.2.1.5 Scottish Soils Carbon Peatland Map 2016

272. The Carbon and Peatland Map 2016[38] indicates that there are no areas of Class 1[44] or Class 2[45] peatland within the Site, nor within 5km of the site boundary. There is one area of Class 3[46] peatland within the north of the Site, however it is not proposed to be developed on. There is a patch of Class 4[47] peatland southwest, and a patch of Class 5[48] peatland north of the Site. Otherwise, the map suggests that the majority of the Site is made up of Class 0[49] mineral soil. See Chapter 10 for additional information around peat survey.

[44] Class 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value.

[45] Class 2 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential.

[46] Class 3 - Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat.

[47] Class 4 – Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils.

[48] Class 5 – Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.

[49] Mineral soil - Peatland habitats are not typically found on such soils (Class 0).

6.2.2 Baseline Field Surveys

273. Further baseline information will be obtained from a suite of ecology surveys. The surveys to be conducted are summarised below.

6.2.2.1 National Vegetation Classification (NVC) & Phase 1 Habitat Surveys

274. NVC surveys, incorporating Phase 1 Habitat and potential Groundwater Dependent Terrestrial Ecosystem (GWDTE) habitat characterisation will be undertaken in 2024 across the full Site extent plus a buffer beyond the site boundary where access has been agreed with landowners.

6.2.2.2 Protected Species Surveys

275. Protected species walkover surveys, including daytime bat walkover surveys, will be undertaken in 2024 and will be carried out across the full Site including relevant buffers for protected species[50].

6.2.2.3 Static Bat Detector Surveys

276. Seasonal bat detector (Anabat) surveys following NatureScot *et al.* (2021) guidelines[51] are currently in progress. 21 Anabats have been deployed across the Site, with deployments beginning in May 2024 and due to conclude in October 2024. The locations of the deployments were selected based on an indicative design layout and positioned such as to cover the areas where turbines are proposed to be located insofar as access has been permitted[52] (as per NatureScot *et al*. 2021).

277. Static bat data will be processed using Ecobat (Mammal Society (2017)[53]), if available[54].

6.2.2.4 Fisheries Surveys

278. Electrofishing and fish habitat suitability surveys will be carried out in 2024 by the local fisheries trust, The Tweed Foundation, at watercourses within the Site and downstream as deemed relevant.

6.3 Key Sensitivities

279. The assessment will concentrate on the effects of construction, operation and decommissioning of the Proposed Development upon those Important Ecological Features (IEFs), as per CIEEM (2022) guidance[55], identified during the baseline period. Key sensitivities and potential effects will likely include:

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[50] Species-specific 30m, 100m, 200m and 500m buffers will be considered outwith the site boundary insofar as access is permitted.

[51] NatureScot (2021). Bats and onshore wind turbines - survey, assessment and mitigation. Available at: https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation Accessed: 17 May 2024.

[52] It should be noted that access has been restricted south of the Site due to agricultural constraints.

[53] Mammal Society (2017). Ecobat. Available at: http://www.ecobat.org.uk/ Accessed: 17 May 2024.

[54] The Ecobat tool which is listed in the NatureScot *et al.* (2021) guidance as the recommended methodology for assessing bat activity has been undergoing maintenance and is currently unavailable for use. The timescale of this work is currently unknown, and as such alternative quantitative methods may be used to assess bat activity levels.

[55] CIEEM (2022). Guidelines for Ecological Impact Assessment in the UK and Ireland. Version 1.2. Available at: https://cieem.net/wp-content/uploads/2019/02/Combined-EclA-guidelines-2018-compressed.pdf. Accessed: 17 May 2024.

- Whitlaw and Branxholme SAC, Slaidhills Moss SSSI and Branxholme Wester Loch SSSI, and River Tweed SAC/SSSI – effects include direct (i.e., derived from land-take or disturbance to habitats) and indirect (i.e., habitat fragmentation and modification, including through changes caused by effects to supporting systems such as groundwater or overland flow);
- Sensitive terrestrial habitats such as Habitats Directive Annex I habitats – effects include direct (i.e., derived from land-take) and indirect (i.e., changes caused by impacts to supporting systems such as groundwater or overland flow), including habitats such as blanket bog;
- Aquatic habitats – effects are limited to the ecological impacts of changes in water conditions through potential pollution effects (hydrological effects and GWDTEs are considered in **Chapter 10: Geology, Hydrology, Hydrogeology and Peat**);
- Protected species – impacts considered include direct (i.e., loss of life as a result of the Proposed Development; loss of key habitat; displacement from key habitat; barrier effects preventing movement to/from key habitats; risks of bats colliding or suffering barotrauma from proximity to operational wind turbine blades; and general disturbance) and indirect (i.e., loss/changes of/to food resources; population fragmentation; degradation of key habitat e.g. as a result of pollution; and
- Cumulative effects – ecological effects arising from the addition of the Proposed Development in combination with other relevant wind farm projects.

6.4 Method of Assessment and Reporting

280. The EIA Report will include an Ecological Impact Assessment (EcIA). This will consider the potential direct, indirect, and cumulative effects that the construction, operation and decommissioning of the Proposed Development could have on any IEFs scoped into the assessment. The EcIA will be supported by technical appendices covering habitats, protected species, bats, fisheries, and an Outline Biodiversity Enhancement Management Plan (OBEMP). These will include details of survey methodologies, survey data obtained in 2024, and outputs of any analysis.

281. This assessment will be carried out following CIEEM (2022)[55] guidance.

282. The assessment will be informed by information currently available (outlined in **Section 6.1: Environmental Baseline**). The evaluation for wider countryside interests (i.e. unrelated to any Natura 2000 sites) involves the following process:

- identification of potential ecological effects of the Proposed Development, (beneficial and adverse);
- considering the likelihood of occurrence of potential effects, where appropriate;
- defining the nature conservation value (NCV) of the ecological features present;
- establishing the feature's conservation status, where appropriate;
- establishing the magnitude of change associated with the likely effect (both spatial and temporal);
- based on the above information, making a judgement as to whether or not the resultant effect is significant in terms of the EIA Regulations;

- if a potential effect is determined to be significant, measures to avoid, reduce, mitigate or compensate for the effect are suggested, where required;
- considering opportunities for enhancement, where appropriate; and
- confirming residual effects after mitigation, compensation or enhancement are considered.

283. Determining the level of sensitivity of an IEF is based on a combination of the feature's NCV, defined on the basis of the geographic scale and conservation status, based on its distribution and/or population trend.

284. The magnitude of potential effects will be identified by considering the degree of change to baseline conditions predicted as a result of the Proposed Development, how IEFs are likely to respond to the Proposed Development, the duration and reversibility of an effect, best practice guidance and legislation, and professional judgement. Effects are judged in terms of magnitude in space and time, and effects can be beneficial, neutral or adverse.

285. The significance of potential effects is determined by integrating the assessments of IEF sensitivity and magnitude of effect in a reasoned way, based on the available evidence and professional judgement.

286. A set of pre-defined significance criteria will be used in assessing the potential effects of the Proposed Development to establish whether there will be any effects which will be sufficient to adversely affect an IEF to the extent that its conservation status deteriorates above and beyond that which would be expected should baseline conditions remain (i.e., the 'do nothing' scenario).

6.4.1.1 Methodology for Assessing Likely Significant Effects on the Integrity of a Natura 2000 Site

287. As set out in **Section 6.2.1.1 Designated Sites**, Whitlaw and Branxholme SAC falls within the Site and overlaps the site boundary, and the River Tweed SAC overlaps the site boundary and is hydrologically connected to the Site. As such, consideration needs to be to be given to each SAC's connectivity to the Site and whether there is likely to be any significant effects on their integrity as a result of the Proposed Development.

288. The methodology for assessing the significance of a likely effect on the integrity of a Natura 2000 site (in this case an SAC) is different from that employed for wider-countryside interests. This is via the Habitats Directive, which is transposed into domestic legislation by the Habitats Regulations. Regulation 48 sets out the steps to be taken by the competent authority before granting consent (referred to here as a 'Habitats Regulations Appraisal'[56]). In order of application, these are:

- Step 1: consider whether the proposal is directly connected to or necessary for the management of the site (Regulation 48 (1b)).
- If not, Step 2: consider whether the proposal, alone or in combination, is likely to have a Likely Significant Effect on the site (Regulation 48 (1a)).
- If so, Step 3: make an Appropriate Assessment of the implications for the site in view of that site's conservation objectives (Regulation 48 (1)).

[56] Scottish Government (Environment and Forestry Directorate). Environmental assessment. Available at https://www.gov.scot/policies/environmental-assessment/habitats-regulations-appraisal-hra/. Accessed: 17 May 2024.

- Step 4: consider whether it can be ascertained that the proposal will not adversely affect the integrity of the site ("Integrity Test") having regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which the consent, permission or other authorisation should be given (Regulation 48 (5 & 6)). Relevant information can be considered at Step 2.

289. An assessment of the likely significant effects on Whitlaw and Branxholme SAC and the River Tweed SAC in relation to the Proposed Development will be presented in the Ecology chapter of the EIA Report. The results of baseline surveys and scientific conclusions presented in the chapter will be used to inform the appraisal process, and if required, allow the competent authority to conduct an Appropriate Assessment.

6.5 Consultation

290. Other than consulting Scottish Ministers (via the Energy Consent Unit (ECU)), relevant bodies to consult prior to submitting the EIA Report to Scottish Ministers will likely include:

- NatureScot;
- SEPA;
- Scottish Borders Council;
- Fisheries Management Scotland; and
- The Tweed Foundation.

6.6 Approach to Mitigation

291. Significant effects on ecological features will be avoided or minimised where possible within the design process. Good practice during construction and operation of the Proposed Development will be implemented as standard (and the assessment undertaken on this basis). This will include the following:

- A Species Protection Plan (SPP) would be implemented as part of a Construction Environmental Management Plan (CEMP) or similar during the construction phase to ensure that all reasonable precautions are taken to adhere to the relevant wildlife legislation;
- Pre and during construction surveys carried out by an Ecological Clerk of Works (ECoW) or suitably qualified ecologist would take place as part of the SPP, and an ECoW present during the construction phase;
- An OBEMP would be developed for the operational phase and agreed with relevant consultees, to mitigate and enhance habitat for IEFs, and provide wider biodiversity benefits; and
- During the operational phase, and in line with best practice guidance on bats (NatureScot *et al*., 2021)[51], the Proposed Development will utilise the method of reduced rotation speed whilst idling by feathering, at all turbines, to reduce collision risks to bats during the bat active period (April to October). The guidance notes that, "*The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50 %*". Given the likely presence of high collision risk bat species at the Site, this measure will be put in place from the start of the operational phase of the Proposed Development, and it does not result in any loss of output.

292. Where unmitigated significant effects on IEFs are identified, additional measures to prevent and reduce these adverse impacts would be proposed, in order to conclude a non-significant residual impact.

6.7 Matters Scoped Out

293. Considering the baseline data, the professional judgement of the EIA ecology team, experience from other relevant projects and policy guidance or standards, generally common and widely distributed habitats or species which do not fall within the following categories will be scoped out of the assessment:

- Habitats on Annex I to the Habitats Directive, and species on Annex II to the Habitats Directive; and
- Habitats or species protected by other legislation, e.g. the Wildlife and Countryside Act 1981 (as amended), the Nature Conservation (Scotland) Act 2004 (as amended), the Protection of Badgers Act 1992.

294. As discussed in **Section 6.2.1.2 Ancient Woodland**, no areas of ancient woodland fall within the Site, and therefore can be scoped out of the assessment.

295. In addition, as discussed in **Section 6.2.1.1 Designated Sites**, it is considered that there is no connectivity between the Site and Branxholme Easter Loch SSSI, Allan Water, Hillhead SSSI and Alemoor West Loch and Meadow SSSI. These statutory designated sites are designated for habitat/botanical features, and considering the distances between them and the Site, and considering hydrological breaks or barriers, there is not considered to be connectivity with the Site and potential effects on these sites can be scoped out of the EcIA.

296. Other features or potential IEFs cannot be scoped out until the ecological baseline surveys are complete and the presence and distribution of ecological features in relation to the planned infrastructure and activities associated with the Proposed Development are fully understood.

6.8 Questions to Consultees

Q6.1 Do consultees agree that the suite of field surveys planned and currently being carried out in 2024 in addition to a desk study are sufficient to inform a robust impact assessment?

Q6.2 Do consultees agree that the methodology and scope of assessment is appropriate?

Q6.3 Do consultees agree with the features and statutory designated sites proposed to be scoped out from further assessment?

Q6.4 Are there any other relevant consultees who should be consulted, or other sources of information that should be considered?

7.0 Cultural Heritage

7.1 Introduction

297. The 'cultural heritage' of an area comprises archaeological sites, historic buildings, Inventoried Gardens and Designed Landscapes (GDLs), Inventoried Battlefields and other historic environment features. Alongside its inherent values, the 'setting' of an asset may also contribute to its cultural heritage significance.

298. The cultural heritage impact assessment will:

- identify cultural heritage assets that may be subject to significant effects, both within the limits of the Proposed Development and within a proposed surrounding radius of 10km from the proposed turbine locations;
- establish the potential for currently unknown archaeological assets to survive buried within the Site;
- assess the predicted effects on these assets; and
- and propose a programme of mitigation where appropriate.

299. It will consider direct effects (such as physical disturbance), indirect effects (such as vibration), setting effects, and cumulative effects (where assets affected by the Proposed Development are also likely to be affected by other unrelated development proposals).

300. The proposed approach to the assessment of effects on cultural heritage is set out below. The assessment would be undertaken by SLR Consulting Ltd.

7.2 Legislation, Policy and Guidance

7.2.1 Legislation

301. The assessment will be undertaken in accordance with the following principal relevant legislation:

- The Ancient Monuments and Archaeological Areas Act 1979;
- The Planning (Listed Buildings and Conservations Areas (Scotland) Act 1997;
- The Historic Environment (Amendment) (Scotland) Act 2014; and
- Scottish Statutory Instrument No. 101 The Electricity Works (Environment Impact Assessment) (Scotland) Regulations 2017.

7.2.2 Planning Policy

302. The Scottish Government and Historic Environment Scotland (HES) have issued a number of statements of policy with respect to dealing with the historic environment in the planning system:

- National Planning Framework 4 (NPF4; 2023);
- Onshore Wind Turbines: Planning Advice (2014);
- Planning Advice Note 2/2011: Planning and Archaeology;
- Scottish Borders Local Development Plan (2016)

- Our Past, Our Future: The Strategy for Scotland's Historic Environment (2023);
- Historic Environment Policy for Scotland (HEPS 2019); and
- Designation Policy and Selection Guidance (2020).

7.2.3 Guidelines and Technical Standards

303. Relevant guidance and technical standard documents comprise:

- Historic Environment Scotland Guidance on Managing Change in the Historic Environment: Setting (2020);
- A Guide to Climate Change Impact: On Scotland's Historic Environment (2020);
- Scottish National Heritage (NatureScot) and Historic Environment Scotland Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland (2019); and
- Chartered Institute for Archaeologists Standard and Guidance for Historic Environment Desk Based Assessment (2014, updated 2020).

7.3 Method of Assessment and Reporting

7.3.1 Study Area

304. For purposes of this assessment, a Study Area (**Figure 7.1** and **Figure 7.2**) has been defined extending 10km from the proposed turbines[1]. The sources identified within T**able 7-1** will be consulted to inform the assessment, however, this list is not exhaustive.

Table 7-1: Sources to be consulted

Subject	Author Summary	Sources
Designated cultural heritage assets (except conservation areas	The database of Historic Environment Scotland (HES)	HES digital data download
Conservation Areas	Scottish Borders Council Historic Environment Team and HES	HES digital data download
Non-designated cultural heritage assets	Data held by the Scottish Borders Council Historic Environment Team and displayed on Pastmap	Digital data purchased from the Scottish Borders Council as download and shown on Pastmap website
Historic Mapping	National Library of Scotland	National Library of Scotland website
Historic Environment Information	Canmore online database curated by Historic Environment Scotland	Canmore online database
	Unpublished reports	Various
	Published works of synthesis	Various

Subject	Author Summary	Sources
Aerial Photography	HES	HES database Canmore and National Collection of Aerial Photography (NCAP) (online)
Historic Land Use Assessment	HES	Online

7.3.2 Scope

7.3.2.1 Assets within the Site Boundary

305. Within the Site, potential significant impacts would be considered upon all cultural heritage assets subject to potential direct or indirect impacts. As shown in **Figure 7.2** (also provided in **Appendix C**), the current turbines would truncate a number of assets. The layout of the wind farm has not yet taken into account numerous factors including the records of cultural heritage assets within the Site, but mitigation through design will be exercised to avoid these impacts where possible.

306. There are a number of cultural heritage assets within the Site, some of which may be of higher than local significance due to the assets connecting to nationally designated sites in the wider region. These comprise segments of the Catrail (SLR39, SLR40, SLR62, SLR75 and SLR95) running southeast to northwest which connects to **SM3413**, and a segment of Roman Road (SLR31, SLR32 and SLR36) known as the Romans and Reivers Route located within the northwest of the Site, as recorded on OS mapping which leads to the Roman Fort (**SM2150**).

307. There is also evidence of prehistoric settlements within the Site, comprising of a fort (SLR25) located c.740m southeast of T25. Other evidence for prehistoric activity is through findspots of worked stone (SLR4 and SLR23).

308. Other assets located within the site boundary comprise of a medieval to post-medieval building with associated earthworks and a possible moat (SLR7), farmsteads and sheepfolds (SLR24, SLR45 and SLR46), medieval to post-medieval roads (SLR72, SLR73, SLR76, SLR86, SLR88, SLR93, SLR94 and SLR48) and linear earthworks, enclosures, field boundaries and ridge and furrow (SLR1, SLR8, SLR9, SLR22, SLR38, SLR47, SLR52 and SLR61), which likely form the remains of the medieval to post-medieval agricultural landscape.

7.3.2.2 Assets outwith the Site

309. To provide a preliminary list of assets that will be subject to a detailed assessment, all designated cultural heritage assets within 10km of the Site have been preliminarily assessed in **Appendix B**. This Appendix has aimed to create a proportionate scope for the assessment and will be an evolving document throughout the EIA process. Assets that fall out of the proposed study area, the ZTV, and that do not have a third viewpoint that contributes to the significance of the monument have been scoped out of assessment. Assets that have been scoped in may be scoped out and vice versa, dependent on the final layout as a result of consultee comments. All designated cultural heritage assets within 10km, along with the ZTV indicating their visibility of the proposed turbines, are depicted on **Figure 7.1**.

310. Category B Listed Buildings within 5km of the proposed turbines have been scoped out of any further assessment, with the exception of those for which specific views are considered to contribute to their significance and/or to the ability to understand, appreciate and experience them. Category B assets scoped in for further assessment in the EIA Chapter include Colterscleuch Monument (LB19710). All Category B Listed

Buildings outwith 5km of the proposed turbines have been scoped out of any further assessment.

311. No Inventoried Battlefields, Conservation Areas or World Heritage Sites are within 10km of the Proposed Development.

312. Due to the potential for significant effects, the cultural heritage assets in **Table 7-2** will be taken forward for further assessment. Where assets have potential adverse effects, visualisations in the form of bare earth wirelines will be provided to facilitate the assessment of effects.

Table 7-2: Designated Cultural Heritage assets to be scoped into detailed setting assessment

Scheduled Monuments	Reference Number	Assessment notes	Proposed Visualisations
The Catrail, linear earthwork, SE slope of Singley Brae to Barry Sike	SM3495	To be assessed together with the non-designated records of the Catrail within the Site (Canmore IDs; 86685, 86686, 368266, 344036, 344529).	NT 48277 04958 A prominent position along the Catrail facing northwest toward the Site.
The Catrail, linear earthwork, W of Leap Burn to 100m E of Langside Burn	SM3468		
The Catrail, linear earthwork,350m long, N of Doecleugh Hill	SM3413		
The Catrail, linear earthwork,650m long, on SE slope of White Hill	SM3457		
Gray Coat,settlement 540m NE of Priesthaugh	SM3459	To be assessed together, as the views between the assets contribute to their significance.	NT 47113 04991 From Gray Coat settlement 540m NE of Priesthaugh, toward turbines to demonstrate extent of turbine visibility in views toward Burgh Hill, fort and settlement (SM2169).
Burgh Hill, fort and settlement	SM2169		
White Hill, fort	SM2294		
Dod, enclosure on Gray Coat,530m SW of	SM3356		
Dod,earthworks on Gray Coat 540m SSW of	SM3391		
Craik Cross Hill-Borthwick Water, Roman road	SM1709	To be assessed as one asset along with the undesignated route of the Roman Road to the northeast.	Shall use LVIA Viewpoint 8 (Figure 4.5)
Mid Raeburn to Craik Cross Hill, Roman road & watch tower	SM675		
Whitcastle Hill and Todshaw Hill, forts, earthworks, linear earthworks	SM2150		Shall use LVIA viewpoint 5 (Figure 4.5)
Meadowshaw, earthwork.	SM2115		NT 37813 09711
Change House,enclosure 320m WSW of	SM3366		NT 43065 07480

Scheduled Monuments	Reference Number	Assessment notes	Proposed Visualisations
Burgh Hill,stone circle	SM3354		NT 47007 06243
Branxholme Castle	LB13686 (Cat A)	To be assessed together	NT 46442 11669
Tentyfoot Tower	LB8397 (Cat A)		
Colterscleuch Monument	LB19710 (Cat B)		As seen in Viewpoints 3a and 3b provided
Listed Buildings	**Reference Number**	**Assessment Notes**	**Proposed Visualisations**
Branxholme Castle	LB13686 (Cat A)	To be assessed together	NT 46442 11669
Tentyfoot Tower	LB8397 (Cat A)		
Colterscleuch Monument	LB19710 (Cat B)		Shall use LVIA Viewpoint 3 (Figure 4.5)

7.3.3 Consultation

313. Based on the results of the baseline study, constraint mapping will be generated using GIS software to show mapped heritage assets in relation to a Zone of Theoretical Visibility (ZTV). This will filter out those assets that do not require further assessment and will be used to identify and agree the most potentially sensitive assets; these may then require computer-generated visualisations as part of their assessment, in liaison with consultees.

314. Consultation will be undertaken with HES with respect to the method of assessment employed and those heritage assets within their remit, including Scheduled Monuments, Category A Listed Buildings, Inventoried Gardens and Designed Landscapes (GDL's), and Inventoried Battlefields. The Scottish Borders Council will be consulted for designated heritage assets of regional and local significance, and any undesignated assets they consider to be of higher significance.

7.3.4 Field Surveys

315. A targeted site inspection will be carried out in relation to those recorded assets likely to be impacted by the Proposed Development, and the readily accessible elements of the proposed infrastructure; the aim of this would be to establish the condition of any recorded assets and identify the potential for the existence of additional assets not currently recorded.

316. Asset mapping would also be compared with ZTV and satellite imagery in order to identify designated heritage assets for which the Proposed Development might cause setting impacts.. This would be followed by a detailed analysis of those sites identified as potentially sensitive to such impacts, including a targeted field inspection.

7.3.5 Assessment of Impact

317. The Proposed Development has the potential to result in impacts upon the significance of heritage assets where it changes their baseline condition and/or their setting.

318. In accordance with the EIA Regulations, this assessment will identify any development effects as either direct, indirect, setting or cumulative, adverse or beneficial, and short-term, long-term or permanent.

- Direct (physical) impacts: occur where the physical fabric of the asset is removed or damaged, or where it is preserved or conserved, as a direct result of the proposal. Such impacts are most likely to occur during the construction phase and are most likely to be permanent.
- Indirect (physical) impacts: occur where the fabric of an asset, or buried archaeological remains, is removed or damaged, or where it is preserved or conserved, as an indirect result of the proposal, even though the asset may lie some distance from the proposal. Such impacts are most likely to occur during the construction phase and are most likely to be permanent.
- Setting impacts: result from the proposal causing change within the setting of a heritage asset that affects its cultural significance or the way in which it is understood, appreciated, and experienced. Such impacts are generally, but not exclusively, visual, occurring directly as a result of the appearance of the proposal in the surroundings of the asset. Setting impacts may also relate to other senses or factors, such as noise, odour or emissions, or historical relationships that do not relate entirely to intervisibility, such as historic patterns of land-use and related historic features. Such impacts may occur at any stage of a proposal's lifespan and may be permanent, reversible, or temporary.
- Cumulative impacts: can relate to the physical fabric or setting of assets. They may arise as a result of impact interactions, either of different impacts of the proposal itself, or additive impacts resulting from incremental changes caused by the proposal together with other projects already in the planning system or allocated in a Local Development Plan.

319. Assessment will be undertaken separately for direct and indirect impacts and setting impacts. Direct and indirect impacts are those which would change the heritage significance of an asset through physical alteration; setting impacts are those which would affect the heritage significance of an asset by causing change within its setting.

320. Direct impacts upon the significance of heritage assets will take into account the level of their heritage significance (where known) and the magnitude (extent) of the identified impacts.

321. Setting impacts on the significance of heritage assets will be identified and assessed with reference to Managing Change in the Historic Environment: Setting (HES 2020) and the guidance set out by NatureScot and HES (2019). Assessment will be carried out in the following stages:

- initial consideration of intervisibility and other factors leading to the identification of potentially affected assets;
- assessment of the cultural heritage significance of potentially affected assets;
- assessment of the contribution of setting to the cultural heritage significance of those assets;
- assessment of the extent to which change to any contributing aspects of the settings of those assets, as a result of the Proposed Development, would affect their cultural heritage significance (magnitude of impact); and
- determination of the significance of any identified effects.

7.3.6 Zone of Theoretical Visibility

322. The settings assessment will be assisted by a ZTV calculation. The ZTV calculation will map the predicted degree of visibility of the Proposed Development from all points within a proportionate, defined study area around the site, as would be seen from an average observer's eye level (two metres above ground level). The ZTV model presented in **Figure 7.1** is based on the maximum height of the blade tips of the Proposed Development.

7.3.7 Cultural Heritage Significance

323. The categories of cultural heritage significance to be referred to are presented in **Table 7-3**, which will act as an aid to consistency in the exercise of professional judgement and provide a degree of transparency for others in evaluating the conclusions drawn.

324. For undesignated assets, consideration will be given to their inherent heritage interests, intrinsic, contextual, and associative characteristics as defined in Annex 1 of HEPS (2019b). In relation to these assets, this assessment will focus upon an assessment of the assets' inherent capability to contribute to our understanding of the past; the character of their structural, decorative and field characteristics as determined from the HER and Canmore records and / or site visits; the contribution of an asset to their class of monument, or the diminution of that class should an asset be lost; how a site relates to people, practices, events, and/or historical or social movements. Assessments of the significance of specific assets, where recorded within the HER, will be taken into account where appropriate.

Table 7-3: Cultural Heritage Sensitivity

Cultural Heritage significance	Explanation
Highest	Sites of international importance, including: World Heritage Sites.
High	Site of National importance, including: • Scheduled Monuments; • Category A Listed Buildings; • Gardens and Designed Landscapes included on the national inventory; • Designated Battlefields; and • Non-designated assets of equivalent significance.
Medium	Sites of Regional/local importance, including: • Category B and C Listed Buildings; • Conservation Areas highlighted as of equivalent significance; and • Non-designated assets of equivalent significance.
Low	Sites of minor importance or with little of the asset remaining to justify a higher importance.
None	Sites that are of no heritage significance.
Unknown	Further information is required to assess the significance of these assets.

7.3.8 Magnitude of Impact

325. Determining the magnitude of any likely impacts will include consideration of the nature of the activities proposed during the construction and operational phases of the Proposed Development.

326. Changes could potentially include direct change (e.g. ground disturbance), and indirect change (e.g. change to setting); this latter might include visual change, as well as noise, vibration, smell, dust, traffic movements etc. Effects may be beneficial or adverse, and may be short term, long term or permanent. The magnitude of any effects will be assessed using professional judgment, with reference to the criteria set out in **Table 7-4.**

Table 7-4: Magnitude of Impact

Magnitude of impact	Explanatory criteria
High Beneficial	The Proposed Development would considerably enhance the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Medium Beneficial	The Proposed Development would enhance, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Low Beneficial	The Proposed Development would enhance, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Very Low Beneficial	The Proposed Development would enhance, to a very minor extent, the cultural heritage significance of the affected asset, or the ability understand, appreciate and experience it.
Neutral/None	The Proposed Development would not affect (or would have harmful and enhancing effects of equal magnitude upon) the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it.
Very Low Adverse	The Proposed Development would erode, to a very minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would not be considered to affect the integrity of the asset's setting.
Low Adverse	The Proposed Development would erode, to a minor extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would rarely be considered to affect the integrity of the asset's setting.
Medium Adverse	The Proposed Development would erode, to a clearly discernible extent, the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect might be considered to affect the integrity of the asset's setting.
High Adverse	The Proposed Development would considerably erode the cultural heritage significance of the affected asset, or the ability to understand, appreciate and experience it. This level of indirect effect would probably be considered to affect the integrity of the asset's setting.

7.3.9 Level of Effect

327. The categories of Impact referred to, and the criteria used in their determination, are presented in **Table 7-5**.

Table 7-5: Level of Effect

Impact	Criteria
Major	Severe harm or enhancement, such as total loss of significance of the asset or of the integrity of its setting, or exceptional improvement of the cultural heritage significance of the asset and/or the ability to understand, appreciate and experience it.
Moderate	Harm or enhancement, such as the introduction or removal of an element that would affect the Cultural heritage significance of the asset and the ability to understand, appreciate and experience it to a clearly discernible extent.
Minor	Harm or enhancement to the asset's cultural heritage significance and/or to the ability to understand, appreciate and experience it to a modest extent, such that the majority of the asset's inherent interests and aspects of setting would be preserved.
Very Minor	Harm or enhancement to the asset's cultural heritage significance and/or to the ability to understand, appreciate and experience it, that is barely discernible.
Nil	The development would not affect the cultural heritage significance of the asset and/or the ability to understand, appreciate and experience it, or would have harmful and enhancing effects of equal magnitude.

328. **Table 7-6** provides a matrix that relates the cultural heritage significance of the asset to the magnitude of impact on its significance, to produce an overall anticipated level of impact. This assessment will be undertaken separately for physical (direct and indirect) impacts and impacts resulting from change to the setting of heritage assets.

Table 7-6: Significance of Effect Matrix

Magnitude of Impact	Cultural Heritage Significance (excluding unknown)			
	Highest	**High**	**Medium**	**Low**
High beneficial	Major	Major	Moderate	Minor
Medium beneficial	Major	Moderate	Minor	Very Minor
Low beneficial	Moderate	Minor	Very Minor	Very Minor
Very low beneficial	Minor	Very Minor	Negligible	Negligible
Neutral/None	Neutral/Nil	Neutral/Nil	Neutral/Nil	Neutral/Nil
Very low adverse	Minor	Very Minor	Negligible	Negligible
Low adverse	Moderate	Minor	Very Minor	Very Minor
Medium adverse	Major	Moderate	Minor	Very Minor
High adverse	Major	Major	Moderate	Minor

7.3.10 Mitigation

329. Where adverse effects on cultural heritage assets are identified, measures to prevent, reduce and/or, where possible, offset these effects, will be proposed. Potential mitigation measures can be discussed in terms of Direct and Indirect impact.

330. Suitable measures for mitigating direct impacts might include:

- the micro-siting of Proposed Development infrastructure away from sensitive locations;
- the fencing off or marking out of heritage assets or features in proximity to construction activity in order avoid disturbance where possible;
- a programme of archaeological work where required, such as an archaeological watching brief during construction activities in or in proximity to areas of archaeological sensitivity, or excavation and recording where impact is unavoidable; and/or
- a working protocol to be implemented should unrecorded archaeological features be discovered.

331. Suitable measures for mitigating any indirect impacts might include:

- alteration of the proposed turbine layout;
- reduction of proposed turbine heights; and/or
- changing the proposed colour of select turbines.

7.3.11 Residual Impact

332. Residual impacts are those that remain even after the implementation of suitable mitigation measures. Residual impacts will be identified, and the level of those residual impacts defined with reference to **Table 7-5** and **Table 7-6**.

333. The significance of those residual impacts for purposes of EIA would then be defined as either ‘Significant’ or ‘Not Significant’.

7.3.12 Significance of Impact

334. Professional judgment will be used in the determination of whether any impacts/residual impacts are ‘Significant’ or ‘Not Significant’ for the purposes of EIA.

335. With reference to the matrix presented in **Table 7-6**, any impacts identified as ‘Substantial’ within the matrix would almost certainly be considered ‘Significant’, while determining whether any impacts identified as ‘Moderate’ (or below) within the matrix would be ‘Significant’ or ‘Not Significant’ would require the exercise of professional judgement.

336. A clear and justified statement will be made as to whether any identified impacts are ‘Significant’ or ‘Not Significant’ for the purposes of EIA.

7.3.13 Cumulative Impact

337. A cumulative effect is considered to occur when there is a combination of:

- an impact on an asset or group of assets due to changes resulting from the development subject of assessment; and
- an impact on the same asset or group of assets resulting from another development (consented or proposed) within the surrounding landscape.

338. Consideration of the other developments will be limited to:

- wind farm planning applications that have been submitted and have a decision pending; and

- wind farm planning applications that have been granted permission but not yet constructed.

339. Any impact resulting from operational wind farms would be considered as part of the baseline impact assessment.

340. Cumulative impact would be considered in two stages:

- assessment of the combined impact of the developments, including the Proposed Development; and
- assessment of the extent to which the Proposed Development contributes to the combined impact.

7.3.14 Matters Scoped Out

341. On the basis of the work undertaken to date, the professional judgement of the cultural heritage team, and experience of other comparable projects, it is considered that setting and cumulative impacts of the Proposed Development on Conservation Areas and Category C Listed Buildings can be scoped out of the EIA in relation to cultural heritage. As per best practice within NatureScot and HES (2019), Category C Listed Buildings are of local rather than national or regional significance, unless in the opinion of an assessor the designation should be higher.

342. Category B Listed Buildings outwith the Site have been scoped out of any further assessment, with the exception of those wherein specific views are considered to contribute to their significance and/or to the ability to understand, appreciate and experience them. Category B Listed Buildings located more than 5km away from the Site have been scoped out of further assessment.

343. The significance of a Conservation Area derives from its local heritage and the assets that it contains, rather than the wider landscape. As such, any conservation area outwith 5km has been scoped out, with the justification that, even if visibility between the Proposed Development and the conservation areas may still occur, the conservation areas' significance would not be diminished.

344. It is also considered that any assets that fall outwith the ZTV (and where those assets' approaches also fall outwith the ZTV) can be scoped out of the EIA in relation to cultural heritage.

7.4 Questions for Consultees

Q7.1 Do consultees agree with the methodology set out?

Q7.2 Do consultees agree with assets and matters scoped out?

Q7.3 Are there any assets, not listed in the appraisal, that key consideration should be given to?

Q7.4 Do consultees have any specifications on further visualisations and their locations?

8.0 Traffic and Transport

8.1 Introduction

345. This chapter of the scoping report outlines the proposed scope of work required to assess the potential significant effects associated with access, traffic, and transport during the construction and operational phases of the Proposed Development.

8.2 Environmental Baseline and Potential Sources of Impact

346. At the current time of preparation of the scoping report, the proposed route for access to the Site during the construction and operational stages has not yet been confirmed and a number of options are under consideration. However, the study area for assessment will comprise the public road network likely to be utilised by the Proposed Development which is anticipated to include the A7. Further consultation with stakeholders will also take place once the final access route to Site is confirmed. At this stage, it is anticipated that abnormal loads will approach the Site from the west / southwest rather than through Hawick.

347. The A7 is a major strategic road connecting Carlisle in the northwest of England to Edinburgh in southeast Scotland. The A7 travels through Hawick which is located approximately 11km northeast of the site centrepoint. In the vicinity of the site, the A7 is a single carriageway route subject to a 60mph speed limit.

348. The B711 links to the A7 through a simple priority junction, approximately 1km northeast along the A7 from the minor unclassified road. Close to the junction with A7, the B711 crosses the river Teviot at Martin's Bridge, which is a stone structure which does not appear to be subject to a weight limit. The B711 travels west from the A7 to extend north of the site. and connects to the B709 through simple T-junction in the west at Cacrabank.

349. The A7 connects to a minor unclassified road which extends west to connect to the northern boundary of the Site, approximately 4.8km from Branxholm Park House.

350. Traffic data will be obtained so that existing traffic flows and vehicle classification for the A7 can be quantified, informing the baseline situation. An Automatic Traffic Counter (ATC) will be placed on the A7.

351. At this stage it is anticipated that all construction and non-AIL deliveries to the Site during the construction phase will travel along an unclassified minor access road from the A7 towards the site using an access point to be likely located along the route to the south. Further traffic surveys may be required on the minor access road, but this will be determined once the route to site has been confirmed.

352. An online search of the Department for Transport (DfT) Road Traffic Statistics site[57] has identified that traffic data can be obtained. Traffic counters have been identified along the A7 which can be reviewed to provide a baseline. A manual count point (site number:40715) is located south of the site in Teviothead and a further manual count point (site number: 10717) is located north of the site in Hawick. These count points provide annual average daily flows (AADF) from recent data collected in 2022.

353. Injury accident data for the entire study area will be obtained via a Freedom of Information request to Transport Scotland (TS). This is to ensure that any existing road safety issues are identified.

[57] Map Road traffic statistics - Road traffic statistics (dft.gov.uk)

8.2.1 Scope of Study and Study Area

354. The assessment is required to evaluate the potential effects of the Proposed Development and to determine the scale of the impacts on the identified sensitive receptors. For the construction of the wind farm, the main receptors sensitive to increase traffic levels would be located on the route to Site, which is likely to include receptors alongside the A7 and residential properties to the southwest of the Site.

355. The largest items to be delivered to site would be the Wind Turbine Components (WTC), along with any substation elements. The Abnormal Load Route Assessment (ALRA) focuses on ensuring that WTCs can be feasibly transported to site, while the Environmental Impact Assessment (EIA) report will consider the impacts associated with the transport of all construction materials, structures and plant required during construction of each element of the Proposed Development. Whilst the access arrangements have not been confirmed for the Site, it is assumed access will most likely be gained from a feasible location on the minor access road, located from the A7. The assessment will therefore consider impacts to this road and the A7 in the vicinity of the Site.

8.2.2 Baseline Conditions including Field Studies

356. The Access, Traffic and Transport chapter of the EIA Report will include a detailed evaluation of the baseline conditions and will focus on assessing the potential impacts to arise during the construction phase for each element of the Proposed Development.

8.2.2.1 Desk Study

357. The following data collection and analysis will be undertaken:

- A site visit to confirm the study area and possible sensitive receptors;
- A full review of any route survey work done previously including the ALRA;
- A review of available nearby development application documents;
- Analysis of traffic count data (including data from DfT traffic counters and from commissioned ATC along the A7) and accident data;
- Assessment of traffic impacts of previous and committed local developments to understand identified effects;
- Compilation of data on the number of construction vehicles and staff numbers related to each phase of the construction likely to be present on the local road network during the construction phase;
- A review of height and weight restrictions along the proposed construction transport routes; and
- Access design and swept path analysis of the identified access options.

8.2.2.2 Field Surveys

358. Traffic surveys will be commissioned in order to provide a baseline situation for traffic flows, movements, and speeds. An ATC on the A7 will be commissioned to collect data for 24 hours a day across a seven-day continuous period during a neutral period. The traffic data collected will provide classified and directional traffic flow data; speeds will also be recorded. After the access proposals are finalised, ATC locations will be considered in consultation with SBC.

8.2.3 Potential Sources of Impact

359. The potential sources of impact have been identified to occur predominately during the construction phase of the Proposed Development. The decommissioning stage of the wind farm is the stage that is expected to generate lower levels of traffic, however, the assessment will confirm the scale of impact compared to the construction phase.

360. It is proposed that the operational phase will be scoped out of the assessment as any traffic generated during this phase will be far lower than any traffic generated during the construction phase. The operational stage will be limited to irregular maintenance trips, undertaken by car or van type vehicles.

361. In summary, the main potential sources of impact are likely to relate to the impact of construction traffic on the residential areas located along the network work and within the vicinity of the site.

8.2.3.1 Construction Phase

362. The construction phase is likely to create the greatest traffic related environmental impacts. This is due to the number of Heavy Goods Vehicles (HGVs) and Light Goods Vehicles (LGVs) required to transport all the materials and deliveries to the site. It has been confirmed that a proportion of aggregate material required for construction is likely to be sourced from the onsite borrow pits, however, to ensure that the possible maximum traffic generation is assessed, it will be assumed that all aggregate material is imported from off-site locations. There would be traffic impacts associated with the Proposed Development on the local community and the local highway network, along the delivery routes.

8.2.3.2 Operational Phase

363. Once the Site is operational, the development would have traffic/transport-related impacts caused by occasional staff movements required for maintenance purposes. It is expected that these numbers would be very low in comparison to the traffic levels to be assessed for the construction phase and therefore, traffic generation associated with the operation of the wind farm will not be described within the EIA Report as this element will be scoped out.

8.2.3.3 Decommissioning Phase

364. As described above, during the decommissioning stage, the Proposed Development would have similar or lower impacts as those during construction phase.

8.3 Method of Assessment and Reporting

365. The assessment will first calculate the traffic generation associated with the construction phase. This will include an abridged construction works programme, details of vehicle types and sizes to be used during the construction phase, and an estimate of the number of trips anticipated to be generated by HGVs, LGVs and light vehicles.

366. Specifically, the assessment will include the following:

- A review of the construction programme to confirm the key traffic generating activities;
- Compilation of data on the number of daily vehicle trips to be present on the roads within the study area, and identification of the likely maximum or worst case scenario;

- A review of the ALRA and an assessment of the possible impacts associated with the transport of abnormal loads;
- A comparison between likely traffic flows on potentially affected roads against the baseline situation for a future year scenario with and without the Proposed Development, reported as percentage increases; and
- Identification of the impacts.

367. Mitigation measures to alleviate the known local traffic issues arising from the construction traffic will be identified, with the aim of reducing the effect of the vehicle movements identified.

368. The Institute of Environmental Management and Assessment (IEMA) guidance (2023) would form the basis for which the effects of traffic during the construction phase would be assessed. It is recognised that the guidelines are intended for the assessment of environmental effects of road traffic associated with major new developments, as opposed to short-term construction.

369. However, in the absence of alternative guidance, and as the traffic generation during the operation and maintenance phase is very low, these guidelines have been applied to assess the short-term construction phase of the Proposed Development.

370. Based on the IEMA guidance, the factors identified as being the most discernible potential environmental effects likely to arise from changes in traffic movements have been set out below and would be considered in the assessment as potential effects which may arise from changes in traffic flows from the Proposed Development.

- **Severance of communities** – severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure separation of people from places and other people.
- **Road vehicle driver and passenger delay** – traffic delays to non-development traffic which may occur at various locations depending on the type and scale of development.
- **Pedestrian and non-motorised user delay** – possible delays and increased severance to non-motorised users of the roads affected, predominantly related to the crossing of roads.
- **Non-motorised user amenity** – the impact to the ‘pleasantness’ of a journey, taking into account pedestrian fear and intimidation.
- **Road user and pedestrian safety** – the potential effect on road users, but in particular vulnerable users of the road (e.g. pedestrians/cyclists); and
- **Hazardous/large loads** – the potential effect on road users and local residents caused by an increase to the number of hazardous and large loads, to include the movement of AILs.

371. The IEMA guidelines provide two thresholds considering predicted increase in traffic, whereby a full assessment is required:

- Include road links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
- Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

372. Where the predicted increase in traffic flow from the Proposed Development is lower than these thresholds, the significance of the effects can be considered to be low and

not significant in EIA terms, and no further assessments are required. Where the traffic associated with the Proposed Development will result in the above thresholds being exceeded, further assessment will be completed to identify the magnitude and significance of any resulting effects.

373. The potential sensitivity of the receptors to changes in traffic levels would be determined by considering the study area and presence of receptors in relation to each potential impact. The receptors would be assessed individually to determine its sensitivity and the assessment criteria is set out in **Table 8-1**.

Table 8-1: Transport and Access Receptor Sensitivity

Receptor sensitivity	Definition
Very high	Receptor with no capacity to accommodate a particular effect and no ability to recover or adapt.
High	Receptor with very low capacity to accommodate a particular effect with low ability to recover or adapt.
Moderate	Receptor with low capacity to accommodate a particular effect with low ability to recover or adapt.
Low	Receptor has some tolerance to accommodate a particular effect or will be able to recover or adapt.
Negligible	Receptor is generally tolerant and can accommodate a particular effect without the need to recover or adapt.

Table 8-2: Transport and Access Magnitude Criteria

Magnitude	Criteria
Large	Impact occurs over a large spatial extent resulting in widespread, long term or permanent changes in baseline conditions, or affecting a large proportion of receptor population. The impact is very likely to occur and /or will occur at a high frequency or intensity.
Medium	Impact occurs over a local to medium extent, with short to medium term change to baseline conditions, or affecting a moderate proportion of receptor population. The impact is likely to occur and/ or will occur at a moderate frequency or intensity.
Small	Impact is localised and temporary or short term, leading to detectable change in baseline conditions, or noticeable effect on small proportion of receptor population. The impact is unlikely to occur or may occur but at low frequency or intensity.
Negligible	Impact is highly localised and short term with full rapid recovery expected to result in very slight or imperceptible changes to baseline conditions, or receptor population. The impact is very unlikely to occur and if it does will occur at very low frequency or intensity.
No Change	No change from baseline conditions.
Positive	Where the proposals result in an improvement to baseline conditions.

374. The magnitude of an impact is based on a variety of parameters. The definitions provided in Error! Reference source not found. **8-2** are for guidance only and may not be appropriate for all impacts. For example, an impact may occur in a very localised area but at very high frequency / intensity for a long period of time. In such cases expert judgement is used to determine the most appropriate magnitude ranking and this is explained through the narrative of the assessment.

375. Sensitivity and magnitude of change as assessed under the criteria detailed above would then be considered collectively to determine the significance of effect, as described in **Table 8-3**. The collective assessment is based on the likely sensitivity of the receptor to the change (e.g. is a receptor present which would be affected by the change), and then the magnitude of that change. Effects of 'major' and 'moderate' significance are considered to be 'significant' in terms of the EIA Regulations.

Table 8-3: Transport and Access Significance of Effects

Significance	Conditions of Significance
Major	Where the magnitude of the impact is Large, and the receptor has no ability to accommodate the change. Permanent mitigation measures may be required.
Moderate	Where the magnitude of the impact is Medium or for higher magnitudes the receptor has a limited ability to accommodate the change. Short term mitigation may be required.
Slight	Where the magnitude is Small or, for higher magnitudes, the receptor has the ability to accommodate the change. No mitigation measures are required.
Negligible	Where the magnitude of the impact is Negligible. No mitigation measures are required.

8.3.1 Cumulative Impacts

376. The cumulative impacts from any other local permitted developments will be a key consideration for the assessment, particular in relation to the control of construction traffic in the local area. The cumulative assessment will focus on the construction phase as this would be the most likely period to create significant effects should construction phases overlap or occur amongst permitted developments.

377. The traffic assessment and draft traffic management plans will be reviewed for the other major developments identified to be a direct relevance and on a similar construction timeline to the Proposed Development. The proposed construction timescales for the development would be carefully considered with those identified to have no impacts within the study area (to be confirmed) removed from the cumulative assessment. Such sites will be identified and discussed with SBC.

8.4 Proposed Mitigation

378. Mitigation measures will be proposed following the completion of the impact assessments, as informed by the baseline. The purpose of these measures is to aim to remove, minimise or compensate any significant effects. These mitigation measures will be agreed with SBC and TS.

8.5 Consultation

379. The scope of the study and assessment for the Proposed Development in relation to access, traffic and transport will seek to identify potential impacts which may result from the construction of the Proposed Development. Consultation with stakeholders will be completed through the scoping process.

380. The Proposed Development will be discussed with the following prescribed bodies and key stakeholders/organisations:

- SBC – consultation to discuss the potential impacts of the Proposed Development on the local road network and cumulative traffic effects within the Council area;
- D&GC – consultation to discuss the potential impacts of the Proposed Development on the local road network and cumulative traffic effects within the Council area;
- Transport Scotland as the strategic roads authority; and
- The relevant ports authority.

8.6 Matters Scoped Out

381. Due to any environmental effects which would occur during the decommissioning phase of the Proposed Development likely to be similar to, or less than, those effects during the construction phase, it is proposed that decommissioning effects are scoped out of the Access, Traffic and Transport Assessment for the EIA Report.

382. It is proposed that the operational effects are scoped out of the Access, Traffic and Transport assessment for the EIA of the Proposed Development for the same reasons as the decommissioning phase.

383. AILs would be considered in more detail within a separately submitted ALRA; the findings and recommendations from the report will be discussed within the Access, Traffic and Transport Chapter of the EIA Report with any impacts identified and assessed as required.

8.7 Questions to Consultees

Q8.1 Confirmation that traffic survey as discussed above would be appropriate;

Q8.2 Confirmation that the additional use of DfT data for obtaining traffic flow data on A7 is acceptable; and

Q8.3 Confirmation of any committed developments to be taken into account within the cumulative assessment.

9.0 Noise

9.1 Introduction

384. The noise assessment for the Proposed Development will focus on the potential for adverse noise and vibration impacts and effects at the nearest noise (and vibration) sensitive receptors (NSVRs) from the following aspects of the Proposed Development:

- Construction noise and vibration from the wind turbine installation; and
- Operational noise from the wind turbines.

385. Noise and vibration sensitive receptors are defined to be residential or designated ecological receptors (typically SSSIs or SPAs) that could be adversely affected by incident noise and vibration from the project.

9.2 Environmental Baseline

Baseline

386. The Site centre point lies approximately 11 km southwest of Hawick, Scottish Borders. High Seat hill sits in a broadly central position within the Site, whilst Mid Hill is located in the western part of the Site.

387. The Site has an easting and northing centre point of 340175, 609374 respectively. The postcode in this location is TD9 7PW.

388. There are a number of scattered residential properties constituting potential NSVRs around the Proposed Development.

389. Should other receptors be identified at consultation stage this will also be considered within future assessments.

390. Chapter 2 Vol 2 (Site Description) to this document discusses and summarises other wind farms in the vicinity which are in turn discussed further within this chapter (Section 9.4.8) in respect to potential cumulative noise impacts.

9.3 Potential Sources of Impact

391. The noise assessment will consider the potential impacts of noise generated during the construction, operation, and decommissioning of the Proposed Development on nearby noise-sensitive receptors. The assessment will consider all proposed (planning application submitted), consented and operational cumulative sites that may have a contribution to noise effects at the receptors.

392. During the construction phase of the project, it is considered that the potential sources of impact will be the mobile plant, drilling and piling operations necessary to undertake the construction. All of these operations have the potential to cause impact with excessive noise at sensitive receptors. In addition, the drilling and piling have the potential to cause impact at sensitive receptors from vibration.

393. During the operational phase of the project, it is considered that the potential sources of noise are the hubs of the wind turbines. As these have the potential for resulting in excessive noise at sensitive receptors, they have the potential for impact.

9.4 Method of Assessment and Reporting

9.4.1 Policy and Guidance

394. The UK Government's online Guidance note on Noise states that the management of the noise associated with wind turbines is considered in the 'National planning practice guidance for renewable and low carbon energy'[N1] and the 'Assessment and rating of noise from wind farms (ETSU-R-97)[N2].

395. The online Guidance Note on Renewable and Low Carbon Energy states:

'The report, ETSU-R-97: The assessment and rating of noise from wind farms should be used by local planning authorities when assessing and rating noise from wind energy developments. Good practice guidance on noise assessments of wind farms has been prepared by the Institute of Acoustics[N3]. The Department of Energy and Climate Change accept that it represents current industry good practice and endorses it as a supplement to ETSU-R-97. It is available on the Department of Energy and Climate Change's website.'

396. In February 2023, a report was published by WSP, produced on behalf of the (former) UK Government Department for Business, Energy & Industrial Strategy (BEIS); the primary aim of the report was to review current guidance in relation to wind farm noise assessment and make a recommendation as to whether the guidance requires updating. The WSP BEIS report concluded that current guidance would benefit from further review and recommends updates in a number of areas.

397. At present, no official response has been issued by BEIS or any of the new Government departments that are being created to replace BEIS, therefore current guidance remains applicable.

9.4.2 The Scottish Government - Planning Information on Onshore Wind Turbines and PAN 1/2011

398. The Scottish Government's web-based information provides advice to local authorities on the planning issues associated with wind farm development. With respect to noise from wind farms, it recommends the use of ETSU-R-97: The Assessment and Rating of Noise from Wind Farms and the Institute of Acoustics' Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise.

399. It goes on to refer to PAN 1/2011 as providing advice on the role of the planning system in helping to prevent and limit the adverse effects of noise, and states that the associated Technical Advice Note provides guidance which may assist in the technical evaluation of noise assessment.

400. PAN 1/2011 promotes the principles of good acoustic design and the appropriate location of new potentially noisy development. The associated Technical Advice Note offers advice on the assessment of noise impact and includes details of the legislation, technical standards and codes of practice appropriate to specific noise issues. Appendix 1 of the Technical Advice Note: Assessment of Noise, describes the use of ETSU-R-97 in the assessment of wind turbine noise.

9.4.3 Scottish Borders Council- Supplementary Guidance – Renewable Energy – 2018 (SG)

401. This Supplementary Guidance (SG) entitled "Renewable Energy" encompasses updates of previous Supplementary Planning Guidance (SPG) on Wind Energy 2011 and Renewable Energy 2007 as a single document.

402. In respect to wind turbine noise the guidance aligns well with other sources.

9.4.3.1 SG - Large Wind Turbines

403. These should be assessed using The Assessment and Rating of Noise from Wind farms (ETSU-R-97) in conjunction with the Institute of Acoustics Good Practice Guide 2013 (IOA GPG). Under ETSU-R-97 there are two methods of assessment, a simplified assessment where no background monitoring is required or a full assessment where limits are set in relation to the background noise or a fixed limit whichever is greater.

404. Scottish Borders Council will look to condition developments to a fixed day time limit of LA90, 10mins 35 dB unless satisfactory justification in line with the criteria set out in ETSU-R- 97 is provided. A background noise survey should not be carried out until an Environmental Health Officer at the Council has been consulted and a methodology agreed. Any noise assessment submitted as part of a planning application should follow the format as set out in chapter 6 of the IOA Good Practice Guide (GPG) Reporting Results of the Noise Assessment.

405. To ensure the operation of the newly commissioned wind farm will operate within the prescribed noise limits as set out in conditions, SBC will, through an appropriate condition, request a noise assessment report from an independent Acoustic consultant to be submitted.

9.4.3.2 SG - Cumulative Impact

406. The IOA GPG provides some guidance on how to assess cumulative noise impacts. However, each development is different, and the applicant should consult with an Environmental Health Officer to agree on a methodology. In most cases cumulative assessments will need to be carried out based on the noise limits from the surrounding developments.

9.4.3.3 SG - Financially involved properties.

407. If an applicant wishes for the higher ETSU limit of $L_{A90,\ 10mins}$ 45dB to be applied to a receptor then evidence will need to be provided. This should demonstrate that the occupiers received a direct benefit from the Proposed Development.

9.4.4 Existing Noise Limits

408. As identified in Section 1.4.13 a decision has yet to be made to permit or refuse Teviot Wind Farm, and therefore the applied limits in these instances may need to be used to inform the assessment of cumulative noise as a decision emerges on this scheme.

9.4.5 Proposed Study Area

409. The nearest noise-sensitive receptors surrounding the Proposed Development will be considered within the noise assessment, as well as receptors located in proximity to cumulative wind farm developments.

410. The study area for the noise assessment will comprise differing elements for the different aspects of the Proposed Development, as follows:

- Construction noise and vibration assessment – the study area will comprise NSRs within 1 km of the project boundary.
- Operational noise assessment – the study area will comprise the area within which noise levels from the proposed turbines may exceed “fixed limit” 35 dB L_{A90} at up to 10 ms^{-1}, based on the potential area for turbine installation.

411. Discussion of developments considered in the cumulative impact assessment are detailed in Section 9.4.9.

9.4.6 Field Survey

412. The existing baseline noise environment at noise sensitive receptors in the vicinity of the Proposed Development is anticipated to consist of a combination of natural biophonic and other man-made anthropological sound sources.

413. Natural sounds include birdsong and wind generated effects, such as wind in the trees and foliage.

414. Other sounds include road traffic noise, farming activities, noise from industrial activities, existing wind turbine developments, and local noises such as running water and boiler flues, with the levels of each noise source being depended on the distance from the receptor and shielding.

415. As noted above, baseline noise levels used to derive the relevant noise limits must not include noise from existing wind turbine development, and the derived ETSU-R-97 noise limits then apply to operational noise from all wind turbine developments.

416. A baseline noise survey is being undertaken to derive noise limits in line with ETSU-R-97. The locations for measurement (either at receptors or agreed suitably proxy locations) will be discussed with THC, and the results will be corrected to ensure existing turbine noise is not included in the derivation of the limits devised.

417. All measurements will be long term (circa 1 month minimum) to facilitate capturing a full range of wind speed correlated dB L_{A90} background noise levels at 10min intervals such that noise level limits can be directed.

9.4.6.1 Existing Noise Limits

9.4.7 Assessment of Construction Noise and Vibration

418. A construction noise assessment will be undertaken in accordance with BS5228 (Parts 1 & 2): 2009+A1:2014 ‘Code of practice for noise and vibration control on construction and open sites – Noise.

9.4.8 Assessment of Operational Noise

9.4.8.1 ETSU-R-97

419. ETSU-R-97 provides a framework for the assessment and rating of noise from wind turbine installations. It is the de facto standard for wind farm developments in the UK, and the methodology has therefore been adopted for the present assessment.

420. Both background noise and noise from wind turbines typically vary with wind speed. According to ETSU-R-97, wind farm noise assessments should therefore consider the site-specific relationship between wind speed and background noise, along with the particular noise emission characteristics of the proposed wind turbines.

421. ETSU-R-97 specifies the use of the $L_{A90,10min}$ descriptor for both background and wind turbine noise. Therefore, unless otherwise specified, all references to noise levels within this Chapter relate to this descriptor. Similarly, all wind speeds referred to, relate to a height of 10 metres (m) Above Ground Level (AGL) at the location of the Proposed Development, standardised in accordance with current good practice guidance.

422. The document recommends the application of external noise limits at the nearest noise sensitive properties, to protect outside amenity and prevent sleep disturbance

inside dwellings. These limits take the form of a 5dB margin above the prevailing background noise level, except where background noise levels are lower than certain thresholds, where fixed lower limits apply. Separate limits apply for quiet daytime and night-time periods, as outlined below. The limits apply to the cumulative effects of all wind turbines that affect a particular location.

423. During daytime, the guidance specifies limits designed to protect the amenity of residents whilst within the external amenity areas of their properties. The limits are based on the prevailing background noise level for 'quiet daytime' periods, defined in ETSU-R-97 as:

- 18:00 – 23:00 every day;
- 13:00 – 18:00 on Saturday; and
- 07:00 – 18:00 on Sundays.

424. ETSU-R-97 recommends that the fixed lower noise limit for daytime should be set within the range 35 to 40dB, $L_{A90,10min}$, with choice of value dependent on the following factors:

- The number of dwellings in the neighbourhood of the Proposed Development.
- The effect of the noise limits on the number of kilo Watt hours (kWh) generated; and
- The duration and level of exposure.

425. Different standards apply at night, where potential sleep disturbance is the primary concern rather than the requirement to protect outdoor amenity.

426. Night-time is considered to be all periods between 23:00 and 07:00.

427. A limit of 43dB(A) is recommended at night at wind speeds or locations where the prevailing wind speed related night-time background noise level is lower than 38dB(A).

428. At other times, the limit of 5dB above the prevailing wind speed-related background noise level applies. The value of night-time fixed lower limit was selected in order to ensure that internal noise levels remained below those considered to have the potential to cause sleep disturbance, taking account of the attenuation of noise when passing from outdoors to indoors, and making allowance for the presence of open windows.

429. A 'simplified criterion' is also described which is applicable where there are large separation distances between the proposed turbines and nearest NSRs. In such cases, a fixed limit of 35dB, $L_{A90,10min}$ applies, without reference to background noise levels.

430. Where the occupier of the property has a financial interest in the Proposed Development, ETSU-R-97 states that the fixed lower noise limit for both daytime and night-time can be increased to 45dB(A).

9.4.8.2 The Institute of Acoustics (IOA) Good Practice Guide

431. The Good Practice Guide (GPG) was published by IOA in May 2013 and has been endorsed by the Scottish Government as current industry good practice. The GPG is supported by a suite of six Supplementary Guidance Notes, published in 2014. The guide presents current good practice in the application of ETSU-R-97 assessment methodology for wind turbine developments at the various stages of the assessment process. The recommendations provided in the GPG been followed throughout this assessment.

432. The GPG provides advice on the assessment of cumulative noise impact, detailing several possible cumulative scenarios and recommended approaches. Advice is also provided regarding the geographical scope of a cumulative noise assessment, to determine the area within which a cumulative noise assessment is necessary.

433. Where a new noise source is introduced to a given scenario with a noise level which is predicted to be 10dB or more below the existing level, the increase in the total noise level is negligible. On this basis, the extents of a cumulative noise assessment can be determined. Paragraph 5.1.4 of the GPG states: *"If the proposed wind farm produces noise levels within 10 dB of any existing wind farm(s) at the same receptor location, then a cumulative noise impact assessment is necessary".*

434. As noted in ETSU-R-97, noise from existing wind turbines should not form part of the background noise level from which noise limits for new wind energy developments are derived.

9.4.9 Cumulative Operational Noise Assessment

435. There are other consented, under construction or built out wind farms in the wider vicinity as summarised in Section 1.4.12 of this scoping report.

436. However, all the above wind farms are at least 9km distant from the proposed Mid Hill Wind Farm, and It is therefore proposed to scope these out of cumulative noise impact assessment during the operational phase, where any cumulative contribution would be expected to be negligible in the context of Mid Hill Wind Farm and its immediate receptors given the intervening distance.

437. It is noted that Teviot Wind Farm (ECU ref ECU00003249 Planning ref 22/00871/S36) would be sited adjacent to the southern boundary. **H**owever, at the time of writing no decision has been made by the Energy Consents Unit (ECU) at Scottish Government in respect to this application.

438. In June 2024, the developer submitted additional environmental information to the ECU, and a consultation deadline of November 2024 granted to SBC.

439. Until such time as a decision emerges, given the proximity of this application it Is considered relevant for cumulative operational turbine noise assessment to be undertaken at common NVSR locations.

440. Faw Side Wind Farm (ECU ref ECU00001833) was proposed to be located 6.7 kilometres north of Langholm and 17.8 km south-west of Hawick (3km from southern boundary of Mid Hill Site) however this was refused permission on the 22nd December 2023 and has therefore been excluded from cumulative operational noise impact assessment exercises.

441. Should any additional schemes enter the planning system (as applications) ahead of the Proposed Development being submitted to the ECU, these will be included as appropriate.

9.5 Consultation

442. It is SLR's intention to consult as early as practicable with SBC regarding the scope for any noise and vibration assessments and discussions to confirm the approach herein proposed is suitable.

9.6 Matters Scoped Out

443. There are various aspects that are proposed to be scoped out of the assessment as follows.

9.6.1 Vibration

444. Given the nature of construction activities proposed and the relative distances from residential receptors, the risk of ground borne vibration impacting on residential receptors is considered very low, as such it is not proposed that a vibration assessment be undertaken and that a vibration assessment is scoped out.

9.6.2 Infrasound and Low-Frequency Noise

445. A study, published in 2006 by acoustic consultants Hayes McKenzie on the behalf of the Department of Trade and Industry (DTI), investigated low frequency noise from wind farms. This study concluded that there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines.

446. In February 2013, the Environmental Protection Authority of South Australia published the results of a study into in infrasound levels near wind farms. This study measured infrasound levels at urban locations and rural locations with wind turbines close by, and rural locations with no wind turbines in the vicinity. It found that infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations. Infrasound levels were also measured during organised shutdowns of the wind farms; the results showed that there was no noticeable difference in infrasound levels whether the turbines were active or inactive.

447. Bowdler et al., (2009) concluded that:

"...there is no robust evidence that low frequency noise (including 'infrasound') or ground-borne vibration from wind farms generally has adverse effects on wind farm neighbours".

448. During a planning Appeal (PPA-310-2028, Clydeport Hunterston Terminal Facility, approximately 2.5 km south-west of Fairlie, 9 Jan 2018), the health impacts related to low frequency noise associated with wind turbines were considered at length by the appointed Reporter (Mr M Croft). The Reporter considered evidence from Health Protection Scotland and the National Health Service.

449. In addition, he also considered low frequency noise surveys undertaken by the Appellant and the Local Authority both of which demonstrated compliance with planning conditions and did not identify any problems attributable to the turbine operations; some periods with highest levels of low frequency noise were recorded when the turbines were not operating.

- The Reporter concluded that:
- The literature reviews by bodies with very significant responsibilities for the health of local people found insufficient evidence to confirm a causal relationship between wind turbine noise and the type of health complaints cited by some local residents.
- The NHS's assessment is that concerns about health impact are not supported by good quality research.
- Although given the opportunity, the Community Council failed to provide evidence that can properly be set against the general tenor of the scientific evidence.

450. Low-frequency noise and infrasound is considered in the WSP BEIS report.

451. The report considered a number of studies which investigated claimed links between adverse health symptoms and infrasound emissions from wind turbines. The report notes on page 116 that:

'It has been demonstrated in controlled experiments, including the involvement of participants self-reporting to be sensitive to wind turbine infrasound, that exposure to infrasound at levels representative of wind turbine emissions at dwellings is not associated with physiological or psychological health effects, whereas the expectation of effects from being exposed to wind turbine infrasound, and positive or negative messages influencing that expectation, can affect health symptom reporting.

Overall, the findings from the existing evidence base indicate that infrasound from wind turbines at typical exposure levels has no direct adverse effects on physical or mental health, and reported symptoms of ill-health are more likely to be psychogenic in origin.

It is expected that further evidence from ongoing studies into wind turbine infrasound effects will emerge soon, in particular from the NHMRC studies in Australia. However, based on the existing scientific evidence, it does appear probable that the above findings will not be contradicted by newer evidence.'

452. Since the publication of the WSP BEIS report, the study that was granted funding by NHMRC (the National Health and Medical Research Council of Australia) was published in the Environmental Health Perspectives (EHP) journal which is published by the United States National Institute of Environmental Health. The study[44] aimed to test the effect of exposure to 72 hours of infrasound (designed to simulate a wind turbine infrasound signature) exposure on human physiology, particularly sleep. The study concluded that:

453. 'Our findings did not support the idea that infrasound causes WTS[N6]. High level, but inaudible, infrasound did not appear to perturb any physiological or psychological measure tested in these study participants.'

454. It is therefore not considered necessary to carry out specific assessments of low frequency noise and infrasound and that they should be scoped out of the full EIA.

9.6.3 Amplitude Modulation

455. In its simplest form, Amplitude Modulation (AM), by definition, is the regular variation in noise level of a given noise source. This variation (the modulation) occurs at a specific frequency, which, in the case of wind turbines, is defined by the rotational speed of the blades, i.e. it occurs at the rate at which the blades pass a fixed point (e.g. the tower), known as Blade Passing Frequency.

456. A study was carried out in 2007 on behalf of the Department for Business, Enterprise and Regulatory Reform (BERR) by the University of Salford, which investigated the incidence of noise complaints associated with wind farms and whether these were associated with AM. The study defined AM as aerodynamic noise from wind turbines with a greater degree of fluctuation than normal at blade passing frequency. Its aims were to ascertain the prevalence of AM on UK wind farm sites, to try to gain a better understanding of the likely causes, and to establish whether further research into AM is required.

457. The study concluded that AM had occurred at only a small number (4 of 133) of wind farms in the UK, and only for between 7% and 15% of the time. It also stated that, the causes of AM are not well understood and that prediction of the effect was not currently possible.

458. This research was updated in 2013 by an in-depth study undertaken by Renewable UK, which has identified that many of the previously suggested causes of AM have little or no association to the occurrence of AM in practice. The generation of AM is based upon the interaction of a number of factors, the combination and contributions of which are unique to each site. With the current state of knowledge, it is not possible to predict whether any particular site is more or less likely to give rise to AM,

and the incidence of AM occurring at any particular site remains low, as identified in the University of Salford study. The report includes a sample planning condition to address AM, however that has not yet been validated or endorsed by UK Government.

459. In 2016, the IOA proposed a measurement technique to quantify the level of AM present in any particular sample of wind farm noise. In August 2016 a report written by WSP/Parsons Brinkerhoff was published by the Department of Business, Energy & Industrial Strategy (BEIS, formerly The Department of Energy & Climate Change). The report sought to build on the conclusions of the IOA study in order to define an appropriate assessment method for AM, including a penalty scheme and an outline planning condition.

460. In November 2017, an article entitled *'A planning condition for wind farms'* was published in Vol 42 No 6 of the Acoustics Bulletin magazine. The article was written collaboratively by a number of noise consultants and suggested a noise planning condition which included consideration of AM. The authors noted in the article that:

461. 'Whilst local authorities and developers have waited for a planning condition that could be applied to newly consented wind farms, or to those already consented but with a suspensive condition, the report Wind Turbine AM Review (WTAMR) by WSP/Parsons Brinckerhoff for DECC arguably did not provide that. In addition, there have been a number of comments on WTAMR that we consider should be addressed.'

462. The article then went on to propose a draft condition but noted that: 'This approach is proposed based on the current state of understanding but may be subject to modification in light of new research and further robust information.' And 'As various people before us have discovered, the derivation of a penalty is not easy. There is not sufficient reliable research to be confident that a penalty system would always provide a fair indication of the impact of AM.'

463. At the time of writing there has been no official response to those recommendations from the IOA Noise Working Group and, as yet no endorsement from any Scottish Government Minister or Department. The recommendation to impose a planning condition and the associated penalty scheme is at odds with the advice from the IOA GPG which currently states (paragraph 7.2.10):

'7.2.1 The evidence in relation to "Excess" or "Other" Amplitude Modulation (AM) is still developing. At the time of writing, current practice is not to assign a planning condition to deal with AM.'

464. The WP BEIS report discusses AM, and on page 119 states that:

'At present, it seems evident that reliable predictions of AM in the context of development planning and noise assessment guidance are unlikely to be practically feasible in the near future.'

465. At time of writing there is no agreed methodology which can be used to predict the occurrence of AM or an agreed methodology which can be used to determine whether the effects of AM, should it occur, are likely to be significant. On that basis it is considered therefore that amplitude modulation should be scoped out of the noise assessment.

466. Noise from decommissioning activities will be scoped out as the overall noise impacts are usually lower than during the construction phase and will be assessed and mitigated as required at the time of decommissioning.

467. Operational noise effects will be scoped out where the predicted noise levels from the Proposed Development are below 10 dB below the typical lowest noise limit applicable to cumulative wind farm noise, typically a level of 30dB L_{A90}.

468. Where predicted noise levels from the Proposed Development are 10 dB or more below the lowest applicable noise limit then its contribution at noise sensitive properties can be considered to be negligible.

469. Vibration has been scoped out of the construction, operation, and decommissioning assessments as levels of vibrations will be negligible. Ground-borne vibration during the operational phase of the development will not be perceptible at receptor locations, nor on the wind farm site itself.

470. Levels of vibration during the construction and decommissioning phases are unlikely to be perceptible, except if there are short term construction activities in the near vicinity of receptor locations, where levels of vibration in any case will be significantly below the criteria set out in BS 5228 Code of Practice for Noise and Vibration Control on Construction and Open Sites.

9.6.4 Uncorrelated Noise Sources

471. Cumulative operational noise from the proposed wind turbines in conjunction with other (non-wind turbine) sources has been scoped out as the noise limits apply to wind turbine noise only. Where there is no defined standard or applicable methodology to consider wind turbine noise with other sources appropriately.

9.6.5 Assessment of Decommissioning Noise

472. Noise during decommissioning is understood to be of a similar nature, magnitude and character to that of construction and will be managed through best practice or other guidance and relevant legislation at the time and screened out of detailed assessment.

9.7 Questions to Consultees

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

Q9.1: Can the consultees confirm that they agree with the proposed assessment methodologies, specifically the use of ETSU-R-97 and the IOA GPG to assess operational noise and BS5228 to assess construction noise?

Q9.2: Can consultees agree that assessment of vibration, infrasound, low frequency noise and amplitude modulation be scoped out of the EIA?

Q9.3: It is proposed that cumulative noise from the wind farms is assessed in isolation from any other forms of development which have their own assessment criteria and methodologies and are therefore not comparable. Is this agreeable?

Q9.4: Are the Consultees aware of any additional potential noise-sensitive receptors, such as new housing developments? •

Q9.5: Are there any other wind energy developments which should be taken into consideration in the cumulative noise assessment alongside those listed herein?

Q9.6: What are the Council’s requirements for the provision of information on noise during construction?

9.8 References and Standard Guidance

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- BS 5228-1:2009 (amended 2014) 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'
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10.0 Geology, Hydrology, Hydrogeology and Peat

10.1 Introduction

474. This section outlines the proposed scope of the EIA Report to assess the potential significant effects from the Proposed Development on geology (including peat), hydrogeology and hydrology.

10.2 Environmental Baseline

475. The Site centre point is located approximately 11km southwest of Hawick in the Scottish Borders. Elevations on the Site range from approximately 400m along southern boundary of the Site, near the summit of Calfshaw Head, to approximately 170m along the northern boundary of the Site near the Borthwick Water. Several minor hills are noted across the Site.

476. In 2023, the Site and surrounding region received an annual rainfall of c. 1,280mm.

10.2.1 Geology and Hydrogeology

477. The Site is shown by British Geological Survey (BGS) to be underlain by the Hawick Group which comprises a thin to medium bedded greywacke and interbedded silty mudstones. A volcanic plug is also located near the centre of the Site which is part of the Southern Scotland Dinantian Plugs and Vents Suite.

478. The overlying superficial geology, where present, is shown by BGS mapping to generally comprise of glacial till. Small areas of peat are noted within the centre and southern extent of the Site whilst alluvium is noted adjacent to the larger watercourses. The hilltops locally are shown to be absent of any superficial deposits.

479. Borehole information provided by the BGS from boreholes located on the north-east and south-east boundaries of the Site indicate superficial deposits of peat to a depth of 3.4m with underlying till deposits continuing to the terminal depth of the borehole at 10.2m. A further borehole located in the north-eastern extent of the Site at Drumbain Cottage recorded topsoil and diamicton sand, gravel and clay depositis to a depth of 1.6m. Higher densities of clay, sand and gravel with pelite sandstone and pelite psammite and sandstone were noted to the terminal depth of the borehole at 4.5m.

480. The superficial and bedrock deposits beneath the Site are unlikely contain significant amounts of groundwater. The bedrock has been classified by BGS as a low productivity aquifer, whereby small amounts of groundwater may be present within the near surface weathered zone and secondary fractures. The glacial till and peat deposits also have a low bulk permeability. Shallow groundwater is likely present in the alluvial deposits and this is likely to be in hydraulic continuity with the surface water.

481. The Site is located within the Peebles, Galashiels and Hawick Groundwater Drinking Water Protected Area (Water Body ID 150697) which is currently classified as Good overall status.

10.2.2 Soils and Peat

482. Soil mapping indicates that soils beneath the Site generally comprise of noncalcareous gleys and brown forest soils. Peaty gleys and peaty podzols are also noted within the centre and along part of the southern boundary of the Site, whilst alluvial soils are noted along the northwestern boundary associated with the Borthwick Water.

483. Peatland classification mapping indicates that the majority of the Site is underlain by mineral soils (Class 0) which is not considered to represent peatland habitats. An area of Class 3 and Class 5 peatland is noted within centre of the Site, whilst an area of Class 4 peatland is noted part of the southern boundary of the Site. These areas are not considered priority peatland habitats..

484. A Phase 1 low resolution peat depth survey was undertaken in accordance with current survey guidance[58] and confirmed that localised areas of peat are present within the Site. The peat depth interpolation plan is provided as **Figure 10.1**. The Phase 1 survey indicated that the Proposed Development does not have extensive peat deposits, with only localised pockets of deep peat >1m typically present in the central area of the Site. The deepest peat was recorded to the south and southwest of Broadlee Loch at a depth of 5.8m. A localised pocket of deep peat was also recorded adjacent to Mid Hill in the western area of the Site. Areas of recorded depth >0.5m around Swanstead Hill were typically recorded as lighter grey soft mineral soils and not recorded as peat deposits.

485. An area in the north east of the Site could not be accessed due to an ecological constraint and will require further survey to confirm peat depths in this area.

10.2.3 Hydrology and Designated Sites

486. The Site is entirely located within the surface water catchment of the River Teviot (also called Teviot Water), which is part of the larger River Tweed catchment. The northwestern extent of the Site is drained by the Borthwick Water sub catchment, whilst part of the southern extent of the Site is located within the Hazelhope Burn sub catchment, both of which are tributaries of the River Teviot. Other smaller tributaries of the burns rise within the site boundary.

487. Extensive artificial drains are apparent on aerial imagery across the Site, with greater densities located on topographically higher areas of ground.

488. Watercourses and groundwater within the Site may support local private and public supplies due to the rural nature of the Site.

489. SEPA flood mapping indicates the majority of the Site is not at risk of flooding. A floodplain is shown along the northern boundary associated with the Borthwick Water, however, flooding extents are largely confined to the watercourse corridor. Small areas of surface water flood risk are also shown across the Site however these are confined to areas of low lying topography adjacent to lochs and watercourses across the Site. Flood risk, therefore, is not considered a development constraint.

490. Review of NatureScot's SiteLink indicates that the River Teviot and the Borthwick Water have been designated as part of the River Tweed Special Area of Conservation. The SAC has been designated for Atlantic salmon, brook lamprey, otter, river lamprey, sea lamprey and freshwater habitats which are likely to be sensitive to changes in water quality. See Chapter 6 of this document for further details.

491. In addition, the following designated sites are noted within 500m of the Site:

- Slaidhills Moss Site of Special Scientific Interest (SSSI) which is also part of the Whitlaw and Branxholme SAC is located within the eastern extent of the

[58] Scottish Government, Scottish Natural Heritage, SEPA (2017) Peatland Survey. Guidance on Developments on Peatland, on-line version only

Site. The SSSI and SAC have been designated for several freshwater and upland habitats and a bryophyte assemblage.

- Branxholme Wester Loch SSSI which is also part of the Whitlaw and Branxholme SAC is located immediately north of the Site. The SSSI and SAC have been designated for several freshwater and upland habitats and slender green feather-mosses.
- Branxholme Easter Loch SSSI is located approximately 480m northwest of the site boundary and has been designated for base-rich loch freshwater habitat.

10.3 Potential Sources of Impact

492. Without mitigation or adherence to best practice, impacts on soils and peat, geology, hydrology and hydrogeology could occur during the construction and operational phases of the Proposed Development. A summary of the potential effects on ground conditions and the water environment resulting from construction, and operation of a wind farm is provided below. These will be considered in the EIA Report.

10.3.1 Potential Impacts During Construction

493. The following potential impacts during the construction phase will be considered in the EIA Report:

- disturbance and loss of carbon rich soils and peat deposits;
- ground instability (inc. peat slide risk if present);
- impacts on surface water and groundwater quality from pollution from fuel, oil, concrete or other hazardous substances;
- discharge of sediment-laden runoff to drainage system and watercourses;
- increased flood risk to areas downstream of the site during construction through increased surface runoff;
- changes in groundwater levels, or saturation of peat deposits, from dewatering excavations;
- potential change of groundwater flow paths and contribution to areas of peat and ground water dependent terrestrial ecosystems (GWDTE);
- disturbance of watercourse bed and banks from the construction of culverts;
- potential pollution impacts to public and private water supplies; and
- disturbance and or pollution resulting from borrow pit formation and use.

10.3.2 Potential Impacts During Operation

494. The following potential impacts during the operational phase will be considered in the EIA Report:

- increased runoff rates and flood risk, resulting from increases in areas of tracks and hard standing at turbines;
- changes in natural surface water drainage patterns (which may affect water contribution to areas of peat and GWDTE);
- changes to groundwater levels and groundwater movement;

- longer term impacts on abstractions for water supplies, particularly any supplies dependent on groundwater; and
- pollution impacts on surface water quality from maintenance work.

10.4 Method of Assessment and Reporting

495. The potential effects from the Proposed Development on ground conditions and the water environment will be assessed by completing a desk study and field investigation followed by an impact assessment, the processes of which are detailed below.

10.4.1 Study Area

496. The study area for peat and soils will be within the site boundary. The geological, hydrological and hydrogeological study area will extend to 500m from the site boundary and the cumulative effects study area will extend to 5km from the site boundary.

10.4.2 Desk Study

497. An initial desk study will be undertaken to determine and confirm the baseline characteristics by reviewing available information relating to soils and peat, geology, hydrology, and hydrogeology such as groundwater resources, licensed and unlicensed groundwater and surface water abstractions, public and private water supplies, surface water flows, flooding, rainfall data, water quality and soil data. This will include review of published geological maps, Ordnance Survey maps, aerial photographs, and site-specific data such as site existing available peat probing data, digital terrain models (slope plans) and geological literature.

498. The desk study will identify sensitive features which may potentially be affected by the Proposed Development and will confirm the geological, hydrogeological, and hydrological environment.

10.4.3 Field Surveys

499. The hydrological assessment specialists will liaise closely with the project ecology and geology / geotechnical specialists to ensure that appropriate information is gathered to allow a comprehensive impact assessment to be completed.

500. A detailed site visit and walkover survey will be undertaken, to:

- verify the information collected during the desk and baseline study;
- identify drainage patterns, areas vulnerable to erosion or sediment deposition, and any pollution risks;
- visit any identified GWDTEs (in consultation with the project ecologists);
- visit any private water supply within the study area that might be affected by the Proposed Development to confirm details of the location of the abstraction, its type and use, as required;
- prepare a schedule of potential watercourse crossings;
- assess the site geomorphology and conduct Phase II peat depth probing to confirm that avoidance of areas of peat has been achieved through design; and

- inspect rock exposures, establish by probing an estimate overburden thicknesses (a probe is pushed vertically into the ground to refusal and the depth is recorded).

501. The desk study and field surveys will be used to identify potential development constraints and be used as part of the site design.

502. Once the desk study is completed and sensitive soil and peat, geological and water features are confirmed an EIA Report will be prepared to assess the potential effects on soils and peat, geology and the water environment as a result of the construction and operation of the Proposed Development.

10.4.4 Assessment of Effects

503. The purpose of this assessment will be to:

- If peat is identified then identify any areas susceptible to peat slide, using peat thickness and DTM data to analyse slopes;
- assist in the micrositing of turbines and tracks in areas of no peat or shallow peat and in the least hydrogeologically and hydrologically sensitive areas by applying buffer zones around watercourses and other hydrological features;
- assess potential effects on soils, peat and geology;
- determine what the likely effects of the Proposed Development are on the hydrological regime, including water quality, flow and drainage;
- assess potential effects on water (including groundwater) dependent habitats;
- determine suitable mitigation measures to prevent significant hydrological and hydrogeological effects; and
- develop an acceptable code for working on the site that will adopt best practice procedures, effective management and control of on-site activities to reduce or offset any detrimental effects on the geological, hydrogeological and hydrological environment.

504. It is anticipated the EIA report would include the following technical appendices:

- schedule of watercourse crossings;
- private water supply risk assessment; and
- GWDTE risk assessment.

505. Based on the results of the Phase 1 probing survey indicating localised peat deposits it is considered likely that the avoidance of peat can be undertaken through Site design, review of NVC data and further detailed Phase II probing to confirm avoidance of peat within the Proposed Development. On the basis that peat can be avoided through design the following Technical Appendices would not be required. Further consultation with SEPA will be undertaken later in the design process to agree this approach, if appropriate;

- peat landslide hazard and risk assessment;
- peat condition assessment and management plan;

506. A qualitative risk assessment methodology will be used to assess the significance of the potential effects. Two factors will be considered: the sensitivity of the receiving environment and the potential magnitude should that potential impact occur.

507. This approach provides a mechanism for identifying the areas where mitigation measures are required, and for identifying mitigation measures appropriate to the risk presented by the Proposed Development. This approach also allows effort to be focused on reducing risk where the greatest benefit may result.

508. The sensitivity of the receiving environment (i.e. the baseline quality of the receiving environment as well as its ability to absorb the effect without perceptible change) and the magnitude of impacts will each be considered through a set of pre-defined criteria.

509. The sensitivity of the receiving environment together with the magnitude of the effect defines the significance of the effect, which will be categorised into level of significance.

510. A review of other existing and proposed wind farms near the Proposed Development will be undertaken and potential impacts on hydrology, hydrogeology and geology will be assessed to identify cumulative impacts. With regard to the Proposed Development, it is likely that mitigation measures will be proposed that will have a neutral effect or provide betterment compared to baseline conditions. It is considered unlikely that there will be any significant residual or cumulative impact to report.

10.4.5 Mitigation

511. The Proposed Development will undergo design iterations and evolution in response to constraints identified as part of the baseline studies and field studies so as to avoid and/or minimise potential effects on receptors where possible.

512. For example, it is expected that the following potential mitigation measures will be included in the design of the Proposed Development:

- a buffer of up to 50m will be applied to watercourses shown on 1:25,000 scale mapping;
- site specific peat probing will be undertaken in accordance with current best practice guidance;
- If peat cannot be avoided by design, a site-specific PLHRA will be prepared, and areas of potential increased peat slide risk will be avoided or mitigation measures to manage these risks;
- As indicated above if peat cannot be avoided by design, a carbon rich soils and Peat Management Plan will be prepared to show how the integrity of soil and peat will be safeguarded; and
- impacts on private water supply sources and areas of GWDTE will be avoided.

513. There is much best practice guidance which has been developed to assist developers minimise the risks associated with wind farm construction and operation and this will be used to develop site specific mitigation measures. Measures will be proposed to control and mitigate, for example, pollution risk (from anthropogenic and geogenic sources), flood risk, watercourse crossings, impacts on surface and groundwater flow paths, and management of peat and carbon rich soils.

514. Good practice measures will be applied in relation to pollution risk, and management of surface run-off rates and volumes. This will form part of the final CEMP to be implemented for the Proposed Development.

10.4.6 Peat Management Plan & Peat Landslide Hazard and Risk Assessment

515. A Stage 1 PMP will be prepared as a supporting technical appendix if peat cannot be avoided within the design of Proposed Development in line with NPF4 and SEPA Regulatory Position Statement: Developments on Peat (2012). The Waste Framework Directive (WFD) 2008/98/EC, transposed into National Law under The Waste Management Licensing (Scotland) Regulations 2011, sets out a requirement to apply a waste hierarchy. In terms of this project, this hierarchy should be considered as follows:

- prevent excavation;
- reduce volumes of peat excavated; and
- reuse excavated peat in a manner to which it is suited.

516. The following works will be completed:

- peat depths within the Site will be presented using a 100m grid where access is possible and detailed peat probing on a 10m grid at proposed infrastructure locations (the probing will also provide information of the substrate below the peat) and at 25-50m spacings on areas of linear infrastructure in accordance with current guidance[58];
- a limited (in terms of aerial extent) geomorphological mapping exercise will be undertaken to link the topographic features with the underlying geology and to visit those areas of the Site that may be identified as potentially 'at risk from peat slide';
- the thickness of the peat will be established by probing and the underlying sub-strata confirmed by inspection of watercourses;
- the investigation will consider turbine locations, access routes, compounds and borrow pits for signs of existing or potential peat instability;
- augering of a representative selection on-site locations to confirm the presence of underlying substrate and if required confirm the peat condition and the proportion of acrotelmic and catotelmic peat recorded; and
- output from the field survey will comprise a record of investigation locations and summary of peat depths and augering results.

517. A PLHRA will only be completed if peat cannot be avoided within the design of the Proposed Development using best practice guidance[59], highlighting areas that may be impacted by a peat slide so that appropriate mitigation measures and can be identified.

10.4.7 Borrow Pit Assessment

518. Suitability of materials on the site will be verified and borrow pit search areas will be identified as part of the Borrow Pit Assessment. If appropriate areas are identified a description of likely materials, borrow pit size and the ability to supply appropriate materials for the construction of the wind farm will be included.

[59] Energy Consents Unit Scottish Government, Second Edition (April 2017) Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments, available at [https://www.gov.scot/publications/peat-landslide-hazard-risk-assessments-best-practice-guide-proposed-electricity/documents]

10.5 Consultation

519. As part of the consultation phase of the project environmental data and views of the Proposed Development will be sought from:

- Scottish Borders Council;
- SEPA;
- NatureScot;
- Scottish Water;
- Tweed Foundation; and
- River Tweed Commission.

10.6 Matters Scoped Out

520. It is proposed that the potential impacts outlined above will be assessed as part of the EIA Report.

521. At this stage, it is proposed that the following can be scoped out of detailed assessment:

- It is proposed to scope out effects on geology. While there will be effects arising from rock extraction for borrow pits, track construction and for turbine and crane pad areas, these are limited in area and do not extend beyond the immediate development footprint. No particularly sensitive geological features have been identified within the Site. Potential effects on carbon rich soils and peat will be assessed in full if carbon rich soils and peat cannot be avoided by design.
- Detailed Flood Risk Assessment. Published mapping confirms the Site is not located in an area at risk of fluvial, coastal or significant surface water flooding. It is proposed, therefore, that a simple screening of the potential sources of flooding (fluvial, coastal, groundwater, pluvial, infrastructure etc.) is presented in the EIA Report and measure that would be used to control the rate and quality of runoff will be specified in the EIA Report.
- A Drainage Impact Assessment. Design standards and measures which would be used to control and manage incident rainfall would be specified in the EIA Report. A site drainage design plan would be prepared as part of the detailed site design (post planning) and form part of the final Construction and Environmental Management Plan. This would be submitted to SEPA for approval at that stage.
- Water Quality Monitoring as part of the baseline assessment. Classification data is available from SEPA for the watercourses at Site and there are no known sources of potential water pollution at the Site that might give rise for the need for water quality monitoring. Water quality monitoring would be undertaken prior to construction commencing, should consent be granted.

10.7 Questions to Consultees

Q10.1 Published mapping confirms that most of the Site is not identified as being at flood risk. It is proposed, therefore, that a simple screening of potential flooding sources (fluvial, coastal, pluvial, groundwater etc.) is presented in the EIA Report. Is this approach acceptable?

Q10.2 It is not proposed to prepare a detailed drainage design. Rather measures that would be used to control the rate and quality of runoff will be specified in the EIA Report. Again, is this acceptable?

Q10.3 Site investigations, including detailed peat probing, augering and condition assessment, private water survey, and GWDTE assessment will be undertaken as part of the proposed assessment. Should any additional investigation or data sources be considered when assessing baseline conditions?

Q10.4 It is not proposed to undertake any water quality sampling, establish groundwater monitoring points, surface water monitoring points or undertake leachability trials of any rock as there is published data that can be used to characterise baseline conditions and complete the impact assessment. Is this acceptable?

Q10.5 Please advise if there is any specific information or methodology that should be used / followed as part of the private water supply risk assessment?

Q10.6 Do you agree that the scope of the proposed assessment is appropriate?

11.0 Climate and Carbon Balance

522. Carbon dioxide emissions (carbon emissions) are considered greenhouse gases (GHG) and the increasing atmospheric concentrations of these GHGs are contributing to climate change. A major contributor to this increase in GHG emissions has been and continues to be the burning of fossil fuels. With ongoing and growing concerns over climate change, reducing and indeed reversing the effects of climate change are of utmost importance.

523. As set out in **Section 3.2** of this EIA Scoping Report, the Scottish Government declared a climate emergency on 14 May 2019. The declaration of an 'emergency' is a reflection of both the seriousness of climate change and its potential effects and the need for urgent action to cut carbon dioxide emissions.

524. In 2019, The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, which amended the Climate Change (Scotland) Act 2009 and set targets to reduce Scotland's emissions of all greenhouse gases to net-zero by 2045 at the latest, with interim targets for reductions of at least 75% by 2030, 90% by 2040.

525. The replacement of traditional fossil fuel power generation with renewable energy sources provides high potential for the reduction of GHG emissions. This is reflected in UK and Scottish Governments climate change and renewable energy policy including the latest UK Energy White Paper (2020) and Net Zero Strategy (2021).

526. As a renewable energy project, the Proposed Development is likely to deliver significant carbon savings over its lifetime and will therefore benefit and make an important contribution to the Scottish Government's Climate Change targets. To illustrate this, an assessment will be undertaken that considers the likely magnitude of greenhouse gas (GHG) emissions and savings of the Proposed Development in comparison to the baseline scenario where no development takes place (i.e. where no emissions are produced).

11.1 Environmental Baseline and Sources of Impact

527. No form of electricity generation is completely carbon free; for onshore wind farms, there will be emissions resulting from the manufacture of turbines, as well as from both construction and decommissioning activities and transport of materials and labour.

528. In addition to the lifecycle emissions from the turbines and associated wind farm infrastructure, where a wind farm is located on carbon rich soils such as peat, there are potential emissions resulting from the direct action of excavating peat for construction and the indirect changes to hydrology that can result in losses of soil carbon. The footprint of a wind farm's infrastructure will also decrease the area covered by carbon-fixing vegetation. Conversely, restoration activities undertaken post-construction or post-decommissioning could have a beneficial effect on carbon uptake through the restoration of modified bog habitat. The carbon losses and gains during the construction and lifetime of the Proposed Development and the long-term impacts on the peatlands on which they are sited will be evaluated to understand the carbon balance of the development.

11.2 Method of Assessment and Reporting

529. Following ECU and SEPA guidance, the carbon balance assessment will be undertaken using the most recent version of the Carbon Calculator Tool that is available from the Scottish Government's website. This assessment will be based on the available information regarding the scale and nature of the Proposed

Development and where data is unavailable, worst-case reasonable assumptions will be used.

530. The assessment will also quantify the carbon savings produced over the life of the Proposed Development, compared to the release of CO_2 produced from other energy generation methods.

531. Based on the net carbon emissions and savings figures, the assessment will report on the carbon payback time that the Proposed Development will take to repay the carbon losses or debt incurred by being built and operating. It will also report the number of years that the Proposed Development will be able to produce clean carbon free energy.

532. The appendix will present the findings of the carbon balance assessment and will contextualise these results through describing the climate benefits which are likely to occur through delivery of the Proposed Development. In broad terms, these benefits include contribution to mitigating the effects of climate change, contribution to, and security of, domestic energy supplies and to a sustainable energy mix within Scotland and more broadly within the United Kingdom. Considerations of climate change will also be considered as required in the individual topic chapters of the EIA Report.

533. A climate resilience assessment is typically undertaken to ensure adequate resilience of major projects to the adverse impacts of climate change, for example flooding. It is based on a vulnerability and risk assessment. However, it is considered that many of key climate trends such as increased temperature, changes in rainfall events and sea level rise will not affect the Proposed Development due to its location and high elevation. During severe windstorms, turbines typically engage installed braking mechanisms to shut turbines down. These factors suggest that a detailed climate vulnerability and risk assessment would not be required and is proposed to be scoped out of the EIA.

11.3 Consultation

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

11.4 Questions to Consultees

Q11.1 Can consultees confirm they are happy with the proposed scope of the carbon balance assessment?

12.0 Socio-Economics, Tourism, Recreation and Land Use

12.1 Introduction

535. BiGGAR Economics has been commissioned to undertake the socio-economic, tourism and recreation elements of the Scoping Report for the Proposed Development. Socio-economic and tourism assessments of onshore wind farms over the last decade have found no adverse effects assessed as significant in terms of the EIA Regulations and there is no reason to expect significant effects for the Proposed Development. It is therefore proposed to scope socio-economics and tourism out of the EIA Report.

536. Nevertheless, it is recognised that socio-economic and tourism issues will be of interest to stakeholders and local authorities and so a separate report on socio-economics and tourism will be provided and submitted alongside the EIA Report.

537. This will include consideration of local tourism activity, direct effects such as employment generation and any indirect or induced effects from the Proposed Development. The report will also consider whether the Proposed Development maximises net economic benefit, in the context of Policy 11c of the fourth National Planning Framework.

538. This section describes what will be considered in the separate socio-economic and tourism report and the approach that will be taken.

12.2 Study Area

539. The study areas that will be used in this assessment are made from pre-defined administrative geographies. The site boundary lies exclusively within the Scottish Borders Council (SBC) area. The baseline description will cover and compare the following study areas:

- the Local Area (as defined by the electoral ward of Hawick and Hermitage)
- Scottish Borders; and
- Scotland.

540. Economic impacts will be assessed for the study areas of:

- Scottish Borders; and
- Scotland.

541. Tourism and recreation receptors will be identified within 15 km of the Proposed Development site boundary.

12.3 Environmental Baseline

542. The baseline assessment will include a description of the current socio-economic, recreation and tourism baseline within the Local Area and other study areas. Specifically, the baseline study will cover;

- the demographic profile of the Local Area within the context of the regional and national demographic trends;
- employment and economic activity of the regional economy compared to the national level;

- the industrial structure of the Local Area within the context of regional and national economies;
- wage levels within the regional economy compared to the national level; and
- the role of the tourism sector in the Local Area and regional economy, with consideration of assets, including accommodation providers and public paths, in the immediate vicinity of the Proposed Development.

12.3.1 Population Estimates

543. The current data indicates that the Local Area has a population of 8,530, which accounts for 7.4% of the total population of the Scottish Borders.

544. The Local Area has an older population, with 27.5% of the population aged 65 or over. In comparison, 19.6% of the Scottish population is aged 65 or over. Similarly, 58.4% of the population in the Local Area are aged between 16-64, compared to 63.8% of the Scottish population.

Table 12-1: Population Estimates by Age, 2022

	Local Area	Scottish Borders	Scotland
Total Population	8,530	116,000	5,479,900
% under 16	13.9%	16.1%	16.6%
% age 16 - 64	58.4%	58.3%	63.8%
% aged 65 and over	27.6%	25.6%	19.6%

12.3.2 Population Projections

545. The National Records of Scotland provide population projections at local authority and Scottish level. While information is not available at electoral ward level, current population estimates and future trends at local authority level can be used to form a view of more localised trends.

546. The total population of the Scottish Borders is projected to slightly increase from 116,000 to 116,138 between 2022 and 2043. During the same period, the population of Scotland is projected to increase by 1.7%.

547. Scottish Borders is also projected to experience an ageing population, with the share of the working age population expected to fall from 58.3% to 53.4%, which implies a loss of around 5,608 working age people from Scottish Borders.

Table 12-2 Population Projections by Age, 2022

	Scottish Borders		Scotland	
	2022	2043	2022	2043
Total Population	116,000	116,138	5,479,900	5,574,819
% under 16	16.1%	15.2%	16.6%	14.8%
% age 16 - 64	58.3%	53.4%	63.8%	60.3%
% aged 65 and over	25.6%	31.5%	19.6%	24.9%

12.3.3 Economic Activity

548. The economic activity rate in the Scottish Borders is higher than that of Scotland as a whole, with 80.9% of the population aged between 16 and 64 either in employment or looking for work. The unemployment rate in Scottish Borders (4.7%) was above the Scottish average (3.4%). The median annual gross wage was also slightly lower for residents of Scottish Borders (£27,641) than for residents of Scotland (£29,842).

Table 12-3: Economic Activity, 2023

	Scottish Borders	Scotland
Economic Activity Rate	80.9%	77.9%
Unemployment Rate	4.7%	3.4%
Median Annual Gross Income (All Residents)	£27,641	£29,842

12.3.4 Industrial Structure

549. As shown in **Table 12-4** the human health and social work activities sector is particularly important to the Local Area, accounting for 22.3% of all jobs in the area. This is higher than that of the Scottish Borders (16.9%) and Scotland (15.1%)

550. Similarly, the wholesale and retail trade sector is the second largest employer in the Local Area (17.1%) and the Scottish Borders (14.7%) employing a larger proportion of the workforce compared to Scotland as a whole (12.8%).

551. Employment in accommodation and food service activities accounts for a higher proportion of jobs in the Local Area (9.4%) than that of Scottish Borders (7.4%) and Scotland (8.2%). This indicates importance of tourism to the economy of the Local Area.

552. The economic opportunities from the development, construction and operation of the Proposed Development are likely to be within specific sectors. These include construction and professional, scientific and technical services. The construction sector accounts for 8.6% of jobs in the Local Area, which is higher than that of the Scottish Borders (6.8%) and Scotland (5.6%). There are less people employed in professional, scientific and technical activities in the Local Area than in Scotland as a whole.

Table 12-4: Industrial Structure, 2022

Activity	Local Area	Scottish Borders	Scotland
Human health and social work activities	22.3%	16.9%	15.1%
Wholesale and retail trade; repair of motor vehicles and motorcycles	17.1%	14.7%	12.8%
Accommodation and food service activities	9.4%	7.4%	8.2%
Education	9.4%	7.9%	8.4%
Manufacturing	8.6%	8.4%	6.6%
Construction	8.6%	6.8%	5.6%
Professional, scientific and technical activities	5.8%	6.8%	7.4%
Real estate activities	3.4%	1.5%	1.4%
Administrative and support service activities	2.7%	3.9%	7.8%
Arts, entertainment and recreation	2.7%	3.7%	2.9%
Transportation and storage	2.6%	1.9%	4.0%
Public administration and defence; compulsory social security	2.1%	3.9%	6.2%
Other service activities	1.5%	1.4%	1.7%
Information and communication	1.4%	1.4%	3.1%
Agriculture, forestry and fishing	1.2%	11.6%	3.4%
Financial and insurance activities	1.0%	0.7%	3.1%
Water supply; sewerage, waste management and remediation activities	0.2%	0.7%	0.7%
Mining and quarrying	0.0%	0.0%	1.0%
Electricity, gas, steam and air conditioning supply	0.0%	0.3%	0.7%

12.3.5 Education

553. The population in Scottish Borders has a similar distribution of qualifications than that of the wider Scottish population. There are fewer individuals holding NVQ3 and NVQ4 qualifications or above, which are equivalent to A-levels and undergraduate degrees from university, respectively. In Scottish Borders, 8% of the working age population have no qualification, in line with that of Scotland (7.8%).

Table 12-5 Education Levels, 2022

Qualification	Scottish Borders	Scotland
% with NVQ4+	45.5%	50.0%
% with NVQ3+	59.8%	64.8%
% with NVQ2+	78.5%	79.6%
% with NVQ1+	87.4%	86.4%
% with other qualifications (NVQ)	4.5%	5.8%
% with no qualifications (NVQ)	8.0%	7.8%

12.4 Potential Sources of Impact

554. The impacts that will be considered in the separate socio economic assessment will include the potential socio-economic, tourism and recreation impacts associated with the Proposed Development.

555. An economic impact analysis will be undertaken using the methodology developed by BiGGAR Economics; which has been used to assess over 150 onshore wind farms across the UK. The potential socio-economic impacts that will be considered are:

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

556. The link between onshore wind energy developments and the tourism sector has been a subject of debate. However, the most recent research has not found a link between tourism employment, visitor numbers and onshore wind development. This research includes previous work undertaken by BiGGAR Economics in 2017[60] that considered 28 wind farms constructed between 2009 and 2015 and the trends in tourism employment in the areas local to these developments. The analysis found that there was no relationship between the development of onshore wind farms and tourism employment at the level of the Scottish economy, at the local authority level nor in the areas immediately surrounding wind farm developments. In 2021 this study was updated, and research identified 16 wind farms with a capacity of at least 10 MW that became operational between 2015 and 2019. Analysis of trends in tourism employment in the locality of these wind farms (15 km radius) found that 11 of the 16 areas had experienced more growth in tourism employment than for Scotland as a

[60] BiGGAR Economics (2017) Onshore Wind and Tourism Trends in Scotland in Scotland. Available at: https://biggareconomics.co.uk/wp-content/uploads/2020/01/Wind-farms-and-tourism-trends-in-Scotland.pdf

whole. For 13 of the 16 wind farms, trends in tourism employment in the locality had outperformed the local authority in which they were based.

557. Nevertheless, the tourism sector is an important contributor to the Scottish economy, and so there is merit in considering whether the Proposed Development will have any effect on the tourism sector. This assessment will consider the potential effects that the Proposed Development could have on tourism attractions, routes, trail, and local accommodation providers. The implications of any effects identified for the tourism sector in the local area and wider region will be considered.

12.5 Method of Assessment and Reporting

12.5.1 Guidance and Legislation

558. There is no specific legislation or guidance on the methods that should be used to assess the socio-economic impacts of a proposed onshore wind farm development. The proposed method has however been based on established best practice, including that used in the UK Government and industry reports on the sector. In particular, this assessment will draw from two studies by BiGGAR Economics on the UK onshore wind energy sector: a report published by RenewableUK and the Department for Energy and Climate Change (DECC) in 2012 on the direct and wider economic benefits of the onshore wind sector to the UK economy and a subsequent update to this report published by RenewableUK in 2015.

559. There is also no formal legislation or guidance on the methods that should be used to assess the effects that wind farm developments may have on general tourism and recreation interests. The proposed method will consider specific attractions or tourism facilities to assess if there could be any effects from the Proposed Development.

560. For recreational assets, guidance has been provided by NatureScot (NS) formerly Scottish Natural Heritage (SNH) on how to assess effects on recreational amenity and the approach outlined by NS has been used. This takes into consideration a number of potential effects, including direct effect on facilities, such as limitation or restrictions on access, and effects on the intrinsic quality of the resources enjoyed by people. In general, this guidance would consider recreational and access impacts to potentially be significant if:

- permanent or long-term effects on the resources on which enjoyment of natural heritage depends, in particular where facilities have been provided by NS or others under statutory powers;
- permanent or long-term change that would affect the integrity and long-term sustainable management of facilities which were provided by NS or others under statutory powers;
- where there are recreational resources for open air recreation pursuits affected by the proposal which have more than local use or importance, especially if that importance is national in significance;
- major constraints on or improvements for access or accessibility to designated natural heritage sites; and
- where mitigation and/or compensatory or alternative recreational provision is considered to be inadequate.

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

- Scottish Government (2022), Scotland's National Strategy for Economic Transformation;
- Scottish Government (2023), Scotland's National Performance Framework;
- Scottish Government (2021), Local Energy Policy Statement;
- Scottish Government (2022), Onshore Wind Policy Statement;
- Scottish Government (2023), Onshore Wind Sector Deal;
- EDAS (2023), Implementing Community Wealth Building, A Guide;
- Scottish Borders Council (2023), Scottish Borders Economic Strategy 2023; and
- Scottish Tourism Alliance (2021), Scotland Outlook 2030.

562. It is also essential to take into consideration for the assessment the fourth National Planning Framework (NPF4), the national spatial strategy for Scotland. The document considers:

- Scotland's spatial principles;
- national planning policy;
- national developments; and
- regional priorities.

563. In the context of energy generation, Policy 11 of NPF4 is relevant to the socio-economic impact of the Proposed Development. Paragraph (c) states that "*Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.*" The analysis will reach the conclusion on whether the project maximises the net economic impact in the context of NPF4 Policy 11(c).

564. Paragraph (d) of Policy 11 sets out a number of impacts that should be addressed during project design and mitigation. That list does not include tourism.

565. In addition, Policy 25 (a) Community wealth building states that “Development proposals which contribute to local or regional community wealth building strategies and are consistent with local economic priorities will be supported.” The stand alone report will also consider how this development will contribute to community wealth in the local area.

566. Whilst NPF4 includes no requirement to consider tourism when considering net economic impact or in the project design and mitigation process, relevant employment statistics show that in the Local Area the employment in tourism related sectors, Accommodation and food service activities and Arts, entertainment and recreation, account for a higher percentage of total employment (12.2%) compared to both the Scottish Borders (11.1%) and Scotland (11.1%). This indicates the importance of tourism in the Local Area surrounding the Proposed Development and it is recognised that local stakeholders may be interested in the potential impact. Thus, a tourism assessment will be included in the socio-economic report.

12.5.2 Assessment Methodology

567. It is anticipated that the contents of the standalone report will include:

- introduction, including scope of assessment and methodology;

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

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

569. Government and industry reports will be used to determine the expected capital and operational expenditure associated with the Proposed Development, as well as the breakdown of expenditure by different contracts (e.g. turbine, balance of plant). An assumption will then be made based on the share of each type of contract that can be secured regionally and nationally. This increase in turnover will then be used to estimate the economic impact associated with the Proposed Development.

570. The method to assess the socio-economic effects will be based on industry best practice and will consider the share of contracts that can be secured in each study area, and the level of employment that can be supported as a result.

571. In order to assess effects on tourism and recreation assets, the features that make them distinctive and attractive, such as how they display local heritage, will be identified. The potential impact of the Proposed Development on those key features will then be assessed, with consideration of chapters of the EIA Report where relevant, to determine the magnitude of change.

12.5.3 Mitigation

572. Proposed mitigation measures will depend on the findings of the assessment. Proposed measures that will be adopted to enhance the socio-economic impacts include:

- engaging early with the local community and local businesses;
- providing clear information on technical requirements that can allow businesses to prepare;
- incentivising primary contractors to engage with local businesses; and
- other measures will be identified as part of the standalone socio-economic and tourism assessment.

12.6 Consultation

573. The assessment will use desk-based information sources to assess the likely effects, supplemented by consultation with stakeholders if relevant. Information to inform the baseline will be sought from various sources, including:

- Scottish Borders Council;

- Local Community Councils;
- Cycling Scotland;
- Scottish Rights of Way and Access Society;
- Sustrans Scotland; and
- VisitScotland.

12.7 Matters Scoped Out

574. It is proposed that any substantial, adverse impacts identified as part of the standalone socio-economic, tourism and recreation assessment will be considered as part of the EIA, and all other impacts will be scoped out.

12.8 Question to Consultees

Q12.1 Do you agree that the scope of the proposed assessment is appropriate?

Q12.2 Do you agree that the proposed methodology is acceptable?

Q12.3 Are there any particular sources of information or socio-economics or tourism effects that should be considered?

13.0 Aviation and Radar

13.1 Introduction

575. Wind turbines have the potential to affect civil and military aviation and meteorological forecasting. This section of the report covers the methodology used to undertake the aviation and radar scoping assessment, lists the references used and describes the baseline condition, consultation requirements and mitigations to be applied if required.

576. This section of the Scoping Report has been written by Cdr John Taylor RN (Ret) of Wind Power Aviation Consultants Ltd (WPAC). John has over 35 years' experience as an Air Traffic Controller, Fighter Controller and Aviation Regulator and was head of Air Traffic Control for the Royal Navy. His responsibilities included responding to wind farm consultations on and offshore. Since 2008, WPAC has provided advice on the interaction between wind turbines and aviation including assessing over 3000 wind turbine proposals and giving evidence at over 20 Inquiries and Appeals in England and Scotland. John has also advised a number of Local Authorities on this issue. His team includes experts on radar propagation and modelling and low flying operations.

13.2 Environmental Baseline

577. The Proposed Development is located in an area relatively remote from significant civil aviation facilities. It is 70km to the south of Edinburgh Airport, 87km to the north-west of Newcastle Airport and over 100km to the east of Glasgow Prestwick Airport. In airspace terms it is located under Class A Controlled Airspace designated Y96 with a base of Flight Level (FL)115 (approximately 11500ft) and at the confluence of a number of airways. In military terms, it is located 13km to the north of the Spadeadam Danger Area designated D510 and within a tactical training area for military low flying.

13.3 Legislation and Guidance

578. There are a number of aviation publications relevant to the interaction of turbines and aviation containing guidance and legislation, which cover the complete spectrum of aviation activity in the UK including:

- Civil Aviation Authority (2016) Policy and Guidance on Wind Turbines Version 6 CAP764 CAA;
- Civil Aviation Authority (2019) Licensing of Aerodromes, Version 11 CAP 168 CAA;
- Civil Aviation Authority (2019) ATS Safety Requirements Version 3 CAP 670 CAA;
- Civil Aviation Authority (2017) UK Flight Information Services, Ed 3 CAP 774 CAA;
- Civil Aviation Authority (2006) Safeguarding of Aerodromes Version 2 CAP774 CAA;
- Civil Aviation Authority (2010) Safe Operating Practices at Unlicensed Aerodromes Ed 1 CAP 783 CAA;
- Civil Aviation Authority (2017) Manual of Air Traffic Services Part 1 Ed 7.0 CAP 493 CAA;

- Civil Aviation Authority (2020) Parachuting Ed 5 CAP660 CAA; and
- Ministry of Defence (2022) Military Aviation Authority Regulatory Article 2330 (Low Flying) MOD; and Civil Aviation Authority (2017) CAA Policy Statement: Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level CAA.

13.4 Study Area

579. The assessment of effects of the proposed turbines will be based upon the guidance laid down in CAA Publication CAP 764 Policy and Guidelines on Wind Turbines Version 6 (February 2016). Consultation criteria for aviation stakeholders is defined in Chapter 4 of CAP 764. These distances inform the size of the study area and include:

- airfield with a surveillance radar – 30km;
- non radar licensed aerodrome with a runway of more than 1.1km – 17km;
- non radar licensed aerodrome with a runway of less than 1.1km – 5 km;
- licensed aerodromes where the turbines would lie within airspace coincidental with any published Instrument Flight Procedure (IFP);
- unlicensed aerodromes with runways of more than 800m – 4 km;
- unlicensed aerodromes with runways of less than 800m – 3km;
- gliding sites – 10km; and
- other aviation activity such as parachute sites and microlight sites within 3km – in such instances developers are referred to appropriate organisations.

580. CAP 764 further states that these distances are for guidance purposes only and do not represent ranges beyond which all wind turbine developments will be approved or within which they will always be objected to. These distances are intended as a prompt for further discussion between developers and aviation stakeholders and will be reported upon in the EIA Report.

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

- MOD Airfields, both radar and non-radar equipped;
- MOD Air Defence Radars;
- UK Met Office Meteorological Radars; and
- Military Low Flying.

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

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

13.5 Method of Assessment and Reporting

584. The radar calculation results referred to in this section were produced using specialist propagation prediction software (RView Version 5). Developed over a number of years, it has been designed and refined specifically for the task. RView will be used to identify potential aviation effects of the Proposed Development as its design evolves. The results will then be used as a basis for consultation and liaison with relevant aviation bodies, as detailed below.

13.5.1 Consultation

13.5.1.1 Licensed Aerodromes

585. The Proposed Development is well beyond any standard consultation or safeguarded distances as listed in the study area. Initial radar modelling has also been undertaken against the radars at Newcastle, Edinburgh and Glasgow Prestwick Airport and the results demonstrate that radar line of sight is well in excess of 500m AGL and there is no possibility of any turbines being visible to or affecting the performance of any of the airport radars. This issue can therefore be scoped out of the EIA Report.

13.5.1.2 Unlicensed Aerodromes

586. There are no unlicensed aerodromes, gliding sites, parachute drop zones or microlight sites marked on aviation charts or known to exist within the required consultation distance of the Proposed Development as referred to in in the study area.

13.5.1.3 Ministry of Defence

MOD ATC Radars

587. The only MOD ATC radars in the area with coverage across the Proposed Development is located at RAF Spadeadam Electronic Warfare Training Range. Initial radar modelling indicates that the turbines will all be visible to the new Thales Star 2000NG recently installed at Deadwater Fell and create an area of turbine induced radar clutter and potential obscuration at a distance of 23 to 28km, however, the turbines will all be screened by terrain from the Thales Star 2000 installed at Berryhill, which is further to the south. These results will be updated and reported in the aviation section of the EIA Report and MOD DIO will be consulted to confirm them and to explore mitigation options if required.

MOD Threat Radars

588. In addition to the ATC radars, the MOD operate a number of ‘threat radars’ to provide electronic warfare training to aircrew flying through the area. These radars, emulators and simulators are deployed to up to 23 different locations throughout the Scottish Borders areas. Initial radar modelling indicates that only one location will have visibility of the turbines, Wigg Knowe, at a distance of 20km. This issue will be discussed with the MOD and reported in the EIA Report.

MOD Low Flying

589. The Proposed Development is located within an MOD tactical low flying area, designated as a ‘Red’ area, therefore an initial low flying objection is possible, expressed as a ‘concern’ by the MOD, in order to ensure that Infra-Red lighting is applied. The Applicant will consult with the MOD and provide an aviation lighting scheme proposal and obtain MOD approval as part of the consultation process and

application for consent. This will be reported in the Aviation Lighting Technical Appendix of the EIA Report.

MOD Eskdalemuir Seismic Sensor Array

590. Although not an aviation issue, for completeness it is reported that the Proposed Development falls within the Eskdalemuir 50km safeguarding zone as the turbines will be between 11km and 17km from the array. Currently the 'noise budget' is full and an MOD objection is therefore likely, however, work is underway across the industry to agree a more accurate methodology for assessing seismic interference from wind turbines in order to identify any additional 'headroom' in the noise budget. This issue will be reported within the EIA Report.

UK Met Office Weather/Rainfall Radars

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

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

592. In this case the closest Met Office radar is at Holehead, north of Glasgow, over 100km to the north of the site. There will be no effect on Met Office radars and this issue can therefore be scoped out of the EIA Report.

13.5.1.4 NATS En Route Ltd (NERL)

593. An initial assessment has been conducted to determine any effect of the Proposed Development on NERL communications, navigation and surveillance (CNS) infrastructure. The closest radars in the system are at Great Dun Fell (GDF) and Lowther Hill. Initial radar modelling shows that one turbine (T42) will be visible to the GDF radar at a distance of 82km and six will be visible to Lowther Hill at a distance of approximately 50km. NERL will confirm these results through their response to scoping and a Technical and Operational Assessment (TOPA). The Applicant will discuss technical mitigation options with NERL if required and report the outcome in the EIA Report.

13.5.1.5 Aviation Obstruction Lighting

594. A wind farm with tip heights in excess of 150m will need to be illuminated at the hub of selected turbines with medium intensity red aviation obstruction lighting. WPAC will design a lighting layout which minimises the number of lit turbines whilst fulfilling flight safety requirements and gain approval for the lighting layout from the CAA. This will be reported in the EIA Report within a technical appendix to describe the effect of aviation lighting on the environment and to inform the Landscape and Visual Impact Assessment (LVIA). It will also articulate the mitigation techniques available taking into account the extant legislation and guidance. It is noted that aviation lighting regulation is currently under review and an updated Version of CAP764 (Edition 7) is expected to be issued in June 2024 which will include the criteria for the introduction of Aircraft Detection Lighting Systems (ADLS). This issue will be fully reported in the

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

13.6 Questions for Consultees

Q13.1 Are consultees content with the proposed scope and approach relating to aviation and radar issues?

14.0 Other Considerations

14.1 Introduction

595. A single chapter will be prepared to draw together the implications of the Proposed Development on other facets of the environment that have been scoped out of the EIA process, or to signpost readers to where they are dealt with within technical chapters of the EIA Report. The chapter would also contain non-environmental elements often contained within EIA Report. It is anticipated that this chapter would include discussion of the following issues:

- Infrastructure;
- Telecommunications;
- Television and Broadcast Services;
- Shadow Flicker;
- Ice Throw;
- Air Quality;
- Population and Human Health;
- Major Accidents and Disasters;
- Waste and Environmental Management; and
- Public Access.

14.2 Infrastructure

596. Details and locations of infrastructure including overhead power lines, gas pipelines and underground cables will be checked and taken into account during the design of the Proposed Development.

14.3 Telecommunications

14.3.1 Introduction

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

598. There are many forms of telecommunications infrastructure in the UK. A relevant aspect in the context of potential restrictions/mitigation requirements for wind turbine developments is the presence of wireless fixed links between radio antennae. Such links broadly fall into two categories.

599. The first is microwave links, and second is Ultra High Frequency (UHF) links. Both of which provide high-frequency data transfer between antennae. The key difference between microwave and UHF transmissions is that UHF links do not necessarily require line of sight from each antenna to function effectively, whereas microwave links do.

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

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

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

14.3.2 Policy and Guidance

603. There is no standardised process within national guidance for assessing telecommunications infrastructure. Pager Power's white paper aims to guide the industry on this complex planning issue and demonstrates Pager Power's approach to managing this process. Pager Power considers the Second Fresnel Zone for microwave links, and 60% of the First Fresnel Zone for UHF links. A buffer zone may then be added (typically 25m) to produce the exclusion zone. This is based on industry best practice. Where the link is UHF, reflection considerations may be required.

14.3.3 Assessment Methodology

604. Consultation directly with the most prevalent link operators is undertaken to obtain details of their link infrastructure.

605. If a stakeholder raises an objection, an assessment of the link or intrastate will be undertaken to determine whether a significant effect may occur. The link data supplied by the stakeholder will be used to model exclusion zones of each link and to calculate the clearance/infringement of the Proposed Development.

606. A significant effect occurs where the outcome of the analysis confirms the infringement of a link, and that mitigation will be necessary. The process for mitigation is to engage with the stakeholder managing the link to discuss a mitigation strategy.

14.3.4 Approach to Mitigation

607. For fixed telecommunications infrastructure, it is common practice for wind developers to assess potential impacts and, where necessary, mitigate them. It is extremely uncommon for wind developments to be refused planning permission based on telecommunications issues. This is largely because technical solutions generally exist and are commercially viable. It is not expected that changes to the development itself, e.g. changes to the proposed turbine height, will be required. A technical assessment will support the application. The consulted stakeholders outlined have responded and no objections have been raised thus far. Vodafone are yet to confirm their position on the Proposed Development.

608. It is not expected that changes to the development itself, e.g. changes to the locations or heights of proposed turbines, will be required. It is expected that the proposals will not give rise to significant EIA effects regarding telecommunications and therefore the topics individually would not warrant an EIA.

14.4 Television Reception and Broadcast Services

14.4.1 Television

609. The rotating rotor blades of wind turbines can affect the reception quality of terrestrial television signals when the wind farm is located between the receiving aerial and the television transmitter. These effects are rare since television transmissions were converted to digital format in the 2010s.

610. The Proposed Development is located in an area which is served by a digital transmitter and, therefore, television reception is unlikely to be affected by the development of the windfarm as digital signals are rarely affected. In the unlikely event that television signals are affected by the Proposed Development, mitigation measures will be considered by the applicant.

611. Television reception is, therefore, scoped out from further assessment in the EIA.

14.4.2 Other Broadcasting Services

612. Broadcast radio (FM, AM and DAB digital radio) are transmitted on lower frequencies than those used by terrestrial television signals. Lower frequency signals tend to pass through obstructions more easily than the higher frequency signals, and diffraction effects also become more significant at lower frequencies. Both these factors will tend to lessen the impact of new structures on broadcast radio (Ofcom, 2009).

613. It is therefore proposed that an assessment of potential effects on broadcast radio is scoped out of the EIA.

14.5 Shadow Flicker

614. Shadow flicker occurs when a combination of conditions prevail at a location, time of day and year. It typically requires the sun to be at a low level in the sky. The sun then shines onto a window of a building from behind the wind turbine rotor. As the wind turbine blades rotate it causes the shadow of the turbine to flick on and off. This may have an amenity effect on residents in affected properties.

615. If shadow flicker cannot be avoided through design, technical mitigation solutions are available, such as shutting down turbines during the short period when the potential for shadow flicker effects may occur.

616. In the UK, significant shadow flicker is only likely to occur within a distance of ten times the rotor diameter (of a wind turbine), from an existing residential dwelling and within 130 degrees either side of north[61].

617. Once the final turbine layout and parameters are fixed, the locations of residential properties in proximity to the site will be verified and if any are situated within 10 rotor diameters from the proposed candidate turbine locations, a shadow flicker model will be run to predict potential levels of effect.

618. The location of all residential dwellings, including confirmation that no new dwellings have been built, or gained planning permission, in proximity to the site will be verified during the EIA.

14.6 Ice Throw

619. Ice build-up on blade surfaces can occur in cold weather conditions. Turbines can continue to operate with a very thin accumulation of snow or ice but will shut down automatically as soon as there is a sufficient build up to cause aerodynamic or physical imbalance of the rotor assembly. Potential icing conditions affecting turbines can be expected two to seven days per year (light icing) in Scotland (WECO, 1999).

620. The potential for ice throw to occur after start-up following a turbine shut down during conditions suitable for ice formation is high. There are monitoring systems and

[61] Parsons Brinckerhoff Consultants on behalf of DECC (2010) Update of UK Shadow Flicker Evidence Base. Available at: http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/ored_news/ored_news/uk_shad_flick/uk_shad_flick.aspx (Accessed on 11/06/2024)

protocols in place to ensure that turbines that have been stationary during icing conditions are restarted in a controlled manner to ensure public safety. The risk to public safety is considered to be very low due to the few likely occurrences of these conditions along with the particular circumstances that can cause ice throw. Due to the very low risk, it is proposed that ice throw is scoped out of the EIA Report.

14.7 Air Quality

621. Given the location of the site, the generation of dust during construction activity is unlikely to have a direct impact on any human receptors and would be controlled by means of best practice to be described in the EIA Report.

622. Consideration will be given within the Ecology and Geology, Peat, Hydrology & Hydrogeology Chapters to the potential impacts that dust generation could have on any identified sensitive ecological or hydrological receptors. If required, detailed mitigation measures will be proposed within these EIA Report Chapters. Otherwise it is proposed that air quality is scoped out of the EIA Report.

14.8 Population and Human Health

623. The EIA Regulations 2017 include a requirement to assess as part of the EIA process, the potential significant effects on population and human health resulting from the Proposed Development. These requirements will be addressed in the EIA Report, as appropriate, under each of the other topic headings e.g. noise or socio-economic effects. Where no significant effects are likely these will be scoped out of the EIA.

14.9 Risk of Major Accidents and/or Disasters

624. The Proposed Development would be constructed in accordance with relevant health and safety legislation and would be subject to routine inspections during operation. Braking mechanisms installed on turbines allow them to be operated only under specific wind speeds and should severe windstorms be experienced, then the turbines would be shut down. In addition, given the elevated location of the site, flooding will not pose a significant risk to the operation of the Proposed Development nor will the construction of the Proposed Development contribute to flooding elsewhere. Therefore, it is considered unlikely that significant effects will arise as a result of the Proposed Development, and this topic is proposed to be scoped out of the EIA.

14.10 Environmental Management

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

14.11 Questions for Consultees

Q14.1 Consultees are requested to confirm that television reception, broadcast radio, ice throw, air quality and major accidents and disasters can be scoped out of the assessments.

15.0 Invitation to Comment

626. This document has been prepared in anticipation of an application under Section 36 of The Electricity Act 1989 (as amended) for a renewable electricity generating station including a wind farm and energy storage system at Mid Hill in the Scottish Borders Council administrative area.

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

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

Email: Econsents_Admin@gov.scot

628. The applicant will welcome such input and undertake further consultation as needs be with each consultee as the EIA progresses.

Appendix A Proposed Consultee List

Environmental Impact Assessment Scoping Report

Mid Hill Wind Farm

Mid Hill Wind Farm

SLR Project No.: 405.065171.00001

9 August 2024

Table A-1: Scoping Consultee List

Consultee	
Statutory Consultees	
Scottish Borders Council	
SEPA	
NatureScot	
HES	
Internal Scottish Government Advisors	
Transport Scotland	
Marine Scotland	
Non-Statutory Consultees	
British Horse Society	
BT	
Tweed District Salmon Fisheries Board	
Civil Aviation Authority	
Crown Estate Scotland	
Defence Infrastructure Organisation	
Edinburgh Airport	
Fisheries Management Scotland	
River Tweed Rivers Trust / Foundation	
John Muir Trust	
Joint Radio Company	
Marine Directorate Science	
Mountaineering Scotland	
NATS	
Office for Nuclear Regulation	
RSPB Scotland	
Scottish Water	
Scotways	
Scottish Wildlife Trust	
Scottish Wild Land Group	
The Met Office	
Visit Scotland	
Community Councils / Other	
Upper Teviotdale and Borthwick Water CC	
Dumfries and Galloway Council	

Appendix B Cultural Heritage Appraisal

Environmental Impact Assessment Scoping Report

Mid Hill Wind Farm

Mid Hill Wind Farm

SLR Project No.: 405.065171.00001

9 August 2024

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
SM12750	Eweslees, watch tower 1980m NW of	Roman: signal station	18	8.7	Southwest	The asset comprises a Roman signal station located within northern end of the Eweslees glen. The signal tower's setting which contributes to its significance comprises the location on an elevated knoll 35m above sea level located on the connecting point of Eweslees glen and Wrangway glen, having long distance views down these valleys. This would have provided the tower with the ability to identify movements along these valleys and communicate quickly to control the landscape. It is also likely based on the Roman Road which roughly follows the same route as the A7 between Hawick and Langholm, of which the watch tower would have visibility and would have been able to communicate to the southeast along the Eweslees glen. The approach to the asset from the Roman road would face northwest within Eweslees glen, where there are no predicted views of the proposed turbines. The ZTV indicates that up to eighteen of the proposed turbines would be visible from the asset, but no turbines would be visible along the approach. Due to the distance of the potentially visible turbines, it is not predicted that they would be visible to such an extent through northeast views along the Wrangway glen that they would cause any effects upon the asset's setting; the ability to view the intended views along Wrangway glen to the northeast would remain intact, and the contribution of this view toward the ability to understand, experience and appreciate the asset and its functionality within the landscape would remain unchanged. No turbines would be visible in views southwest in Wrangway burn or southeast in Eweslees glen, in which there would have been

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						potential views toward the Roman road from Hawick to Langholm. Views outwith these intersecting valleys and to the Roman road to the southeast do not contribute to the purpose of the asset, and therefore the presence of turbines within the Site would not be considered to cause an effect upon the contributing aspects of the asset's setting. Therefore, the asset has been scoped out of further assessment.
SM2534	Black Rig, linear earthwork N of Kingside Loch	Secular: linear earthwork, dyke	0 - 39	6.7	Northwest	The asset comprises a linear earthwork, named a dyke, presumably intended for controlling the flow of water and draining the land. There are no dates of the asset's origins. The asset circles the upper slope of Black Rig hill, with its southeastern half eroded by forestry. It's setting likely comprises the upper hill where the dyke utilised the better drained upper landscape. Therefore, any visibility of the proposed turbines are not predicted to effect the ability to understand, appreciate and experience the asset as it exists as a partial earthwork. The asset has been scoped out of further assessment.
SM3459	Gray Coat,settlement 540m NE of Priesthaugh	Prehistoric domestic and defensive: settlement	42	6.7	Southeast	Scoped in
SM3495	The Catrail,linear earthwork,SE slope of	Prehistoric domestic and defensive:	42	8.1	Southeast	Scoped in

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
	Singley Brae to Barry Sike	linear earthwork				
SM3374	Woodfoot Bridge,enclosure 430m NE of Pagton Burn	Prehistoric domestic and defensive: enclosure (domestic or defensive)	42	7.7 – 8.1	East	The assets comprise three enclosed forts and settlements situated on the south, middle and north plateau of Mid Hill. The contributing aspects of their setting comprises their elevated positions overlooking the Slitrig Water to the west, with steep west, north and south slopes providing natural defences. The approaches to the assets would be from the controlled gentle slopes on the east side, accessed from the valley to the south or north. The central fort, Mid Hill Fort, would have provided a main place of refuge for Woodfoot Bridge in the north and Denholm Hill in the south, whilst overlooking, controlling and defending the Slitrig valley to the west. Whilst the turbines within the Site would be visible from the assets positions and along the approach from the east, the ability to understand, experience and appreciate the setting, including the relationship between the three monuments and their control and defensive positions over the Slitrig Water and its valley to the west would remain intact. The turbines, whilst they would be visible, would be at such a distance to not compete or intrude on the west facing views which contribute to the asset's setting to such a degree that it would be considered significant adverse effects. Therefore, the assets have been scoped out of further assessment.
SM3372	Denholm Hill,forts 600m NE of Stobs Castle	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	42			
SM3373	Mid Hill,fort & settlement 700m NW of Adderstonshiels	Prehistoric domestic and defensive: fort (includes hill and	42			

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
		promontory fort)				
SM3468	The Catrail,linear earthwork,W of Leap Burn to 100m E of Langside Burn	Prehistoric domestic and defensive: linear earthwork	0	9.9	Southeast	Scoped in
SM3396	Berryfell Farm,earthwork and linear earthwork 400m SSE of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	9.8	Southeast	The assets comprise a fort located on the upper slopes of the Lang Burn, and an enclosure settlement c.350m to the northeast on a flat plateau, with a ridge to the east and hill to the west, creating a corridor approach from the north. The fort and earthwork share an approach from the Lang Burn southwest, an approach between the hillfort and the earthwork, and the approach from the shallow valley to the north of the earthwork. The setting of the assets is the forts defensive and controlling position over the Lang Burn and views over the enclosure settlement which it protects to the northeast. The enclosure's position on the flat plateau with a single corridor approach from the north provided the occupants the ability to identify any approaches and move into the fort. The fort also shares intervisibility with Blakebillend fort (SM2297) on the southwest side of the Lang Burn, of which it had an association with. Only the north corner of the fort's designated area has the potential to have visibility of one turbine. The approach from the Lang Burn, between the two assets, and from the north
SM3412	Pleaknowe,fort & homestead 430m NW of	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	1	9.4	Southeast	

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						valley to the enclosure have no views of the proposed turbines. Visibility of one turbine within the north extent of the fort would be considered such a minor intrusion on views to the northwest on the ability to interpret the fort's controlling position within its setting and its associations with the enclosure to the northeast and Blakebillend Fort (SM2297) to the southwest. The single turbine would not be in these key views between the assets nor along the approaches. Overall, the ability to understand, appreciate and experience the assets would remain unchanged and therefore they have been scoped out of further assessment.
SM4422	Kemp's Castle,settlements & field system & settlement 600m WSW of	Prehistoric domestic and defensive: field or field system	42	5.7	Northeast	The asset comprises two areas of designation, with two core settlements, utilising a roughly square shaped ridge with steep slopes toward the southeast and gentle slopes to the northwest. The east settlement is located on the peak of the ridge on the southeast, with a steep slope to the southeast, and gentle slopes to the northeast providing the approach to the asset. This would have provided the settlement with views east and south, overlooking wetland areas comprising Penmanshall Burn and Blind Burn to the southeast. On the west end of the ridge, the west settlement and cultivation remains known as Borthwickshiels Horn is situated on the highest elevated area above the southwest facing slopes, overlooking the Ale Water and Black Sike to the west and the wetter lower land to the south. The approach to the asset would have been from the east, in the direction of the eastern settlement at Kemp's Castle. This would have provided the settlement with views over the landscape west

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						and south, and the approach would have had to have passed the larger settlement prior to accessing the western settlement. The settlements positions collectively provided the occupants with a flat upper landscape and draining land for cultivation and settlement, but also the ability to overlook a vast area of the landscape to the east, south and west, in order to control and defend the approaches. The approaches and exits from the settlements also allowed the occupants of Borthwickshiels to be able to access Kemp's Castle, likely for protection. Whilst the ZTV analysis indicates that all 42 of the proposed turbines would be visible from the assets designated areas, the asset's setting does not extend as far as the Site. The turbines in south facing views would not be present to such a degree that it would effect the ability to still understand, experience and appreciate the landscape over which the assets observed and controlled, and the strategic position of the settlements, would remain unaffected by the presence of turbines c.5.7km to the south. Therefore, the asset has been scoped out of further assessment.
SM3432	Gray Coat,pele-house 370m SE of	Secular: pele house, peel tower	0	7.1	Southeast	As the asset and its approaches fall outside the ZTV, it has been scoped out of further assessment.
SM3458	Tinlee,standing stone 718m	Prehistoric ritual and funerary:	37	8.4	Southeast	The asset comprises a c.1.35m high and c.0.9m wide standing stone facing west into the Dod Burn valley, as recorded in 1964. It is noted as being used as a boundary stone, although

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
	SSE of Peelbraehope	standing stone				its use might predate this. The position of the stone circle was intended to be visible whilst navigating through the Dod valley to the west. The asset's approach would be facing east, up the valley slope, and views west focus upon the valley and the Dod burn. The ZTV analysis indicates that the stone would have potential visibility of up to 39 of the turbines. Whilst the turbines would be visible, due to the distance of the turbines and the location of the turbines within the northwest peripheral views from the asset, it is not considered that this would effect the ability to understand, experience and appreciate the asset and its intended purpose to be seen within the valley and its position above the valley. Overall, the asset has been scoped out of further assessment.
SM3461	Priesthaugh earthwork 130m SSE of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	6.7	Southeast	An enclosure on the east bank of the Priesthaugh Burn with an entrance recorded in 1956 being located on the NE side. The setting of the asset comprises the east bank of the burn on which it situated to take advantage of the burn for water and the steep slopes to the east which would have provided the asset with a controlled approach along the burn to the north and south. The asset has non-visual associations with the prehistoric Dod earthworks(SM3353) c.850m north along the burn and overlooked by the prehistoric Gray Coat settlement (SM3459) c.540m to the northeast on the peak of Gray Coat. The ZTV analysis indicates that the entire designated area has no potential visibility of the proposed turbines. The main

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						approach to the asset would have been along the valley from the north, as evidenced by the presence of the entrance to the northeast. This main approach has no anticipated visibility of the turbines, but the ZTV demonstrates visibility of between one to three turbines if approaching from the east. Considering the distance and the minor visibility that up to three of the proposed turbines to the east of the approach to the asset, it is not considered that the contributing aspects of the asset's setting would be effected by the Proposed Development. The approach to the asset from the north would have no visibility of turbines, nor would the extent of the designated area. Any associations with nearby scheduled monuments would also remain unaffected, as the turbines would not prevent intervisibility or intangible associations between them. The ability to understand, experience and appreciate the asset's position on the embankment and its relationship with the burn, surrounding monuments and its controlled approached at the foot of the slopes to the east, would remain unaffected. Therefore, it has been scoped out of further assessment.
SM3496	Hawkhass Linn,earthwork 520m NE of Hawkhass House	Prehistoric domestic and defensive: enclosure (domestic	0	9.7	Southeast	The asset and its approach lies outside of the ZTV. Therefore, it has been scoped out of further assessment.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
		or defensive)				
SM3497	Cairn Sike, earthwork 1220m NE of Hawkhass House	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	9.3	Southeast	The asset comprises a two ditch roughly oval shaped earthwork, forming a prehistoric defended settlement. The asset's setting is its position on the west side of the Langside Burn valley slopes, with the approach from the north and south along the valley. It would have also likely had associations with Hawkhass Linn earthworks (SM3496) c.570m to the south. As the asset, its approaches, and views between the asset and the Hawkhass lie entirely outside of the ZTV, no potential effects are predicted and therefore it has been scoped out of further assessment.
SM3433	Crom Rig,farmstead 640m SW of Change House	Secular: farmstead	42	2.2	Southeast	The farmstead likely dates to the medieval or post-medieval, comprising of the earthworks and buried remains of a farmstead buildings and enclosures on a promontory on the north side of Crom Rig hill. The entrance to the complex of earthworks is likely the northwest side.. The contributing aspects of the asset's setting are its position on well-draining land on the upper, northwest facing, slopes of Crom Rig and its proximity to the River Teviot c.260m north which would have provided the asset with a water source for any livestock and crop as well as trade routes and connections with other nearby settlements. Whilst the ZTV indicates that the asset would have up to 42 of the proposed turbines visible, the asset's contributing aspects of setting does not derive from wider views of the landscape.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						The presence of turbines c.2km from the asset would be prominent within views from the asset, but would not detract from the ability to understand, experience and appreciate the remaining aspects of the asset's setting. Therefore, the asset has been scoped out of further assessment.
SM3434	North House Cottages, cairn 200m SW of	Prehistoric ritual and funerary: cairn (type uncertain)	37	2.7	Southeast	The asset is a cairn located on the lower northeastern facing slopes of Crom Rig, focused upon the confluence of the Northhouse and Cromrig Burn just c.0.1km to the east, and the confluence of these combined burns to the River Teviot c.350m northwest. It is understood that prehistoric cairns focused upon wide views and water courses within valleys. The asset's setting comprises its position on the northeast facing slopes over the waterways, of which it would have been intended to focus upon as a funerary monument. The cairn would have been approached from along the River Teviot, either from the west, where there are other prehistoric settlements (SM3366, SM1693), or from the north. The cairn would have been prominent in views along the valley. There are no views between the asset and Teindside Lodge cairn (SM3453) c.660m to the northwest, and therefore views between these assets do not contribute. Whilst the ZTV analysis indicates that up to 38 of the proposed turbines may be visible from the asset, 42 from the west approach and 24 from the north approach, the turbines would be in the periphery of the asset's intended views. These would be the northeast views focused on the waterways, and views east toward the asset from the west approach and views south toward the asset from the north approach. The

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						turbines would therefore not effect the key views which contribute to the asset. It is acknowledged that the turbines would be prominent in views to the north and northwest from the cairn itself, however, the ability to understand, experience and appreciate the asset and its aspects of setting which contribute to its significance would remain intact. Whilst the turbines may be considered to impede upon these views, any effects would not be considered to be significant adverse impacts, and therefore the asset has been scoped out of further assessment.
SM3435	Teindside Lodge,cairn 50m N of	Prehistoric ritual and funerary: cairn (type uncertain)	13	2	Southeast	The asset comprises a prehistoric burial cairn located on the south foot of the Teindside Hill, positioned on the flat land to the north of the River Teviot and c.60m to the east of the Teindside Burn. Prehistoric cairns were typically constructed in elevated positions with focused views along valley rivers and tributaries/burns. The contributing aspects of the asset's setting comprises its position on the lower embankment and associations with the Teindside Burn and its confluence with the River Teviot, with focused views along the valley to the south, which would have provided the cairn with views along the valley to the southwest and southeast. The approach to the asset would face either west of east, approaching along the Teviot valley. Any visibility of the proposed turbines to the north of the asset would not be considered to cause adverse effects upon the asset's setting; the contributing aspects of the asset's setting are along east and west facing approaches and in southwest to southeast facing viewsheds focused upon the

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						watercourses, and therefore views north toward the turbines would not be considered to effect the ability to understand, experience or appreciate the asset within its setting. Therefore, it has been scoped out of further assessment.
SM3413	The Catrail,linear earthwork,350 m long,N of Doecleugh Hill	Prehistoric domestic and defensive: linear earthwork	42	4.3	Southeast	Scoped in
SM3428	Pen Sike,earthwork 300m SW of Penchrise Pen	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	7.2	Southeast	The asset comprises a prehistoric enclosure which is part of a three-part prehistoric settlement comprising the Penchrise Pen fort c.270m to the northwest and another enclosure c.250m to the east of the fort. This complex is also part of a wider prehistoric landscape, with a number of prehistoric assets to the southwest including White Hill fort (SM2294) and Pyat Knowe enclosure (SM79) on the western edges of the White Hill above the Dod Burn. The enclosure's setting is its position focused upon the Pen Sike, which would have likely provided the enclosure with a water source, and its proximity to the Penchrise Pen fort which would have provided it with protection and shelter. The ZTV analysis indicates that the enclosure has no potential visibility of the proposed turbines, nor would the approach northeast toward the fort, but there would be the potential of up to 42 turbines being visible upon the approach to the asset from the fort facing southwest. The turbines within this view

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						would be in the northwest periphery of the southwest facing views, and would not be considered to effect this aspect of the assets setting to such a degree that it would be considered significant adverse impacts. The ability to understand, experience and appreciate the asset's setting, including its approach and relationship with other prehistoric monuments within the landscape, and its position near the water course would remain intact. Therefore, it has been scoped out of further assessment.
SM3457	The Catrail,linear earthwork,650 m long,on SE slope of White Hill	Prehistoric domestic and defensive: linear earthwork	42	6.6	Southeast	Scoped in
SM3460	Dodburn Hill,earthworks & homestead	Prehistoric domestic and defensive: enclosure (domestic or defensive)	42	5.8	Southeast	The asset is a domestic and defensive prehistoric settlement on the peak of Dodburn Hill, which was later occupied by another defensive medieval settlement. Both phases of defensive settlement utilised the gentle slopes to the northeast as the main approach to the asset, whilst using the northwest, south and southeast steeper slopes as natural defences. The position of the defended settlement would have provided views northeast, comprising valley of Barnes Burn and the approach, over the southeast valley containing March Sike, and to the north and west over the Allan water and lower landscape.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						The position provided the settlement with the ability to overlook all approaches, and control the valley to the southeast and any access along the Allan Water to the west. Whilst the ZTV analysis indicates that all 42 of the proposed turbines would be visible from the settlement, the turbines would not be prominent within the backdrop of northwest views to an extent to effect the contributing aspects of the asset's setting. The ability to understand, experience and appreciate the intended views, the strategic and defensive position and the landscape over which the settlement would have controlled would remain unaffected. Therefore the asset has been scoped out of further assessment.
SM4006	Lairhope Cottage,deserted settlement 300m WNW of	Secular: settlement, including deserted, depopulated and townships	16	0.9	South	The asset comprises an abandoned township, comprising of buildings, enclosures and field banks. Much of the landscape which was likely agricultural in character now comprises forestry on its east, north and west boundaries. The remaining contributing aspects of the asset's setting comprise its position on the well-draining upper slopes to the north of Lairhope Burn, with its south facing position likely providing a good orientation for agriculture in relation to the suns path. Some essence of the original agricultural landscape is still remaining, with a sheepfold located c.240m to the south and some open fields to the south of the asset. The township was likely approached from the southeast side indicated by tracks and the natural topography.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						Due to its agricultural use, it is unlikely that long distance outward views were of importance to the asset at the time of its construction. The potential visibility of up to 16 turbines from within the extent of the asset and up to 5 turbines from its southeast approach would not be considered to effect the ability to understand, experience and appreciate the assets contributing aspects of setting; key views to the asset along the approach face west, and from the asset face south. Should any turbines be visible, they would not be considered to effect the ability to understand, experience and appreciate the asset's agricultural setting as outlined above. Therefore, the asset has been scoped out of further assessment.
SM79	Pyat Knowe,enclosure 150m N of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	42	7.1	Southeast	Scoped in
SM2127	Borthwick Mains,symbol stone	Crosses and carved stones: symbol stone	0	3.5	North	The asset comprises a potential pictish stone set now within the garden of Borthwick Mains. Originally, the stone may have originated to Commonside, where it stood in the River Teviot, but has been used as a gatepost since its in-situ position and its current position.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						The asset is no longer in its in-situ position, and therefore its setting no longer contributes to its significance. Therefore, it is scoped out of further assessment.
SM2150	Whitcastle Hill and Todshaw Hill, forts, earthworks, linear earthworks	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	42	2	Northeast	Scoped in
SM1693	Crom Rig,earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	23	2.4	Southeast	The asset comprises a defensive prehistoric settlement. It is setting is its position located on the northeast side of the Crom Rig upper ridge. The settlement's approach is from Cromrig Burn, providing the settlement with a steep slope for a controlled, defensable approach. The asset's position provided the settlement with long distance views along the Cromrig burn to control and observe all approaches. Whilst the ZTV indicates that 23 of the proposed turbines would be visible from the asset c.2.5km to the northwest of the asset, they would only be prominent in views upon the approach of the asset. However, the key views from the asset to the Cromrig burn to the southeast, which the settlement would have controlled, would be unaffected by any present turbines. It is acknowledged that whilst the turbines would be prominent in views northwest, this would not effect the ability

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						to understand, experience and appreciate the asset and its relationship and context within the landscape. Therefore, it has been scoped out of further assessment
SM2148	Gray Hill, earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	1	4.3	Southeast	The asset is an enclosure formed by earthworks located on the east facing upper slopes of Gray Hill. The asset's setting comprises its position on a slight plateau overlooking the Allan Water to the southeast, which provided it strategic views along the valley, controlling access and allowing a defendable position. There are two approaches to the asset from northeast and southwest, both accessed from the lower slopes of the Allan Water. Whilst the asset has potential views of only one turbine within the north edge of the designated area, there are potential views of up to 42 turbines along the approach to the north. Whilst the ZTV analysis shows turbines would be visible to the northwest of the north approach to the asset, the turbines would be in the main southwest view toward the asset upon this approach, and would only be in peripheral views at best. The potential of a single turbine once within the designated area of the asset would also not be in key views of the asset's setting, which are focused to the southeast along the Allan Water and its valley, to the northeast and southwest. The presence of turbines as indicated by the ZTV would therefore not be predicted to cause any significant adverse effects upon the ability to understand, experience and appreciate the asset within its setting. The ability to

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						understand, experience and appreciate the asset's approaches as well as its strategic position on the southeast slopes of Gray Hill overlooking the Allan Water would remain intact and would have no direct intrusion of turbines within these key views. Therefore, the asset has been scoped out of further assessment.
SM2151	Birny Knowe, earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	11	3.1	Southeast	The asset is a defended enclosure located on a plateau on the east slopes of Birny Knowe and Ringwood Hill, above Allan Water to the east. The asset's contributing aspects of setting comprise its position on a plateau which provides steep sides to the east and south. The position provided the asset with natural defence due to the topography but also wide-ranging views from the northeast to the south, allowing inhabitants to monitor the landscape. It would have also allowed for a controlled approach from the Allan Water to the east. There is also a non-designated enclosure earthwork recorded c.300m to the north of the asset, which may be prehistoric and have had associations with the asset, contributing to the prehistoric settlement pattern within the landscape. The ZTV analysis indicates that within the northwest extent of the asset, up to eleven turbines would be visible to the west of the asset. The approach from the northeast would have no potential views of turbines. The views toward the asset along the approach from the Allan Water and within its south extent would remain unchanged. The key views from the asset along the Loch Burn, to the east and toward the potentially associated enclosure would also

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						remain unchanged. Potential views of the turbines within the northwest of the asset would therefore not intrude on key views and how they contribute to the asset's understanding, experience and appreciation within its setting. Any effects upon the assets setting due to visibility from within its designation are not considered to be significant, and therefore have been scoped out of further assessment,
SM2169	Burgh Hill,fort and settlement	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	42	5.6	Southeast	Scoped in
SM2115	Meadowshaw, earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	41	0.8	Northwest	Scoped in
SM1697	Kaim Law,fort	Prehistoric domestic and	42	8.3	Northeast	Kaim Law fort comprises a prehistoric fort positioned on the summit of Kaim Law, a narrow elongated rocky ridge overlooking the Slitrig Water to the west. To the south and

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
		defensive: fort (includes hill and promontory fort)				north are slight valleys which slope up to the east of Kaim Law; to the south the low slopes are a mossy valley known as Hummelknowes Moss. There are two other potential prehistoric earthworks which are non-designated, proximate to the asset. There are a number of contemporary assets nearby, namely a fort at Castle Law c.700m to the south on the peak also overlooking the Slitrig Water to the west, and an earthwork c.600m to the southeast of Kaim Law, on the upper slopes to the east of both of the forts, situated within the valley that they both overlook and protect. The asset's setting comprises the natural topography which provides the fort with a defendable position above the Slitrig Water, and control over the valley to the west and south. Coupled with the Castle Law fort, the asset would have controlled and defended the Slitrig valley to the west as well as the approach to the earthwork and both the forts from the south of the asset and the east, utilising the Hummelknowes Moss and waterways as an additional natural defence. The ZTV analysis indicates that up to 42 of the proposed turbines would be visible within the extent of the fort, and along the approach from the east. Whilst the turbines would potentially be fully visible within the upper west facing views within the fort, the distance of the turbines over c.8km to the west would make them a relatively small intrusion within these views. The ability to understand, appreciate and experience the fort's defensive position and its strategic views over the

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						Slitrig Water to the west, and its relationships with Castle Law Fort and the enclosure to the southeast would remain unchanged; these views would not be intruded to such a degree to cause an intrusion upon any aspects of these settings. The asset's approach would also have visibility of turbines, but as above, the presence of the turbines within these views would be minor and not so substantial to detract from the setting of the asset along its approach; the defendable and controlled approach with views along the valley would still be perceptible. Therefore, the asset has been scoped out of further assessment.
SM1695	Highchesters Hill,fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	42	4.6	Northeast	The asset is a prehistoric fort is located on an outcrop the south elevation of Highchesters Hill, c.10m to the south of the peak. Its position provides the fort with steep slopes to the south, west and east, allowing a controlled approach up to the small valley to the east and around to the northeast of the fort. The position also provides the fort with wide long distant views along the Borthwick Water, over which the fort would have been able to observe all approaches, and control and defend the landscape to the south limited to the Borthwick Water valley. Whilst the ZTV analysis indicates that all 42 of the proposed turbines may be visible from the asset, the presence of turbines within the Site would be in the backdrop of views southwest from the Site. These views to the landscape within the Site do not contribute to the asset's setting, as it does not form part of the controlled and defended landscape over which

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						the asset is situated over. Overall, the ability to understand, experience and appreciate the asset's strategic and defended position, and view of its approach along the Borthwick Water and east valley, would remain intact. Therefore, the asset has been scoped out of further assessment.
SM1702	Hawick Moat Park, motte	Secular: motte	0	7.4	Northeast	The asset and its approaches do not fall within the ZTV and therefore it has been scoped out of further assessment.
SM1709	Craik Cross Hill-Borthwick Water, Roman road	Roman: road	42	6.8	Southwest	Scoped in
SM2297	Blakebillend, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	0 – 12	9.2	Southeast	The asset comprises a fort situated on the very northeastern upper plateau of The Pike hill. The asset's contributing aspects of setting comprise its position above the Slitrig Water to the northeast, of which provides it with a natural defensive steep slope on the northeast side and control and observation over the valley. Its intervisibility with the Pleaknower fort (SM3412) on the northeast upper slopes of the Slitrig Water valley would have likely both controlled the valley and been able to communicate with one another. The earthworks indicate that the there are two entrances on the northeast and southwest sides, indicating that the approaches were from the lower valley and from the upper ridge of The Pike hill. The ZTV indicates that the asset would have potential visibility of up to 12 turbines within its extent and along the southwest approach. Considering the distance, any visible turbines would have a small presence within the landscape in northwest

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						facing views. However, key views along the southwest approach are northeast facing toward the asset, and the focused views from the extent of the asset comprise those over the Slitrig Water and the visual connection with Pleaknower fort (SM3412). The visibility of these turbines c.9km to the northwest would be in peripheral views along the approach from the southwest of the asset, and not be within the key views from the asset which contribute to its setting. The presence of the turbines within northwesterly views would not encroach upon or cause an effect key views which contribute to how the asset's setting is understood, experienced and appreciated. Therefore, the asset is scoped out of further assessment.
SM3364	Blakebillend, cairn 335m E of Williams Rig	Prehistoric ritual and funerary: cairn (type uncertain)	9	9.1	Southeast	The cairn is located to the south of the Blakebillend fort (SM2297) southern enclosure earthworks, positioned on the south of a plateau on the northern end of The Pike. It is likely related to the fort. The asset's setting comprises its position to the southwest of the fort, where it is placed immediately to the east of a linear earthwork extending to the south of the fort, and near the entrance to the fort from the southwest. This indicates that the cairn was intended to be protected by the fort and would have been placed to be a part of the approach into the settlement, or easily accessible once within the fort. The cairn would have also derived its setting from the views shared with the fort, having views to neighbouring settlements at Pleaknowe fort

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						(SM3212) and wider views of the Slitrig Water to the northeast. Whilst the ZTV indicates that 12 of the proposed turbines have potential to be visible from the asset, the turbines would be at such a distance that they would be a small presence within views to the west-northwest. Additionally, views to the northeast and east along the Slitrig Water from the asset and its association with the fort, as well as the approaches to the cairn, would have turbines within the periphery of key directional views. The ability to understand, appreciate and experience the contributing aspects of the asset's setting and its relationship with the landscape and the prehistoric fort would therefore remain unaffected by the proposed turbines. Therefore, it has been scoped out of further assessment.
SM2191	Wester Essenside, fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	39	9.7	North	The asset is a prehistoric fort and settlement, comprising of earthworks located on the southeast outcrop of upper slopes to the east of Tod Rig. The asset's setting comprises its approach from the southwest slopes to its entrance in the earthworks, and its position on the outcrop which provided the asset with natural steep slopes as defences, views over the Todrig Burn and its valley to the south as well as any approaches over the neighbouring hillsides from the east and west. Whilst the ZTV analysis indicates that up to 39 of the proposed turbines may be visible from the asset and its approach to the southwest, due to the distance the turbines would be a very minor presence within the views of the

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						landscape to the south. The approach to the asset would have no key views facing south with the turbines in the viewshed, and should any turbines be visible from c.9.9km to the south within the fort, their presence would not be to such a degree to effect the ability to understand, experience and appreciate the asset's setting as a controlling and defended settlement upon the outcrop over the Todrig Burn and along the valley east to west. Therefore, the asset has been scoped out of further assessment.
SM2233	Leap Linn,earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	26	8.9	North	The assets comprise two enclosures, located on the peak of Leap Hill overlooking Todrig Burn to the north and Ale Water to the south. The two enclosures would have overlooked both valleys to the north and south, controlling and observing movements along both watercourses, and being able to use the steep slopes to the north, east and south to control the approach from the northwest of Leap Hill. Whilst the ZTV analysis indicates that up to 42 of the proposed turbines would be visible from the upper enclosure and its south approach,from the Allan Water and 26 from the eastern enclosure, due to the distance, any views of the turbines would be minor. The views between the enclosures and from the enclosures over the valleys to the north and south would also remain unaffected by any visual distractions from the proposed turbines. Overall, the ability to understand, experience and appreciate both the assets, their relationships with one another and the landscape which they controlled and defended would remain intact. Therefore, the asset has been scoped out of further assessment.
SM2241	Leap Hill,earthwork	Prehistoric domestic and defensive: enclosure (domestic or defensive)	42	8.6		

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
SM2299	Pisgah Saucer Barrows or Whitefield Cairns	Prehistoric ritual and funerary: saucer barrow	0	6.9	Northeast	Due to all designated components of the asset's falling outside the ZTV, including their views to one another aligning southeast to northwest, and the approaches to each component falling outside the ZTV, it has been scoped out of further assessment.
SM3366	Change House,enclosure 320m WSW of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	41	2.2	Southeast	Scoped in
SM2255	Newton Hill,fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	42	6.8	Southeast	The assets comprise defensive and domestic settlements, comprising Newton Fort positioned on Newton Hill (SM2255) and White Knowe settlement on the west end of Newton Hill (SM3386) overlooking Barns Burn (SM3363) located on the lower slopes located on the south bank of Barns Burn. Newton Fort and White Knowe collectively look east, north and west, being located on a northeast extending ridge forming Newton Hill from White Knowe peak. This position overlooks the Slitrig Water valley to the east, the Barnes Burn to the west and the confluence of the two water courses to the north. The topography provides views along the approaches through these valleys, and steep slopes as
SM3363	Barns Burn,fort 680m NW of Newton Hill	Prehistoric domestic and defensive: fort	42	6.3	Southeast	

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
		(includes hill and promontory fort)				natural defences, which are gentle and controlled upon the approaches. Approaches to the forts are in the northeast and west sides of both Newton Hill and west sides of White Knowe. This would have allowed approaches on the gentle slopes from the east and west, and between the two forts. This would have also allowed an approach to White Knowe from Barns Burn fort from the north. Barns Burn fort is positioned c.0.6km to the north of the two forts on Newton Hill. The fort is positioned on the gentle approach toward the upper forts, which likely formed another line of defence along this approach, controlling the approach along Barnes Burn, but also would have been overlooked and protected by the upper forts. The ZTV analysis indicates that all 42 of the proposed turbines would be visible from all three of the forts in west views, and the approach to the White Knowe settlement from Newton Hill fort, and along the approach to Barns Burn fort from the northeast along Barnes Burn. Whilst all the proposed turbines would potentially be visible from these aspects of the asset's setting, the presence of the turbines at such a distance would not be within aspects which contribute to the asset's setting; they would not be in views between Barnes Burn fort and the upper two forts, nor would they be such a presence within west facing views along the approaches to detract from the focus upon the assets, and the aspects of landscape which they controlled and defended along the Barnes Burn and
SM3386	White Knowe,settlement 180m W of Newton Hill	Prehistoric domestic and defensive: settlement	42	6.6	Southeast	

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						Slitrig Water. Overall, the ability to understand, experience and appreciate the forts and their strategic positions within the landscape would remain intact and unaffected, and therefore the assets have been scoped out of further assessment.
SM2294	White Hill,fort	Prehistoric domestic and defensive: fort (includes hill and promontory fort)	42	6.6	Southeast	Scoped in
SM3353	Dod, earthworks on right bank of Allan Water 670m WSW of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	6.1	Southeast	As the asset and its approaches fall outside of the ZTV analysis, there are no predicted effects. Therefore, the asset has been scoped out of further analysis.
SM3354	Burgh Hill,stone circle	Prehistoric ritual and funerary: stone circle or ring	42	5.6	Southeast	Scoped in

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
SM3355	Dod,earthwork 300m NW of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	6	Southeast	As the asset and its approaches fall outside of the ZTV analysis, there are no predicted effects. Therefore, the asset has been scoped out of further analysis.
SM3356	Dod,enclosure on Gray Coat,530m SW of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	42	6.5	Southeast	Scoped in
SM3365	Penchrise Pen,earthwork 420m E of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	0	7.5	Southeast	The asset comprises a roughly circular enclosure on the lower southeast slopes c.0.26km from Penchrise Pen fort (SM2296). The asset's setting comprises the Penchrise Burn and its valley over which the asset looks from the northeast to southwest, and its approach from and to the Penchrise Pen fort. The fort would have overlooked and defended the enclosed settlement, with openings in the earthworks providing entrances to the northwest of the asset and the northeast of the Penchrise Pen fort. The ZTV analysis indicates that no turbines would be visible from the asset, nor its approach from the northwest. Whilst

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						turbines would be visible from certain areas of the Penchrise Pen fort, the turbines would be visible within views facing northwest, not within views toward the asset to the southeast. Therefore, it has been scoped out of further assessment.
SM3367	Chester Knowe, earthworks 775m ENE of Allanwater Reservoir	Prehistoric domestic and defensive: enclosure (domestic or defensive)	42	4.2	East	The asset comprises a prehistoric defensive and domestic fort which occupies the level top of the Chester Knowe ridge. With relatively flat land to the northeast and southwest, and gentle slopes to the southeast and northwest. The fort utilises minor burns to the southeast and North Burn to the northwest as natural defensive boundaries, whilst the elevated position of the fort provides the asset with surrounding views to observe all potential approaches, with the entrance on the northeast side along the ridge, an approach which could be controlled. The fort's position provides it with relatively level landscape, whilst providing a defendable position. Whilst the ZTV analysis indicates that the asset has potential visibility with all 42 of the proposed turbines, the turbines would not effect the asset's setting. The asset's defended area is localised along the Chester Knowe ridge and the shallow valleys to the northwest and southeast over which the fort would have been able to see all approaches. Views further outward toward the Site do not contribute to the asset's setting, and therefore the presence of turbines within these outward views, although visible within the backdrop of the landscape from the fort, would not impact the ability to understand, experience and appreciate the fort's setting. Therefore, it has been scoped out of further assessment.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
SM3368	Lord's Tree Cairn,520m NNE of The Hero's Grave Cairn	Prehistoric ritual and funerary: cairn (type uncertain)	41	4.8	East	The asset is a cairn which typically comprise prehistoric burials which are purposefully placed in areas with views southward with a focus on watercourses. The cairn's setting is its position on the northeast end of a rise to the east of an unnamed burn, with wide views of the landscape to the south, which provides it views southward proximate to a watercourse. The cairn is also the northern cairn within a series of three cairns, with the other undesignated cairns being located c.0.5km and c.1km to the southwest (Canmore ID: 54041 and 54013), with the southernmost cairn overlooking the Allan Water to the southwest. This would have afforded the asset views along the series of cairns which form a chain relating to the Allan Water. A key approach to the designated cairn would be from the non-designated cairns, facing northeast. Whilst the ZTV analysis indicates that the asset has views of up to 41 of the proposed turbines, the turbines would not intrude upon any of the key views from the cairn within views south or along the series of cairns from the asset. Visible turbines would be within views to the west, only occurring in the periphery of views toward the asset from the approach from the cairns to the south. The presence of turbines within views to the west would therefore not directly effect any of the key views which contribute to the asset's setting, and the ability to understand, experience and appreciate the cairn within its intended setting and its relationship with the landscape and associated cairns, would remain intact. Therefore, it has been scoped out of further assessment.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
SM3391	Dod,earthworks on Gray Coat 540m SSW of	Prehistoric domestic and defensive: enclosure (domestic or defensive)	42	6.6	Southeast	Scoped in
SM675	Mid Raeburn to Craik Cross Hill, Roman road & watch tower	Roman: road	0 - 42	9	Southwest	Scoped in
SM2296	Penchrise Pen, fort 635m SW of Penchrise Farm Cottage	20th Century Military and Related: Civil defence (eg. air raid shelter); Prehistoric domestic and defensive: fort (includes	42	7.2	Southeast	The asset comprises a prehistoric fort area on the peak of the Penchrise Pen, with the approaches in earthworks to the northeast and southwest. The asset's setting comprises its position on the peak of the Penchrise Pen, situated centrally between two associated earthwork enclosures (SM3365, SM3428). The asset's intended approaches on the northeast and southwest sides allow an approach and exit between the fort and these two enclosures, which would have provided the inhabitants of the lower positioned enclosures with protection and refuge. The asset's setting also comprises its position over the Penchrise Burn valley to the southeast and Pen Sike to the south. The steep slopes would have provided natural

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
		hill and promontory fort)				defences, whilst any approaches from the north and southwest would have been visible and controlled along the burn. The ZTV analysis indicates that up to 42 of the proposed turbines would be visible within the west extent of the fort, and upon its southwest approach from Pen Sike (SM3428). Whilst all of the turbines have potential to be visible within the extent of the asset, and the approach from the southwest of the asset, it is not considered that there are potential significant effects upon the asset from the Proposed Development. The landscape which contributes toward the setting of the asset is contained within its immediate landscape, comprising the Penchrise Pen and the surrounding upper landscape, the two enclosures, and the Penchrise Burn and Sike which the fort would have overlooked and controlled and which formed natural defences. Analysis of these views contribute to how we understand how the forts position. Long distance views toward the Site do not contribute to how we understand, experience and appreciate the asset and this context within the landscape. Therefore, whilst parts of the asset's designated area and southwest approach have potential views of up to 42 turbines, the turbines would not be considered to encroach on any key views to and from the fort which contribute to how it is understood, experienced and appreciated. The presence of the turbines within the periphery of the views, and the distance from the asset, would not be considered to have potential

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						significant effects upon the asset's significance derived from its setting, and therefore it has been scoped out of further assessment.
SM2529	Prehistoric settlement, 200m ENE of Northhope Haugh	Prehistoric domestic and defensive: enclosure (domestic or defensive)	36	3.7	Southwest	The asset comprises a prehistoric settlement located on the northern bank of the confluence of the Northhope Burn and the Borthwick Water. The settlement's setting comprises the gentle, level bank area forming roughly an oval level area for the settlement, with the watercourses to the south forming a natural barrier and water source and with steeper slopes providing shelter to the north, east and west. The settlement would have also had views along the Northhope Burn to the northwest, and the Borthwick Water to the northeast and southwest, providing views along potential uncontrolled approaches. The approach is suspected to have been from the west within the earthworks. The Romans & Reivers Roman road passes c.100m the northwest of the settlement, which may have potentially been a routeway contemporary to the settlement prior to the Roman presence within the region, and forming the approach to the asset to the west entrance. Whilst the ZTV analysis indicates that 36 of the proposed turbines would be visible within east views from the asset, the contributing aspects of the asset's setting is local; the turbines would not detract from the focus along the east facing approach from the Roman road to the asset, nor its focus on the confluence of the water courses and views along them to the south. The sense of shelter provided by the surrounding

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
						upper slopes would also remain intact. The ability to understand, experience and appreciate the asset within its setting on the north bank of the river and key views would remain intact, and therefore it has been scoped out of further assessment.
SM13768	Acreknowe training trenches, Stobs Camp, 460m WNW, 560m WNW and 570m NNW of Acreknowe, Stobs	20th Century Military and Related: Pits, trenches (defensive)	42	6.2	East	The asset comprises training trenches associated with the First World War. The asset's setting comprises its proximity to Stobs Camp, of which the soldiers from the camp constructed the trenches for training purposes, set in a location to simulate a battle scene for practise but also far enough to not disturb the camp. Whilst there is no intervisibility between the asset and Stobs Camp, there is an intangible relationship between them. The potential visibility of the turbines would not effect this intangible relationship between the asset and Stobs Camp, nor would it distract from understanding, experiencing and appreciating the asset's position in relation to the camp. Therefore, it has been scoped out of further assessment.
SM13767	Stobs Camp, prisoner of war camp and cemetery, military training camp and trenches, Stobs	20th Century Military and Related: Prisoner of War (POW) Camp; Ecclesiasti	42	6.1	Southeast	The asset comprises the remains of a military training and a prisoner of war camp, still with apparent outlines of the concrete bases of buildings, indicative of its layout. The internee cemetery has been fully exhumed. A memorial monument now stands within the grounds of the cemetery. Its location likely derives from the availability and affordability of land at the time of its purchase in 1902. Barnes Burn would have provided the military camp with a provision of running water for utilities whilst the hill peaks at Winningtonrig and

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
		cal: burial ground, cemetery, graveyard				Barns Cottages would have provided the location of the camp some shelter from views. The ZTV analysis indicates that up to 42 of the proposed turbines would be visible within the southeast extent of the designated area, up the slopes toward Barns Cottages. Considering the distance, the turbines would be a minimal presence within these views. As outlined above, long distance views outward to the west do not make a contribution to the asset's setting. The ability to understand, experience and appreciate the asset within its localised setting would remain intact, and therefore it is scoped out of assessment.
SM13755	Stobs Camp rifle ranges, 650m W, 330m WNW and 450m SSE of White Knowe	20th Century Military and Related: Miscellaneous	42	5.8	Southeast	The asset comprises training rifle ranges built and used during the First World War in proximity to Stobs training camp (SM13767). It was built c. 130m to the south of the main camp, to prevent disturbance of the camp. The three main ranges utilise different terrain, with level, steep and cross-valley views being utilised and different distances. Whilst there is no intervisibility between the rifle ranges and the training camp, they have an intangible relationship, as the ranges were built for the military camp. Whilst the ZTV analysis indicates that up to 42 of the turbines would be visible whilst within the designated areas of these assets, the turbines are located within the periphery of the views along the ranges, and would not effect the ability to understand, experience and appreciate the assets, particularly the use of various terrain and distances along the ranges, and its relationship to the Stobs Camp.

Reference	Designation Title	Category	Turbines visible on ZTV	Distance to nearest turbine (km)	Direction from nearest turbine	Scoped in / out
SM13769	Blakebillend, tracked target range, 750m WNW and 570m and 740m NW of Penchrise Peel	20th Century Military and Related: Miscellaneous	0 - 2	8.6	Southeast	The asset comprises the remains of a Second World War firing range as part of the continued use of Stobs Camp military training area. Its setting comprises its intangible relationship to the Stobs Military complex, and attributes to the continued use and expansion of military training within these camps to the Second World War. The asset's setting derives from its chosen location, utilising a relatively flat landscape so that the training of tank gunnery can be conducted. The increased distance of the asset from Stobs Camp is also due to its use as a tank gunnery compared to the previous rifle range (13755) and training trenches (SM13768), so the level of noise would not impact the camp. Whilst the ZTV analysis indicates that up to two turbines would be visible from the asset, the turbines within northwest views from the asset wouldn't effect any contributing aspects of the setting; the reason for constructing the training located on the flat landscape and its appropriate distance from the Stobs Camp. Therefore, it has been scoped out of further assessment.

Appendix C Non-designated cultural heritage asset gazetteer

Environmental Impact Assessment Scoping Report

Mid Hill Wind Farm

Mid Hill Wind Farm

SLR Project No.: 405.065171.00001

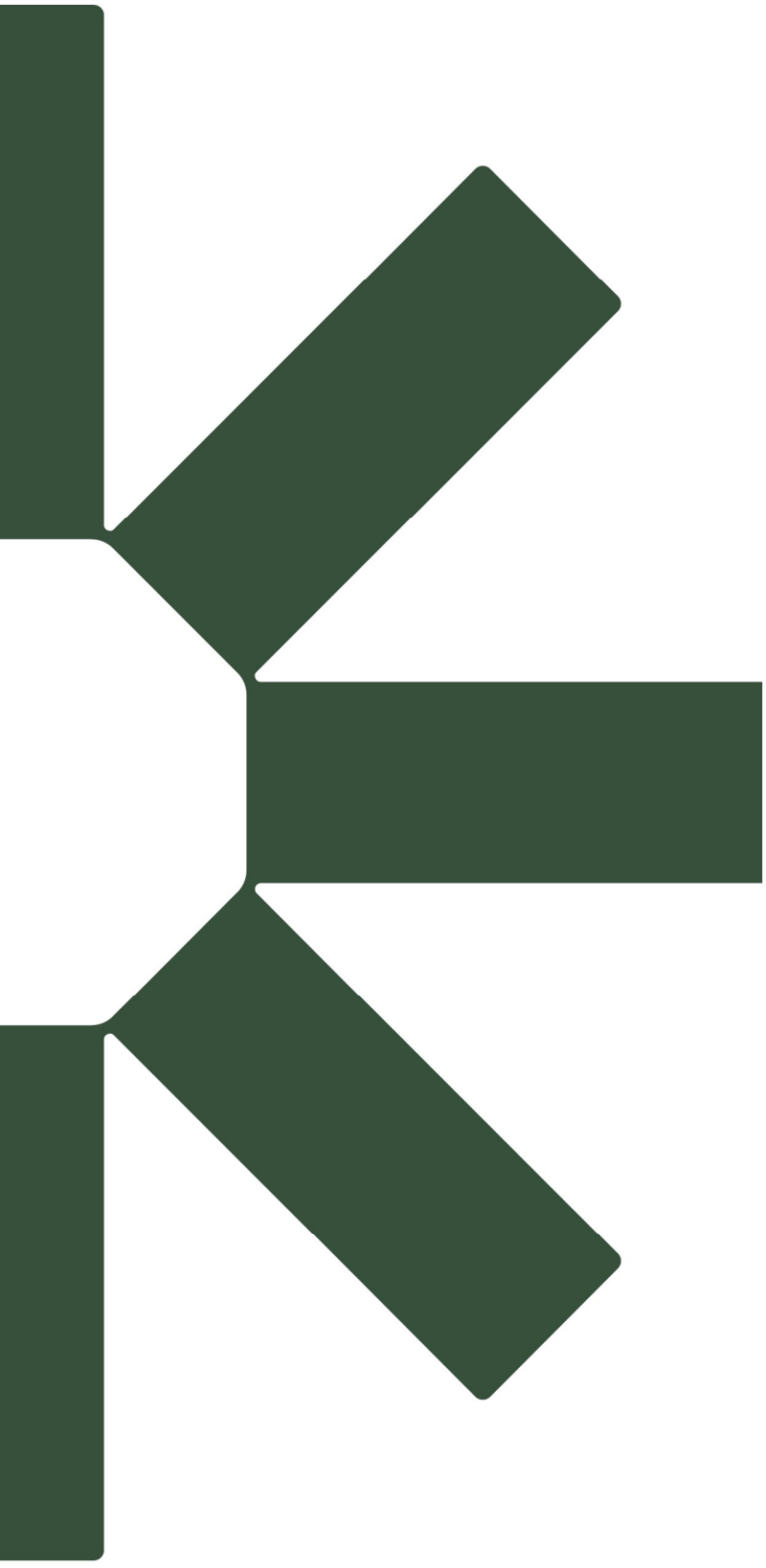
9 August 2024

SLR Number	Monument Name	Classification
SLR1	Hunt Law	Linear Earthwork (Period Unassigned)
SLR2	Teindside Hill	Fort (Period Unassigned)
SLR3	Broadlee	Cultivation Remains (Period Unassigned), Earthwork (Period Unassigned), Lazy Beds (Post Medieval)(Possible)
SLR4	Camp Burn	Findspot, Stone Ball (Stone), Worked Object (Stone)
SLR5	Dolly Rig	Cultivation Remains (Period Unassigned), Linear Earthwork (Period Unassigned)(Possible)
SLR6	Outerside Rig	Fort (Period Unassigned)
SLR7	Camp Burn	Building(S) (Medieval) - (Post Medieval), Earthwork (Medieval), Moated Site (Medieval)(Possible), Plantation Bank (19Th Century)
SLR8	Muselee Hill	Linear Earthwork (Period Unassigned)
SLR9	Birny Knowe	Linear Earthwork (Period Unassigned)
SLR10	Whitcastle Sike	Settlement (Period Unassigned)
SLR11	Whitcastle Sike	Carved Stone (Period Unassigned)
SLR12	Chapelhill	Chapel (Medieval)
SLR13	Burnfoot	Findspot, Polished Axehead (Stone)(Neolithic)
SLR14	Castle Hill	Earthwork (Period Unassigned)
SLR15	Milsington	Statue (Roman), Figurine (Bronze)(Roman)(Possible)
SLR16	Woodburn	Findspot, Disc (Stone)
SLR17	Meadowshaw	Settlement (Period Unassigned)
SLR18	Bald Hill	Enclosure (Period Unassigned)
SLR19	Elder Knowes	Earthwork (Period Unassigned)
SLR20	Crib Head	Linear Earthwork (Period Unassigned)
SLR21	Lairhope	Township (Period Unassigned)
SLR22	Caldron Hole	Linear Earthwork (Period Unassigned)
SLR23	Swanstead Hill	Carved Stone (Period Unassigned), Sundial (Period Unassigned)(Possible)
SLR24	Slaidhills	Farmstead (Period Unassigned), Tower House (Medieval)
SLR25	Slaidhill	Fort (Period Unassigned)
SLR26	Teindside Hill	Fort (Period Unassigned)
SLR27	Teviothead	Cairn(S) (Period Unknown)(Possible), Human Remains (Period Unknown)(Possible), Spearhead (Iron)

SLR Number	Monument Name	Classification
SLR28	Commonside	Findspot, Unidentified Flint(S) (Flint)
SLR29	Colterscleuch	Findspot, Unidentified Flint(S) (Flint), Worked Object (Stone)
SLR30	Milsington Hill	Earthwork (Period Unassigned)
SLR31	Torwood - Raeburnfoot - Newstead	Roman Road (Roman)
SLR32	Torwood - Raeburnfoot - Newstead	Roman Road (Roman)
SLR33	Meadshaw Rig	Linear Earthwork (Period Unassigned)
SLR34	Girnwood	Cultivation Remains (Period Unassigned)
SLR35	Teindside	Cord Rig (Prehistoric)(Possible), Enclosure (Period Unassigned)
SLR36	Torwood - Raeburnfoot - Newstead	Roman Road (Roman)
SLR37	Hoscote	Country House (Period Unassigned)
SLR38	Philhope	Enclosure(S) (Period Unassigned), Hut(S) (Period Unassigned), Rig And Furrow (Medieval) - (Post Medieval)
SLR39	Catrail	Linear Earthwork (Period Unassigned)
SLR40	Catrail	Linear Earthwork (Period Unassigned)
SLR41	Chisholme House	Country House (18Th Century)
SLR42	Colterscleuch Monument	Commemorative Monument (19Th Century)
SLR43	Deanburnhaugh, Joiner'S Shop	Joiners Shop (Period Unassigned)
SLR44	Elder Knowes	Building (Period Unassigned)
SLR45	Philhopeshiel Burn	Building (Period Unassigned), Sheepfold (Period Unassigned)
SLR46	Eildrig Burn	Building (Period Unassigned)
SLR47	Rough-Hope Burn	Field Boundary(S) (Period Unassigned)
SLR48	Teindside Burn	Building (Period Unassigned)
SLR49	Teviothead Cottage	Building (Period Unassigned), Enclosure(S) (Period Unassigned)

SLR Number	Monument Name	Classification
SLR50	Falnash Burn	Building (Period Unassigned), Enclosure (Period Unassigned)
SLR51	Shiel Sike	Building (Period Unassigned)
SLR52	Wood Burn	Field System (Period Unassigned)
SLR53	Chapelhill Covert	Farmstead (Period Unassigned)
SLR54	Teviothead	Smithy (Period Unassigned)
SLR55	Borthwickbrae Burn	Rig And Furrow (Medieval) - (Post Medieval)
SLR56	Bowanhill, Bowanhill Cottage	Cottage (19Th Century)
SLR57	Bowanhill, Museum And Crafts Centre	Museum (20Th Century), Smithy (19Th Century)
SLR58	Broadlee	Farmstead (Period Unassigned)
SLR59	Woodburn Farm	Farm (Period Unassigned)
SLR60	Hawick, Teviothead, Lairhope	Enclosure (19Th Century), Track (19Th Century)
SLR61	Hardwood Hill Plantation	Rig And Furrow (Medieval) - (Post Medieval)
SLR62	Catrail	Linear Earthwork (Period Unassigned)
SLR63	Colterscleugh	Enclosure (Period Unknown)
SLR64	Milsington	Horse Engine (Post Medieval)
SLR65	Harwood On Teviot	Trench (20Th Century)
SLR66	Todshaw Hill	Findspot, Brooch (Middle Iron Age)
SLR67	Milsington	Bastle (Medieval)(Possible), Tower House (Medieval)(Possible)
SLR68	Parkhead	Enclosure (Period Unknown)(Possible)
SLR69	Dryden Knowes	Linear Feature (Period Unknown)
SLR70	Dryden Knowes	Linear Earthwork (Period Unknown)
SLR71	Milsingtonshankfoot	Cottage (Modern)
SLR72	Birnyknowe To Borthwick Water	Road (Medieval)
SLR73	Chap.Hill And Borthwick W - Dryden	Road (Medieval)
SLR74	Deanburnhaugh - Northhopehaugh	Road (Post Medieval)

SLR Number	Monument Name	Classification
SLR75	Catrail	Boundary (Early Medieval)
SLR76	Chapel Hill To Dryden Fell	Road (Medieval)
SLR77	Borthwick Water	Stock Enclosure (Post Medieval)
SLR78	Limie Sike	Stock Enclosure (Post Medieval)
SLR79	Turf Hill	Stock Enclosure (Post Medieval)
SLR80	Eildrig Burn	Stock Enclosure (Post Medieval)
SLR81	Eildrig Burn	Stock Enclosure (Post Medieval)
SLR82	Eildrig Burn	Stock Enclosure (Post Medieval)
SLR83	Eildrig Burn	Stock Enclosure (Post Medieval)
SLR84	Milsington	Bastle (Medieval)
SLR85	Girnwood	Tower (Medieval)
SLR86	Main Drove Road	Road (Period Unassigned)
SLR87	Slaindhill	Road (Post Medieval)
SLR88	The Steel	Road (Post Medieval)
SLR89	Commonside	Stock Enclosure (Post Medieval)
SLR90	Slaidhills	Stock Enclosure (Post Medieval)
SLR91	White Hill	Stock Enclosure (Post Medieval)
SLR92	Slaidhills	Quarry (Post Medieval)
SLR93	Chap.Hill And Borth.Water-Dryden	Road (Medieval)
SLR94	Chap.Hill And Borth.Water-Dryden	Road (Medieval)
SLR95	Catrail	Linear Earthwork (Period Unassigned)
SLR96	Falnash	Stock Enclosure (Post Medieval)
SLR97	Birkiebrae Head	Stock Enclosure (Post Medieval)
SLR98	Todrig Burn	Sheepfold (Post Medieval)
SLR99	Todrig Burn	Sheepfold (Post Medieval)



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